5.3 Terrestrial Biological Resources

5.3.1 Introduction

This section describes the existing terrestrial biological resources of the project area and surrounding areas, and evaluates whether the development of the proposed desalination plant and related facilities would result in adverse effects to terrestrial and freshwater aquatic biological resources. Specifically, the evaluation focuses on project-specific design, construction, and operational details, and the proposed project's potential impact to sensitive or special-status species and wildlife movement. The effects of the project on marine biological resources are evaluated in **Section 5.2, Marine Biological Resources**.

The description of the existing setting and evaluation of impacts is based on field studies of the project area conducted in 2011 and 2012 to evaluate, assess, and map biological resources in the project area, including vegetation, surface waters, wetlands, special-status species, and any sensitive habitats. A more detailed description of the terrestrial biological resources of the project area is provided in **Appendix R, scwd² Regional Seawater Desalination Project Biotic Resources Survey Report**, which includes an analysis of regionally occurring special-status species and their potential to occur in the project area; a list of wildlife observed during the biological surveys; a list of vascular plants observed during floristic-level rare plant surveys; and representative photos of the project area and study area. A habitat assessment was also conducted throughout the project area to determine if any portions function as winter roosting sites or overwintering habitat for the Monarch butterfly (**Appendix S, Desalination Project for the City of Santa Cruz and Soquel Creek Water District Report on Habitat Assessment for Overwintering Monarch Butterflies**). A biotic assessment of a portion of the project area undertaken in 2009 and updated in 2011 is referenced herein (John Gilchrist & Associates, 2011). Lastly, information in this section is also derived from Section 5.4, Biological Resources of the *Integrated Water Plan Program Environmental Impact Report* (IWP Program EIR) (City, 2005a), as well as from other references, as cited throughout this section[1].

Public and agency comments related to terrestrial biological resources were received during the public scoping period in response to the Notice of Preparation, and are summarized below.

- Analyze positive effects on surface water bodies by operating the plant year-round.
- Discuss the project's consistency with the City's pending habitat conservation planning and general plan policies.

[1] Referenced documents in this EIR are available for review at the City of Santa Cruz Water Department offices at 212 Locust Street, Suite D, Santa Cruz, California 95060, Monday through Thursday 8:00 a.m. to Noon and 1:00 p.m. to 5:00 p.m., except holidays. Likewise, these documents are available for review at the Soquel Creek Water District offices at 5180 Soquel Drive, Soquel, CA 95073, Monday through Friday 8:00 a.m. to Noon and 1:00 p.m. to 5:00 p.m., except holidays.

- Discuss impacts on special-status species and their habitats that would occur during construction and operation of the project.
- Conduct a wetland delineation of proposed sites.
- Address impacts on wildlife corridors and connection to the University of Santa Cruz's (UCSC's) Marine Science Campus development.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA), and/or were raised by responsible or trustee agencies, they are identified and addressed within this EIR. Please note that Area B (Antonelli Pond) and Area C (Terrace Point/UCSC Marine Science Campus) are no longer being considered for the proposed project (see **Section 4, Project Description, Figure 4-4, Desalination Plant Site Alternatives**). Therefore, impacts on wildlife corridors between Moore Creek and Younger Lagoon, and the project's relationship with UCSC Marine Science Campus are not addressed in this section. For a complete list of public comments received during the public scoping period, refer to **Appendix A, Scoping Report City of Santa Cruz and Soquel Creek Water District (scwd²) Regional Seawater Desalination Project**.

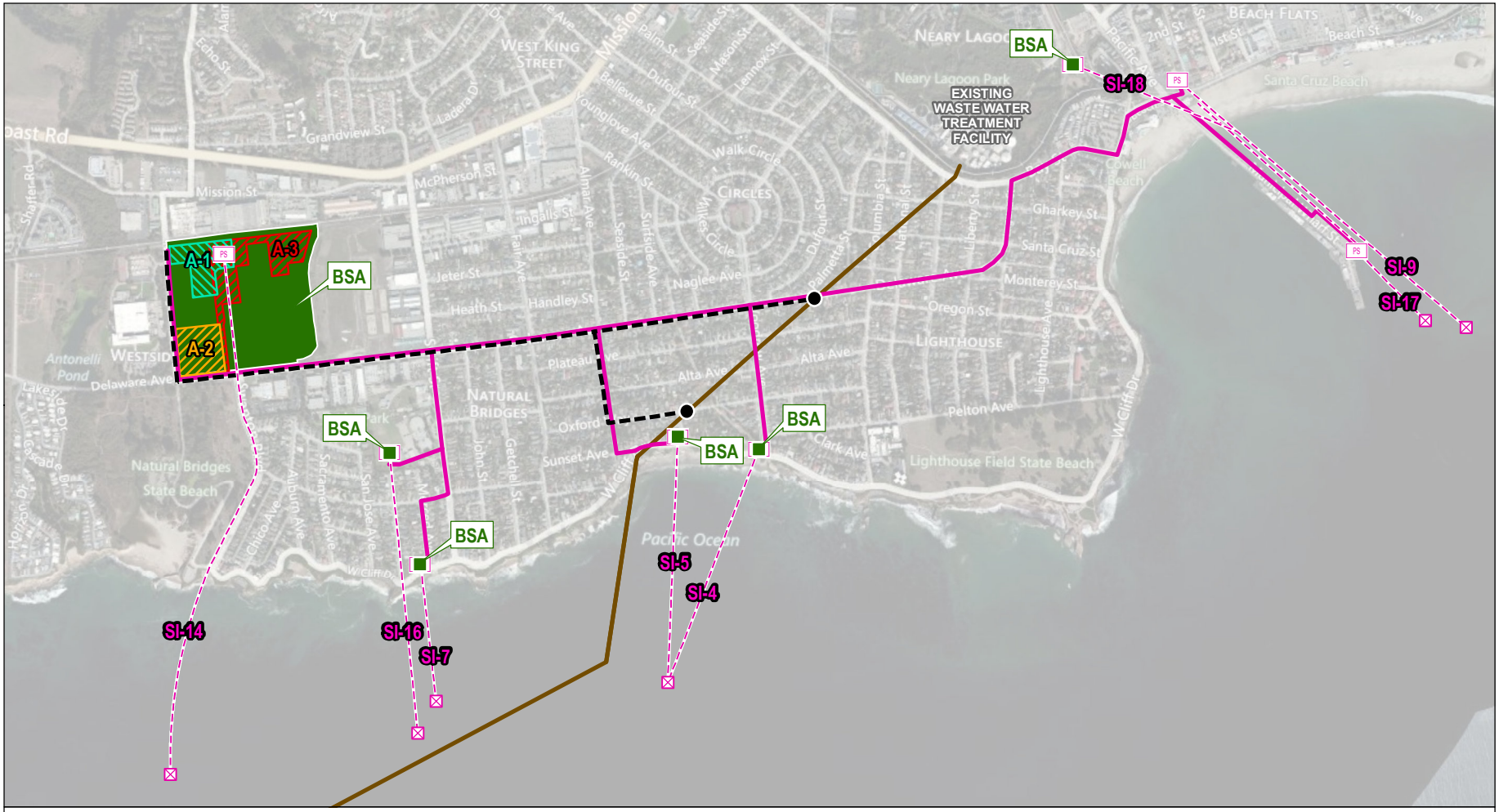
5.3.2 Environmental Setting

Regional Setting

The project is in the western portion of central California, in the region known as cismontane California, within the ecological sub-region known as the Central California Coast Ranges. This region, in particular, is synonymous with the central coast described in the Jepson Manual (Baldwin, et al., 2012). From west to east, the project area includes portions of the *Santa Cruz* and *Soquel* U.S. Geological Survey (USGS) 7.5-minute quadrangles. The proposed desalination project and its various components would be located in the City of Santa Cruz (City), unincorporated Santa Cruz County (County), City of Capitola (Capitola), and offshore in the Pacific Ocean.

Project Area Setting

The project area is defined as the area where temporary or permanent effects may occur due to project-related activities, including construction areas, stockpile areas, laydown areas, and other staging areas. The terrestrial biological study area (study area) is a larger area where all resource investigations and surveys were conducted, which includes the project area (see **Figure 5.3-1a, Biological Study Area – Desalination System Area**; and **Figure 5.3-1b, Biological Study Area – City-District Intertie System Area**). In portions of the project area that occur in paved roadways or other developed areas, the project area is synonymous with the biological study area. The study area is larger than the project area in the undeveloped portions of the project area where soils and vegetation are present. The study area was centered on the proposed project facilities and pipeline corridors.



City of Santa Cruz and Soquel Creek Water District
scwd² Regional Seawater Desalination Project

Figure 5.3-1a
Biological Study Area - Desalination System Area

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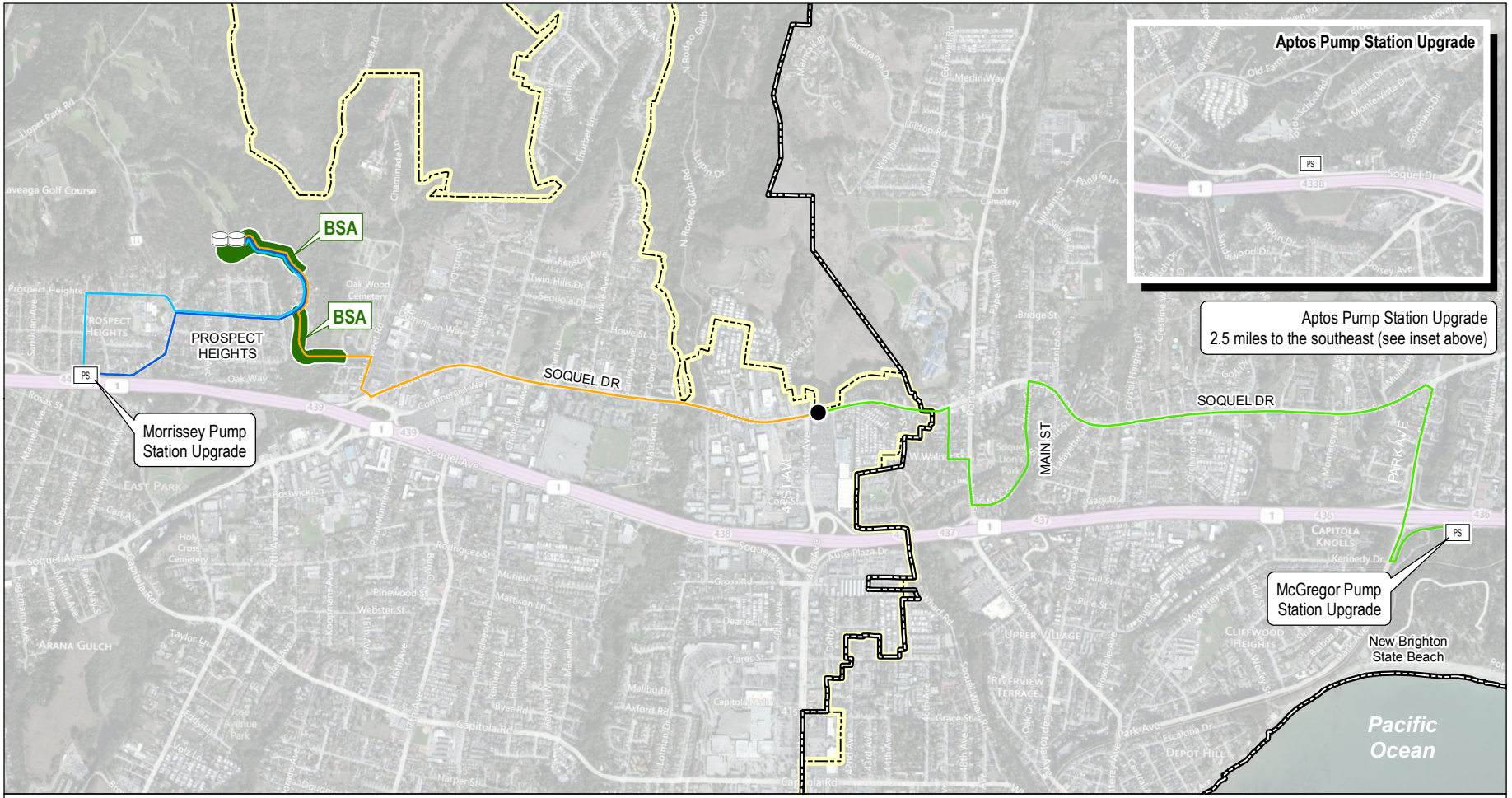

City of Santa Cruz and Soquel Creek Water District
scwd² Regional Seawater Desalination Project

Figure 5.3-1b
Biological Study Area - City-District Intertie System Area

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The study area is in a Mediterranean climate, which is characterized by warm, dry summers and mild, wet winters. The study area is coastal, and the climate is modified by marine influences. Elevations range from sea level to approximately 250 feet above mean sea level in the project area. Average annual precipitation in Santa Cruz is approximately 30 inches (WRCC, 2011). Mean annual temperatures are between 44 to 69 degrees Fahrenheit (ºF). In the project area, the growing season is year round.

The study area occurs primarily on coastal terraces in developed industrial, residential, and commercial areas; and on the paved streets and bridges of the City, County, and Capitola. Portions of the study area have natural or naturalized vegetation, and include a coastal terrace that functions as an industrial park, and a dirt road that traverses a forested hillside near the DeLaveaga water storage tanks.

Soils

Soil types occurring in the unpaved and undeveloped portions of the study area were reviewed to determine whether soil types have wetland characteristics. The soil types consist of Bonny Doon loam (5 to 30 percent slopes), Elkhorn sandy loam (0 to 2 percent slopes), Lompico-Felton complex (50 to 75 percent slopes), Nisene-Aptos complex (50 to 75 percent slopes), and Watsonville loam, thick surface (0 to 2 percent slopes). With the exception of the Watsonville loam, all of these soils are well drained. None of these soils types are listed as hydric soils in California (USDA-NRCS 1996). See **Section 5.7, Geology and Soils** and **Appendix R** for additional information about soil types.

Hydrology

The study area includes a number of drainages and creeks. Alternative Plant Site A-2 includes an unnamed ephemeral drainage on the western side of this site. This ephemeral drainage flows under Delaware Avenue and into Natural Bridges Creek, which flows through Natural Bridges State Beach (NBSB). Alternative Plant Site A-3 is immediate west and adjacent to the realigned Arroyo Seco Creek (see **Figure 5.3-2, Biological Resources – Desalination Plant Site Alternatives)**. The SI-4 pump station alternative near Woodrow Avenue is east of and adjacent to the small urbanized channel of Bethany Creek. The SI-18 pump station alternative near Depot Park is north and east of the Neary Lagoon outlet channel, to direct excess stormwater from Neary Lagoon to the outlet on Cowell's Beach (see **Figure 5.3-3 Biological Resources – Intake Pump Station Site Alternatives)**.

Creek setbacks have been established and adopted for each of the creeks or drainages noted above in the *City-Wide Creek and Wetlands Management Plan* (City, 2008a). Additionally, setbacks for the unnamed drainage on Plant Site A-2 have been more recently established and adopted, based on a study conducted in accordance with the methodology established by the City in the above document (John Gilchrist & Associates, 2011). Creek setbacks applicable to the desalination system area are identified in **Table 5.3-1, Creek Setbacks** and illustrated in **Figure**

5.3-2 and **Figure 5.3-3.** See **Section 5.3.4, Regulatory Framework** for a discussion of the City's adopted Local Coastal Program (LCP), which incorporates the City's Creek and Wetlands Management Plan identified above.

Table 5.3-1. Creek Setbacks in Project Area

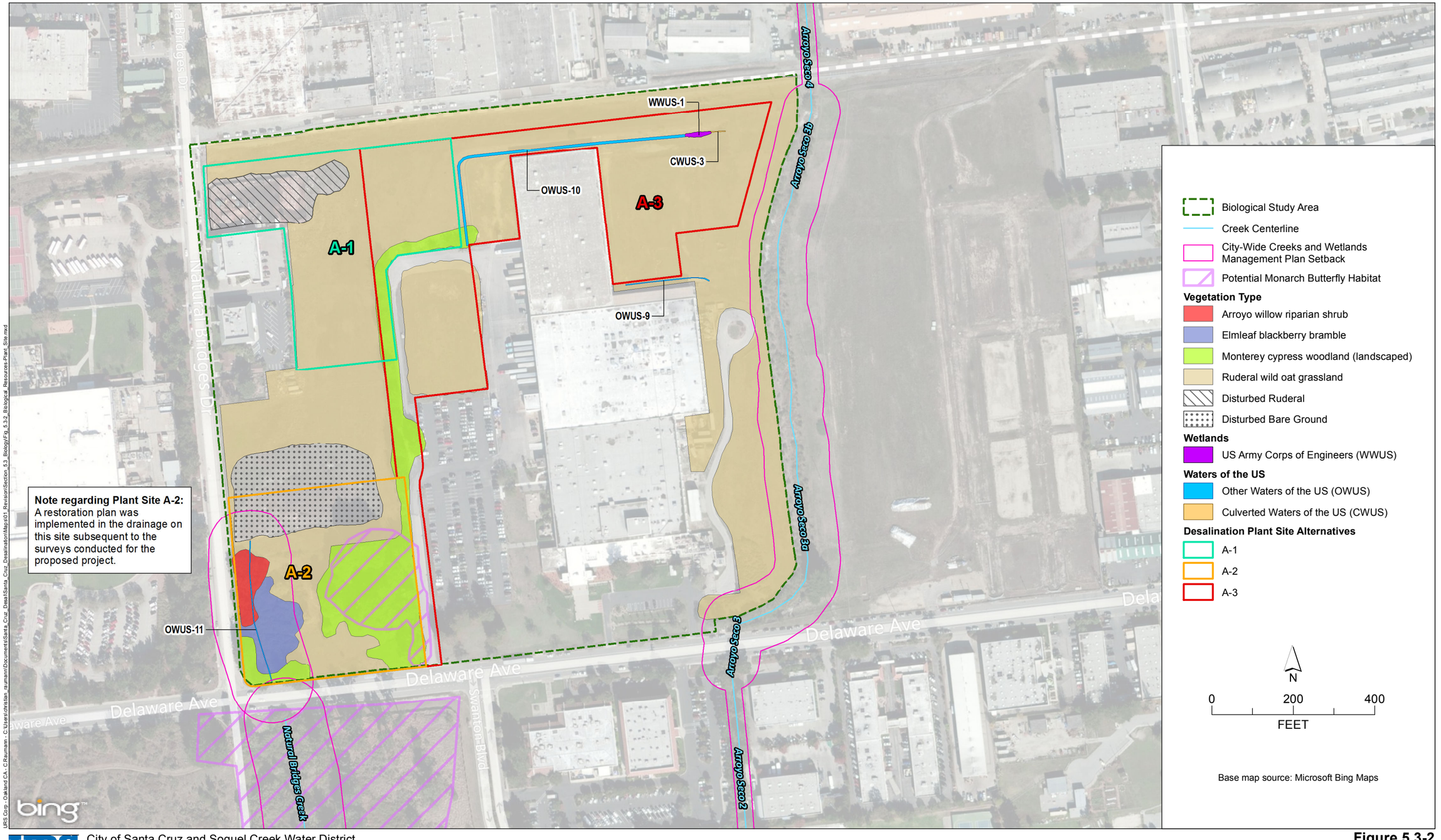
Watercourse Name	Category (A, B, C)[1]	Riparian Corridor	Development Setback	Management Area	Project Component
		(In feet, measures outward from centerline of watercourse)			
Arroyo Seco 3a[2]	A	30	80	95	Adjacent to Plant Site A-3
Arroyo Seco 3b[2]	A	50	70	95	Adjacent to Plant Site A-3
Unnamed Drainage	B	40	60	85	On Plant Site A-2
Bethany Creek 1[2]	B	20	30	55	Adjacent to SI-4
Neary Lagoon Outlet Channel	Subject to Neary Lagoon Management Plan – 100-foot setback is assumed[3]				Adjacent to SI-18
Arana Creek 1c[2]	A	100	130	155	City-District Intertie Brookwood Drive alignment at creek crossing
Arana Creek 1d[2]	B	40	60	85	City-District Intertie alignment in Brookwood Drive

Sources: City of Santa Cruz, 2008a. City-wide Creeks and Wetlands Management Plan; John Gilchrist & Associates, 2011. Biotic Assessment for Property at Natural Bridges Drive and Delaware Avenue.

Notes:

1. The category of watercourse is provided and defined in the City-Wide Creeks and Wetlands Management Plan. Category "A" includes watercourses that support high quality riparian habitat with a vegetated corridor that is continuous and with few gaps. Category "B" includes watercourses that are in urban areas and that function primarily as a drainage system. Category "C" includes drainage channels that are concrete or manmade, and above or below ground culverts, with very low to no habitat value.
2. Watercourse names are as provided in the City-Wide Creeks and Wetlands Management Plan.
3. The Neary Lagoon Management Plan does not provide wetland or watercourse setbacks. Therefore, a 100-foot setback is assumed per the City Local Coastal Program policy EQ 4.4.2. See Section 5.3.3, Regulatory Framework, for policy details.

The intertie pipeline alignment location between the City and District service areas crosses three larger creeks. The pipeline alignment location from the Morrissey Pump Station to the DeLaveaga water storage tanks crosses one culverted ephemeral drainage along a dirt access road off of Brookwood Drive, near the tanks. The pipeline alignment location from the DeLaveaga water storage tanks to the City-District intertie location crosses Arana Creek, a perennial stream, at the Brookwood Drive crossing. This pipeline alignment also crosses the perennial streams of Rodeo Gulch, Soquel Creek, and Noble Gulch, on existing bridges over these watercourses. Creek setbacks have been established and adopted for Arana Creek in the City-Wide Creek and Wetlands Management Plan (City, 2008a), as shown in **Figure 5.3-4, Biological Resources – City-District Intertie System Area**.



City of Santa Cruz and Soquel Creek Water District
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Figure 5.3-2
Biological Resources - Desalination Plant Site Alternatives

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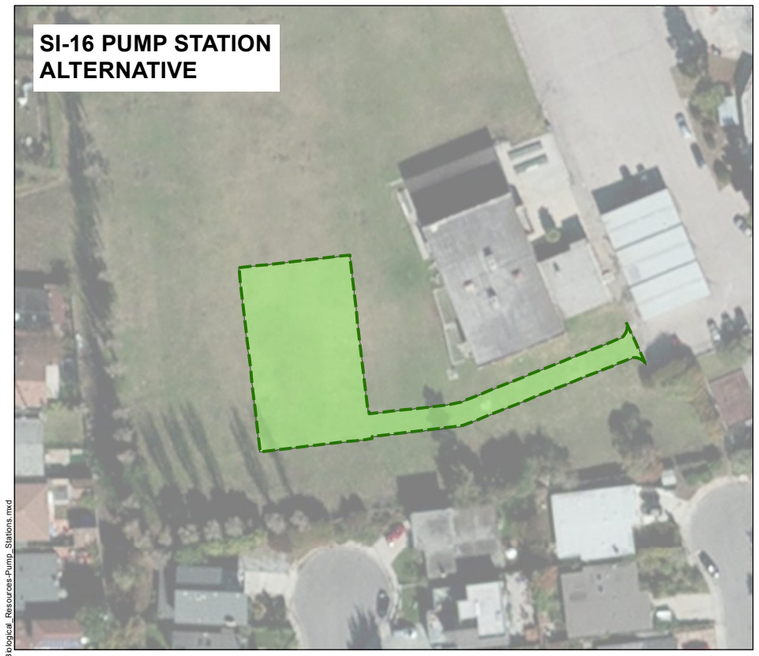
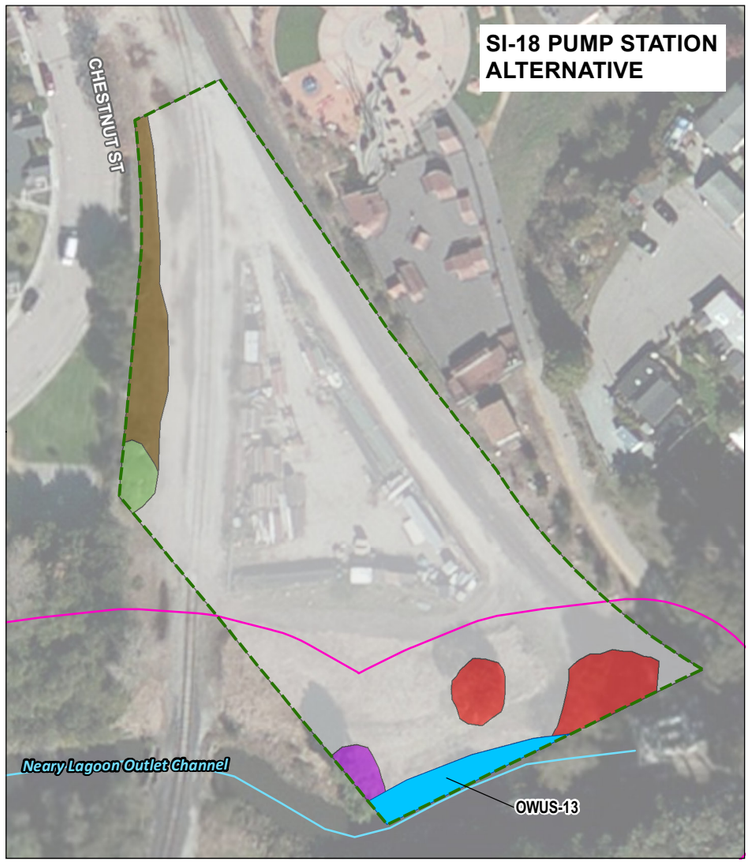




Biological Study Area (BSA)
Creek Centerline
City-Wide Creeks and Wetlands Management Plan Setback
Other Waters of the US (OWUS)

Vegetation Type

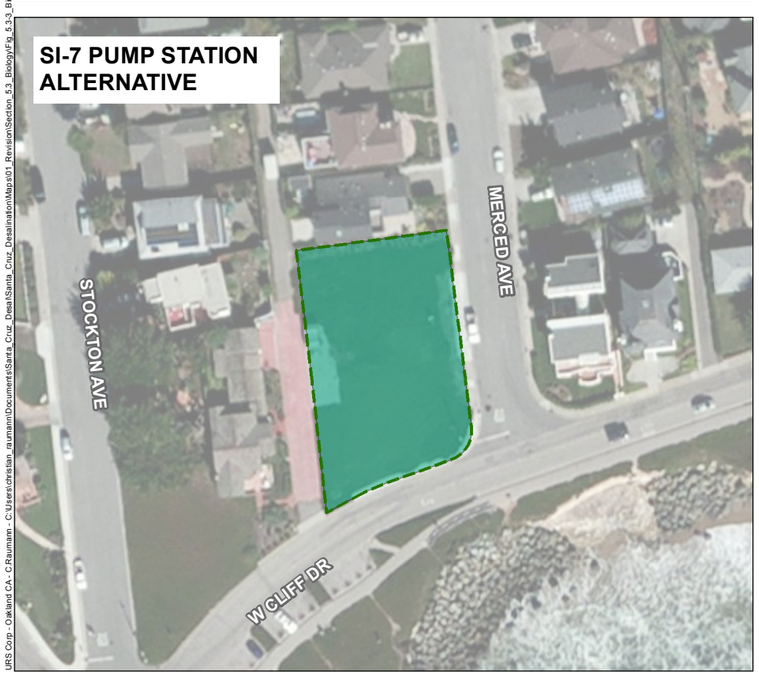
- Arroyo willow riparian shrubland
- Coast live oak woodland
- Disturbed/Ruderal
- Iceplant (landscaped)
- Recreational field
- Ruderal annual grassland
- Ruderal wild oat grassland
- Silver wattle woodland

NOTE: BSAs were not mapped for SI-9 and S-17 as no biological resources were present

N

0 100 200
FEET

Base map source: Microsoft Bing Maps



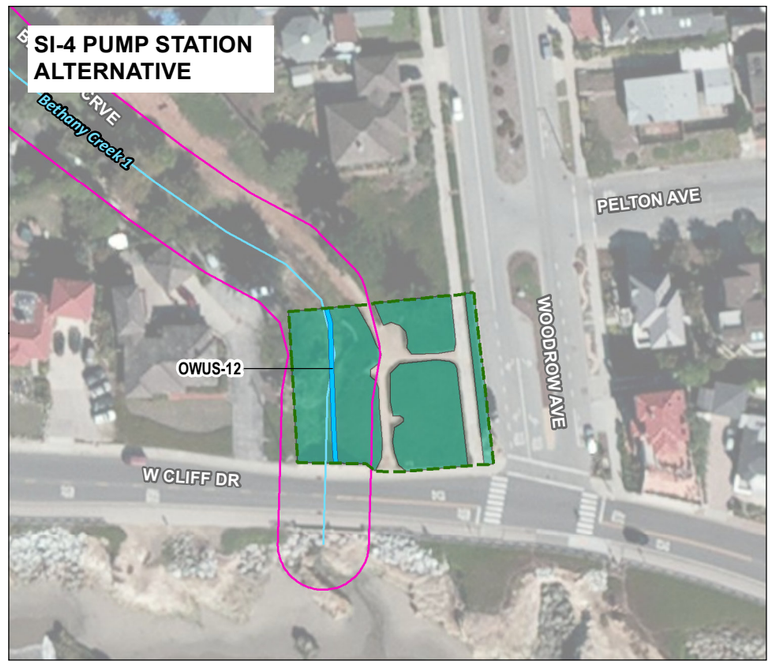


Figure 5.3-3
Biological Resources - Intake Pump Station Site Alternatives

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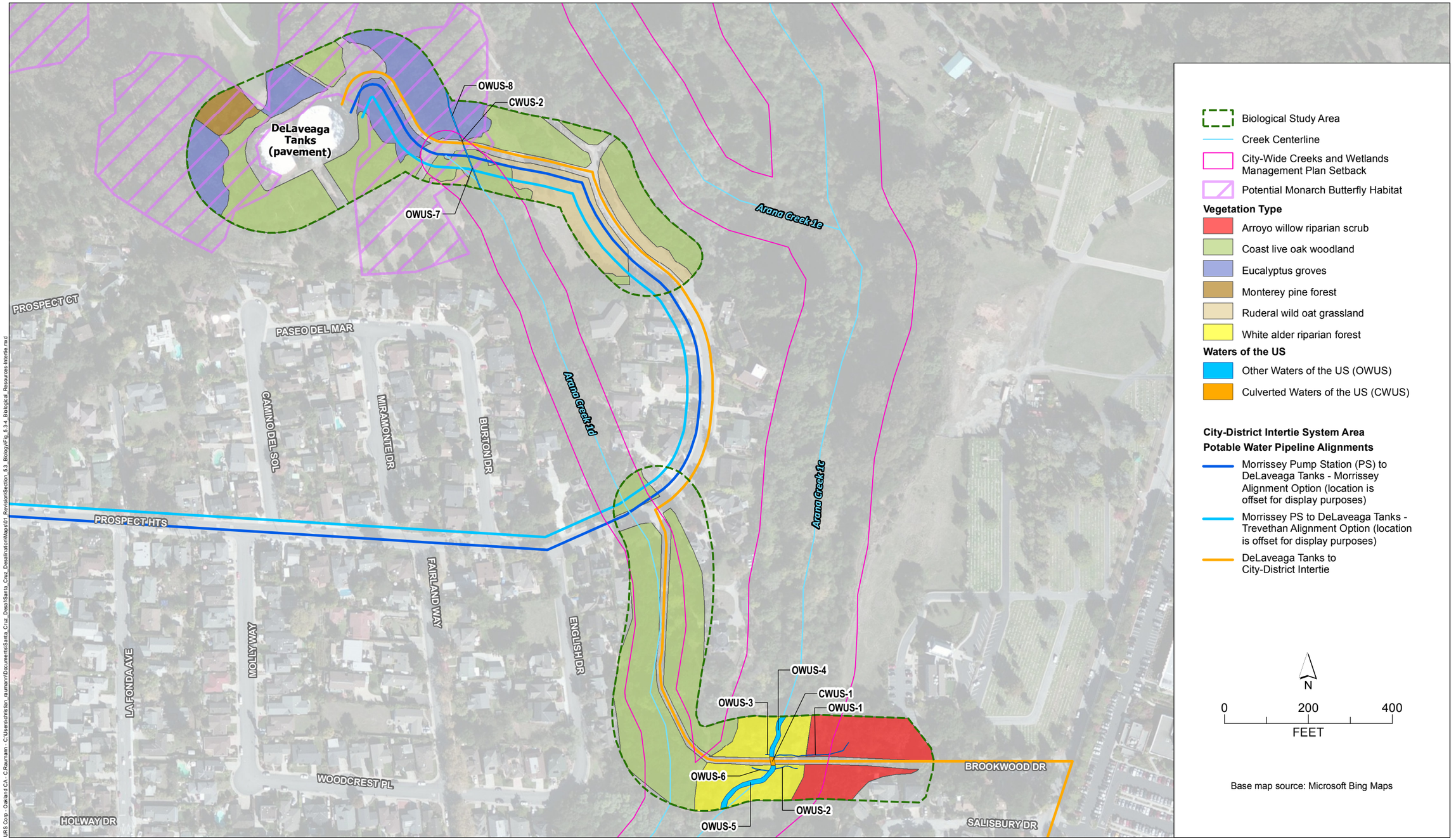

URS Corp - Oakland CA - C:\Users\christian_raumann\Documents\Santa_Cruz_Desal\Santa_Cruz_Desalination\Maps\01 Revision\Section_5.3_Biology\Fig_5.3-4_Biological_Resources-Intertie.mxd

City of Santa Cruz and Soquel Creek Water District
scwd² Regional Seawater Desalination Project

Figure 5.3-4
Biological Resources - City-District Intertie System Area

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Vegetation

Vegetation communities are assemblages of plant species defined by species composition and relative abundance, which occur together in the same area. These natural communities are based on the classification as presented in *A Manual of California Vegetation* (Sawyer et al., 2009). Botanical nomenclature follows *The Jepson Manual* (Baldwin, et al., 2012). A brief description of these communities and their location in the study area are provided below. Plant communities for the portions of the study area where vegetation occurs are shown on **Figure 5.3-2, Figure 5.3-3,** and **Figure 5.3-4**. Other portions of the study area occur on paved public roads or in existing developed areas.

Nine plant communities were observed in or immediately adjacent to the study area. These communities consist of primarily non-native or landscaped vegetation, including blue gum Eucalyptus groves, a landscaped Monterey cypress wood lot, landscaped Monterey pine forest, iceplant, and a ruderal form of wild oat annual grassland. Native vegetation in the study area includes limited coast live oak woodland and one stand of arroyo willow riparian scrub. Other areas observed include developed areas such as landscaped, commercial, residential, and industrial areas.

Grassland and Herbaceous

Iceplant (Landscaped)

The SI-4 and SI-7 pump station site alternatives are dominated by non-native landscaped groundcover in the form of iceplant (*Carporbrotus edulis*). Few other plants are associated with these areas, but pampas grass (*Cortaderia jubata*), an invasive species, and a single landscaped Monterey cypress also occur at the SI-4 pump station alternative.

Wild oat grassland (ruderal)

A ruderal annual grassland type dominated by slender wild oat (*Avena barbata*) occurs in portions of the study area, including a significant portion of Area A, an industrial area near Natural Bridges Drive, and Delaware Avenue, which is where Plant Sites A-1, A-2, and A-3 are located. Other associated annual non-native grasses and forbs include ripgut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), rattlesnake grass (*Briza maxima*), rattail sixweeks grass (*Festuca myuros*), narrowleaf crimson clover (*Trifolium angustifolium*), English plantain (*Plantago lanceolata*), and small-flowered flax (*Linum bienne*). These grasslands occur primarily on previously disturbed commercial and industrial properties that lack a significant component of native plants or a native seedbank.

Disturbed/Ruderal

Previously disturbed and graded areas, dominated by non-native herbaceous species that readily establish in disturbed and compacted soils, occur in portions of the study area. The areas are

dominated by non-native species, including English plantain, filaree species (*Erodium* spp.), bristly ox-tongue (*Helminthotheca echioides*), Italian thistle (*Carduus pycnocephalus*), and prostrate knotweed (*Polygonum aviculare* ssp. *depressum*). These areas lack a significant native plant component.

Woodland

Coast Live Oak Woodland

Oak woodlands dominated by coast live oak (*Quercus agrifolia*) occur in limited portions of the study area, including along the pipeline alignment from Brookwood Drive to the DeLaveaga tanks. These oak trees have a diameter at breast height (dbh) of 8 to 14 inches, with one large oak tree just below the tank site having a 36-inch dbh. Shrub layers in these woodlands are moderate to heavy, and include non-native shrubs such as firethorn (*Pyracantha angustifolia*), cotoneaster (*Cotoneaster pannosus*), French broom (*Genista monspessulana*), and natives such as Pacific poison oak (*Toxicodendron diversilobum*). Herb layers are absent to moderate, and include invasive non-natives such as poison hemlock (*Conium maculatum*) and sticky snakeroot (*Ageratina adenophora*), and annual grasses such as wild oat.Wildlife associated with these woodland habitats are diverse, and include San Francisco dusky footed woodrat (*Neotomas fuscipes annectens*), western gray squirrels (*Sciurus griseus*), California quail (*Callipepla californica*), and dark-eyed juncos (*Junco hyemalis*).

Monterey Cypress Woodland (Landscaped)

A wood lot dominated by planted Monterey cypress (*Hesperocyparis macrocarpus*) occurs in the study area at Plant Site A-2 near Delaware Avenue and the entrance road to the Harmony Foods complex, on Plant Site A-3. Approximately 33 larger trees range in size from about 14- to 60-inch dbh, with most in the 20-inch to 30-inch range, and are dominated by non-natives (Barrie D. Coate and Associates, 2004; Joni L. Janecki & Associates, 2012). A row of smaller trees is along an existing entrance road on Plant Site A-3.

Forest

Eucalyptus Groves

Non-native groves, dominated by blue gum (*Eucalyptus globulus*), occur near the existing DeLaveaga tanks and along the pipeline alignment from Brookwood Drive to the DeLaveaga tanks. Other associated species include landscaped and escaped silver wattle (*Acacia dealbata*), Monterey pine (*Pinus radiata*) and a non-native elm (*Ulmus minor*).

Monterey Pine Forest (Landscaped)

Non-native forests dominated by landscaped and escaped Monterey pine trees occur just northwest of the DeLaveaga tanks in the study area. Associated shrub species are predominantly non-native and include cotoneaster and French broom. Native shrubs such as coyote brush

(*Baccharis pilularis*), poison oak, and toyon (*Heteromeles arbutifolia*) also occur in places. Herbaceous layers, when present, are composed of predominantly non-native species.

Riparian Communities

Arroyo Willow Riparian Shrubland

One stand of willow riparian scrub dominated by arroyo willow (*Salix lasiolepis*) occurs in the western portion of Plant Site A-2, in the unnamed ephemeral drainage near Natural Bridges Drive and Delaware Avenue. At the time of the biological surveys conducted for this project, this drainage was characterized as a degraded riparian area that receives seasonal flow from the adjacent industrial park fields to the north. Since that time, a riparian restoration plan was implemented along the drainage, as part of a separate project. Arroyo willow riparian scrub also occurs adjacent to the pump station site for SI-18 within and adjacent to the Nearly Lagoon outlet channel, and adjacent to the pipeline alignment from the DeLaveaga water storage tanks to the City-District intertie location, proposed along portions of Brookwood Drive, just east of Arana Creek.

Willow riparian stands in the Santa Cruz region provide habitat for numerous wildlife species, including birds such as Wilson's warbler (*Wilsonia pusilla*), Anna's hummingbird (*Calypte anna*), vireos, and California thrasher (*Toxostoma redivivum*). These areas also provide potential foraging habitat for amphibians and reptiles, including western pond turtles (*Emys marmorata*), California red-legged frog *(Rana draytonii*), and garter snakes (*Thamnophis* spp.).

White Alder Riparian Forest

A riparian forest corridor dominated by white alder occurs along the immediate banks of the main (or eastern) branch of Arana Creek at the Brookwood Drive crossing, along the pipeline alignment from the DeLaveaga water storage tanks to the City-District intertie. Associated canopy trees include coast live oak and arroyo willow; and understory species include natives such as California blackberry (*Rubus ursinus)*, and non-natives such as Himalayan blackberry (*Rubus armeniacus*) and Cape ivy (*Delairea odorata*).

Riparian forests provides habitat for many wintering and migrating birds, including ruby-crowned kinglets (*Regulus calendula*), white-crowned sparrows (*Zonotrichia leucophrys*), and Cooper's hawk (*Accipiter cooperii*). Other wildlife associated with these areas includes San Francisco dusky footed woodrat, raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), Pacific chorus frog (*Pseudoacris regilla*), California slender salamander (*Batrachoseps attenuatus*), and garter snakes.

Developed Land

Developed lands can be identified by the presence of structures, roads, parking lots, fence lines, residential yards, and other landscaping. Developed land in the study area includes paved public

roads in the City, County, and Capitola, where the pipeline alignments are located. Other developed land includes a blend of industrial, commercial, and residential development. The majority of the proposed pipeline alignment locations, pump stations locations, and other proposed facilities are in developed areas; primarily on paved public roads.

Waters and Wetlands

This section contains the results of a delineation of wetlands and other waters of the U.S. that occur in the study area of the proposed project, and a description of the water features in the study area that may be subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the federal Clean Water Act 1977 (33 United States Code [USC] Section 1344 [2007]). The delineation was conducted according to the guidelines of the USACE as described in **Appendix R**. This section also describes and quantifies waters of the state that occur in or near the study area. Waters of the state are largely synonymous with waters of the U.S., except for certain cases where particular features are not under the jurisdiction of the USACE, but would be regulated by the Regional Water Quality Control Board (RWQCB).

Potential wetlands and other waters of the U.S. (collectively termed waters of the U.S.) that occur in or near the study area are presented in **Table 5.3-2, Potential Waters and Wetlands in the Study Area**. This table presents the acreages of potentially jurisdictional features in the study area and correlates to feature labels provided in **Figures 5.3-2** through **5.3-4**. Only the features that could potentially be subject to fill or disturbance were delineated. Names for drainage and stream features correlate to names used for the features in the City-wide Creeks and Wetlands Management Plan, if included in that plan (City, 2008a).

Potential Other Waters of the U.S.

Potential Other Waters of the U.S. in the study area are described in detail in **Table 5.3-2**. In Area A, where the alternative plant sites are located, these waters include culverted and unculverted ephemeral drainages on Plant Sites A-2 and A-3, as shown in **Figure 5.3-2**. Specifically, on Plant Site A-3, a drainage feature (CWUS-3 and OWUS-10) exists north of the Harmony Building. This drainage flows to a storm drain culvert that passes under the parking lot to the west of the Harmony Building, and drains to Natural Bridges Creek. Additionally, on Plant Site A-2, an ephemeral drainage feature (OWUS-11) exists on the western side of these sites that drains uplands in the industrial park area to the north; and flows through a broad swale before draining under Delaware Avenue to Natural Bridges Creek. A concrete stormwater ditch (OWUS-9) on the southern side of Plant Site A-3 receives surface flows from dirt swales on the eastern side of the Harmony Foods building, and drains through a stormwater culvert to Arroyo Seco.

A channelized perennial stream known as Bethany Creek (OWUS-12), is immediately west of the SI-4 pump station alternative site. It flows through a culvert under West Cliff Drive to the Pacific Ocean.

Table 5.3-2. Potential Waters and Wetlands in the Study Area

Feature Type and Label	Length (feet)	Square Feet	Delineated Acres	Figure Location
Other Waters of the U.S. and/or Waters of the State				
Culverted Perennial Stream CWUS-1 (Arana Creek 1c[1] at Brookwood Drive crossing). This culverted perennial stream passes under Brookwood Drive and is the eastern branch of Arana Creek (Arana Creek 1c).	21	214	0.005	5.3-4
Culverted Ephemeral Drainage CWUS-2 (draining to Arana Creek 1d[1] at Brookwood Drive crossing). This culverted ephemeral drainage passes under Brookwood Drive at the paved access road to the DeLaveaga Tanks, and drains to OWUS-7 (Arana Creek 1d).	19	20	<0.001	5.3-4
Culverted Ephemeral Drainage CWUS-3 (drains swale to WWUS-1). This plastic stormwater culvert drains a shallow grassy swale near the upper historic floodplain of Arroyo Seco.	37	71	0.002	5.3-2
Ephemeral Drainage OWUS-1 (Ephemeral Drainage to Arana Creek 1c[1]). This ephemeral drainage is a roadside ditch on the northeast side of Brookwood Drive that drains to the eastern branch of Arana Creek (Arana Creek 1c).	192	219	0.005	5.3-4
Ephemeral Drainage OWUS-2 (Roadside Ditch to Arana Creek 1c[1]). This ephemeral drainage is a roadside ditch on the southeast side of Brookwood Drive that drains to the eastern branch of Arana Creek (Arana Creek 1c).	58	56	0.001	5.3-4
Ephemeral Drainage OWUS-3 (Roadside Ditch to Arana Creek 1c[1]). This ephemeral drainage is a roadside ditch on the northwest side of Brookwood Drive that drains to the eastern branch of Arana Creek (Arana Creek 1c).	10	10	<0.001	5.3-4
Perennial stream OWUS-4 (Arana Creek 1c[1]). The portion of Arana Creek immediately upstream of CWUS-1.	107	1,072	0.025	5.3-4
Perennial stream OWUS-5 (Arana Creek 1c[1]). The portion of Arana Creek 1c immediately downstream of CWUS-1.	170	1,826	0.042	5.3-4
Ephemeral Drainage OWUS-6 (Roadside Ditch to Arana Creek 1c1). This ephemeral drainage is a short section of roadside ditch on the southwest side of Brookwood Drive that drains to the eastern branch of Arana Creek (Arana Creek 1c).	42	71	0.002	5.3-4
Ephemeral drainage OWUS-7 (Arana Creek 1d[1]). This ephemeral drainage drains CWUS-2 just south of Brookwood Drive near the paved access road to the DeLaveaga Tanks and drains to the eastern branch of Arana Creek (Arana Creek 1c).	117	291	0.007	5.3-4
Ephemeral drainage OWUS-8 (Arana Creek 1d[1]). This ephemeral drainage drains to CWUS-2 from the forested slopes north of Brookwood Drive near the paved access road to the DeLaveaga Tanks.	125	313	0.007	5.3-4

Table 5.3-2. Potential Waters and Wetlands in the Study Area

Feature Type and Label	Length (feet)	Square Feet	Delineated Acres	Figure Location
Ephemeral Drainage OWUS-9 (ditch flowing to stormwater culvert to creek). This concrete stormwater ditch receives surface flows from uplands and swales near the north side of the Harmony Foods building, and drains through a culvert under the building to the west, before draining to Natural Bridges Creek.	208	414	0.010	5.3-2
Ephemeral Drainage OWUS-10 (concrete ditch draining WWUS-1 to stormwater culvert under parking lot to Arroyo Seco or Natural Bridges Creek). This concrete drainage ditch receives flows from WWUS-1 and drains around the perimeter of the Harmony Foods Building before entering a culvert that drains to Natural Bridges Creek.	770	4,589	0.105	5.3-2
Ephemeral Drainage OWUS-11 (drains to culvert under Delaware Avenue to Natural Bridges Creek). This ephemeral drainage drains uplands in Area A and flows through a broad swale with arroyo willow and elm leaf blackberry bramble before draining under Delaware Avenue through a culvert. A restoration plan was implemented in this drainage subsequent to the surveys conducted for the proposed project.	552	1,102	0.025	5.3-2
Perennial Stream OWUS-12 (Bethany Creek). This channelized urban stream is near Woodrow Avenue and West Cliff Drive and just west of the alternative pump station location at SI-4. It flows through a culvert under West Cliff Drive to the Pacific Ocean.	102	306	0.009	5.3-3
OWUS-13 (Neary Lagoon outlet channel). This outlet channel drains excess stormwater from Neary Lagoon and directs it to a stormwater outlet structure and culverted pipe under the Beach Area that outfalls on Cowell's Beach.	132	2,002	0.046	5.3-3
SUBTOTAL	2,662	12,577	0.289	--
Wetlands				
Seasonal Wetland WWUS-1 (draining to OWUS-10). This seasonal wetland functions as a shallow seasonal pool with an earthen bottom, hydric soils and a dominance of hydrophytic vegetation. It is located off the northeastern corner of the Harmony Foods building, and receives seasonal flows from CWUS-3 before flowing into OWUS-10.	65	641	0.015	5.3-2
SUBTOTAL	65	641	0.015	--
TOTAL WATERS OF THE U.S.	2,727	13,218	0.304	--

Source: Appendix R, scwd² Regional Seawater Desalination Project Biotic Resources Survey Report.
Notes:
1. Watercourse names are as provided in the City-Wide Creeks and Wetlands Management Plan. See also Table 5.3-1.
Acronyms:
CWUS = Culverted Waters of the United States
OWUS= Other Waters of the United States
WWUS= Wetland Waters of the United States

The remainder of the Other Waters of the U.S. are in the City-District intertie system portion of the study area. Specifically, the pipeline alignment location from the Morrissey Pump Station to the DeLaveaga water storage tanks crosses one culverted ephemeral drainage (CWUS-2) along the dirt portion of Brookwood Drive. The pipeline alignment location from the DeLaveaga water storage tanks to the intertie location crosses two culverted drainages on Brookwood Drive, one ephemeral (CWUS-2) and one perennial (CWUS-1), both associated with Arana Creek. Arana Creek extends both upstream (OWUS-4) and downstream (OWUS-5) of the culvert (CWUS-1) in a forested channel. Adjacent to Brookwood Drive, in the location of Arana Creek over CWUS-2, there are four ephemeral roadside ditches (OWUS-1, OWUS-2, OWUS 3 and OWUS-6) that drain to Arana Creek.

Potential USACE Wetlands

A single potential USACE wetland feature occurs in the study area (WWUS-1) (see **Figure 5.3-2)**. The seasonal wetland functions as a shallow seasonal pool with an earthen bottom, hydric soils, and a dominance of hydrophytic vegetation, including tall flatsedge (*Cyperus eragrostis*) and water smartweed (*Persicaria amphibia*). The wetland occurs off the northeastern corner of the Harmony Foods building and receives seasonal flows from CWUS-3 before flowing into OWUS-10 (see **Table 5.3-1**). The extent of jurisdictional waters and or wetlands would need to be verified by the USACE.

Coastal Wetlands

No wetlands, as they are defined in the Coastal Act or the City of Santa Cruz Local Coastal Program and City-Wide Creeks and Wetlands Management Plan (City, 2008), occur within that portion of the study area located in the coastal zone. Three watercourse or riparian areas as defined in the City-Wide Creeks and Wetlands Management Plan are located in that portion of the coastal zone in the study area. These include the Neary Lagoon outlet channel (OWUS-13) and neighboring riparian habitat near the intake pump station site for SI-18; Bethany Creek (Perennial Stream OWUS-12) near the intake pump station site for SI-4; and the ephemeral drainage and surrounding riparian area on Plant Site A-2 (Ephemeral Drainage OWUS-11) (City, 2008; Gilchrist 2011).

Special-Status Species and Sensitive Habitats

The designation of a special-status species is determined by local, state, and/or federal regulations. These species often have declining populations, are unique to the local area, and/or have limited or restricted distribution in their known range. Special-status species include species listed as endangered or threatened under the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA), as well as proposed or candidate species and "endangered" and "rare" (but sometimes unlisted) species, as defined in the CEQA Guidelines. Section 15380 of the CEQA Guidelines defines such species as plants and animals that are

legally protected under state and federal ESAs; or species that meet the specific criteria established in the CEQA Guidelines Section 15380(b) for a rare or endangered species.

Appendix R describes the various categories and lists of species that qualify as special status, and describes the literature and database review and field surveys that were conducted to determine which special-status species may be present in the study area. A table provided in **Appendix R** lists and evaluates all special-status species identified in this review. The table summarizes their preferred habitats, and whether a given species has the potential of occurring in the study area. Many of these special-status species were determined not to be present based on their historic range or current distribution, and/or the absence of appropriate habitat in the study area. The species that have potential to occur and be affected by the proposed project are summarized below, and described in detail in **Appendix R**.

Sensitive habitats are generally considered by local, state or federal agencies as those habitats that support special-status species, provide important habitat values for wildlife, represent areas of unusual or regionally restricted habitat types, and/or provide high biological diversity. Habitat types considered sensitive include those listed on the California Natural Diversity Data Base (CNDDB) working list of working list as "high priority" habitats (i.e., those habitats that are rare or endangered within California). Four sensitive habitat types have been identified in the City of Santa Cruz: freshwater wetland, salt marsh, riparian forest and scrub, and coastal prairie portions of grassland habitats. Locally, the overwintering monarch butterfly habitat is considered sensitive due to its restricted range and CNDDB ranking as rare. Its habitat is also identified in the City's existing General Plan as being a sensitive habitat (City, 2012a).

Federal and State Listed Wildlife

Two federally and state-listed wildlife species have potential to occur in the project area.

Central California Coast Steelhead

The steelhead (*Oncorhynchus mykiss irideus*) that may occur in Arana Creek, Branciforte Creek, and Soquel Creek are in the Central California Coast Distinct Population Segment (DPS). This DPS was listed as a federally threatened species on August 18, 1997; threatened status was reaffirmed on January 5, 2006. Critical habitat has been designated for the Central California Coast DPS steelhead, and includes Arana Creek, Branciforte Creek, and Soquel Creek.

In general, adult steelhead return to rivers and creeks in the region from October to April. Spawning takes place in the rivers from December to April, with most spawning activity occurring between January and March. Juvenile steelhead remain in fresh water for 1 to 4 years before they out-migrate into the open ocean during spring and early summer. However, juveniles can spend up to 7 years in freshwater before moving downstream (Busby et al., 1996). Steelhead can spend up to 3 years in saltwater before returning to freshwater to spawn.

Migratory corridors start downstream of the spawning areas and allow the upstream passage of adults and the downstream emigration of out-migrant juveniles and adults. Manmade objects, such as culverts, bridge abutments, and dams, are often significant barriers. The under-sized box culvert at the Paul Sweet Road crossing with associated perched outlet to 4-foot drop onto riprap is such a barrier on Arana Creek (Ross Taylor & Associates, 2004).

The study area for the proposed project is in paved public rights-of-way in existing reinforced-concrete bridges over Branciforte Creek and Soquel Creek, and does not extend into the instream portions of these creeks. However, the study area does extend into Arana Creek at the Brookwood Drive crossing. Arana Creek contains habitat for the species in the form of shallow pools, riffles, runs, and glides; with the preferred habitat being the pools where there is escape cover. Electrofishing sampling in Arana Creek has shown the stream contains densities of juvenile steelhead above and below the Brookwood Drive crossing (Arana Gulch Watershed Alliance, 2002). The California Department of Fish and Wildlife (CDFW) CalFish database indicates the stream has "fair" rearing habitat, and "unknown" spawning habitat (CDFG, 2011c). Steelhead habitat in Arana Creek is impaired largely due to high sedimentation in the stream, and at least partial barriers. One partial barrier occurs at the Capitola Road crossing with Arana Creek, which includes two 7-foot-diameter culverts, approximately 85 feet long. The crossing was determined to meet fish passage criteria for adult steelhead and juveniles 2 years old or older, but failed fish passage criteria for younger juveniles (Ross Taylor and Associates, 2004).

The study area, which includes a metal culvert under Brookwood Drive, does not contain suitable spawning habitat. Resident and adult steelhead are expected to use the Brookwood Drive culvert primarily as a migratory corridor to more suitable upstream spawning, foraging, or rearing habitat; and for limited juvenile rearing during emigration. Habitat in the study area consists of a culvert beneath a paved road within a forested riparian corridor, with relatively cool but shallow water; and a bottom composed primarily from a layer of sand and fine sediments deposited over gravel. Overtopping sand and fine sediments do not allow steelhead eggs to receive adequate oxygen and water circulation. Steelhead require cool, clean water and gravel or larger-sized substrates for spawning; therefore, steelhead spawning may occur intermittently in the upper reaches of Arana Creek near the Brookwood Drive culvert, but is not expected to occur in the metal-lined culvert itself. Resident, juvenile, or adult steelhead may migrate through the study area.

An analysis conducted during site visits determined that the existing Brookwood Drive culvert at Arana Creek is fully passable to resident, adult, and juvenile steelhead. This assessment was conducted using the *California Salmonid Stream Habitat Restoration Manual*, which includes a standard protocol for the analysis of fish passage at water crossings (CDFG, 2010b). The channel underneath the bridge is low-gradient, with a substrate of native sediment. The crossing is well lit. There are no hydraulic drops present.

California Red-Legged Frog

The California red-legged frog (*Rana draytonii*) (CRLF) was federally listed as a threatened species on May 20, 1996. Although critical habitat has been designated for this species by the U.S. Fish and Wildlife Service (USFWS) in Santa Cruz County, no portion of the study area is within designated critical habitat for CRLF. The CRLF is also a California species of special concern, as defined in **Section 5.3.3, Regulatory Framework**.

CRLF is generally confined to aquatic habitats, but is known to migrate more than 2 miles from breeding sites (Bulger et al., 2003). CRLF was not observed during the biological field surveys of the study area conducted for the proposed project. Additionally, the species has not been documented as occurring in the study area, based on the literature review conducted for the proposed project. However, in the vicinity of the study area, the species has been observed in several locations within 0.5 mile south or west of the plant site alternative locations. A previous occurrence of one adult was observed in 1996 from wetlands in upper Antonelli Pond, a perennial pond to the west of the study area. Less than 20 adults and a few juveniles were observed in 1995 at a seasonal pond in NBSB, in the Monarch Eucalyptus grove that is within the same drainage as the ephemeral drainage (OWUS-18), on Plant Site A-2. CRLF were also observed in 1997, and during a follow-up survey in 2008 from a wetland ditch at the northern edge of the UCSC Marine Science Campus property, closer to Wilder Ranch.

Subsequent surveys at the Natural Bridges seasonal pond documented that bullfrogs had further colonized the pond, and failed to locate CRLF. No sightings of CRLF have been made at the Natural Bridges pond since the late 1990s, according to communications with local State Park ecologist Tim Hyland (John Gilchrist & Associates, 2011). Further surveys at Antonelli Pond located large populations of bullfrogs and bluegill, predators of CRLF, but have failed to locate CRLF (John Gilchrist & Associates 2011). These surveys also documented another CRLF predator, largemouth bass, in Antonelli Pond. The presence of reproducing fish and bullfrog within Antonelli Pond indicates successful breeding of CRLF in the pond is unlikely, and it is not currently considered viable breeding habitat. Other populations of CRLF have been documented in the upper watershed of Moore Creek, less than 2 miles from the plant site alternative locations. It should be noted, however, that the Land Trust of Santa Cruz County is working with volunteers from Save the Frogs to attempt to restore habitat for CRLF in Antonelli Pond.

No other nearby occurrences of CRLF are reported on or near any other portions of the study area for the proposed project. Very few CRLF records exist from the San Lorenzo River basin, and no records exist for this species in the City's urban aquatic habitats (i.e., San Lorenzo River mouth, Neary Lagoon, Arana Creek), according to the City of Santa Cruz Operations and Maintenance Habitat Conservation Plan (HCP) (City, 2012f).

The arroyo willow and elm leaf blackberry dominated swale associated with the ephemeral drainage in on Plant Site A-2 does not provide any breeding habitat, but does offer potential low

quality dispersal habitat for potential but unlikely CRLF movements between other nearby populations further north or west. The revegetated portions of the Arroyo Seco drainage just east of the Area A portion of the study area may also provide a movement corridor for these populations. However, based on surrounding land uses, habitat quality, and existing movement corridors for the species, including the upper highly culvertized portion of Arroyo Seco, CRLF would be more likely to move down into the wetlands of Antonelli Pond from the Moore Creek or Wilder Ranch populations west or northwest of the project area, rather than dispersing to other, lower-quality habitat satellite areas, such as those in the Area A portion of the study area. This observation, coupled with the lack of CRLF sightings in more than a decade in Antonelli Pond, the seasonal pond at NBSB, or Area A, indicate reduced potential for the species to disperse through the Area A portion of the study area.

Other Special-Status Wildlife Species and Habitats

San Francisco Dusky-footed Woodrat

The San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens)* is a species of special concern to California. Woodrats are common to abundant in forest habitats of moderate canopy and moderate to dense understory, and can be abundant in chaparral and scrub habitats. Nests are built of sticks and leaves in a tree or at its base, around a shrub, or at the base of a hill, and are often multigenerational dwellings. A San Francisco dusky-footed woodrat nest was observed during the field surveys near the DeLaveaga water storage tank, and habitat for the species occurs in the study area.

Foothill Yellow-Legged Frog

Foothill yellow-legged frog (*Rana boylii*) (FYLF) is a California species of special concern. There are no known occurrences of FYLF in or near the study area. No FYLF were observed during the biological surveys conducted for the proposed project. However, two occurrences of the species are known from portions of Soquel Creek and tributaries approximately 1 to 1.5 miles northeast of where the study area crosses Arana Creek at Brookwood Drive along the pipeline alignment location between the DeLaveaga tanks and the City-District intertie. The FYLF is a species that is known to occur in, or in close proximity to, water; and typically occurs immediately along stream or riparian habitats. Potential habitat for this species occurs only in the portion of the study area where Brookwood Drive crosses Arana Creek.

Cooper's Hawk

The Cooper's hawk (*Accipiter cooperii*) is a California species of special concern. This bird is a breeding resident throughout most of the wooded portion of California. It typically nests in trees that are 20 to 50 feet tall. The Cooper's hawk typically nests near streams, and breeds from March through August with peak activity from May through July (Zeiner, et al., 1990). Suitable nest trees for this species occur on Plant Site A-2, and in any riparian areas or woodlands

occurring in or near the study area, such as near Arana Creek, along Brookwood Drive, or near Branciforte Creek, Rodeo Gulch, or Soquel Creek.

Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is a species of special concern in California. This bird is found in lowlands and foothills throughout California. This species prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. The study area contains foraging and potential nesting habitat for this species, especially in the grasslands and other areas associated with the alternative plant sites.

Northern Harrier

The northern harrier (*Circus cyaneus*) is a large raptor species that hunts while hovering low over grasslands and hillsides. It is a California species of special concern. Harriers forage in open grasslands, pastures, hayfields and wetlands. These birds nest on the ground in marshes, grasslands and rolling hills in the Central Valley and throughout California. Populations of these birds have declined significantly due to loss of habitat, changes in land management, and urban development (Zeiner, et al., 1990). The study area contains foraging and potential nesting habitat for this species, especially in the grasslands and other areas associated with the alternative plant sites.

White-Tailed Kite

The white-tailed kite (*Elanus leucurus*) is a fully protected species in California (see **Section 5.3.3** for definition). This bird is an uncommon, year-long resident in coastal and valley lowlands, and is rarely found away from agricultural areas. The white-tailed kite is mostly non-migratory in California. The white-tailed kite forages in open grasslands, meadows, farmlands, and emergent wetlands. The study area contains foraging and potential nesting habitat for this species, especially in the grasslands and other areas associated with alternative plant sites, and the pipeline alignments up to and down from the DeLaveaga water storage tanks.

Yellow Warbler

The yellow warbler (*Dendroica petechial brewsteri*) is a California species of special concern and a USFWS Migratory Nongame Bird of Management Concern that nests in riparian habitats and prefers willow and cottonwood forests near water. The study area contains foraging and potential nesting habitat for this species, especially in the grasslands and other areas associated with the alternative plant sites, and the pipeline alignments up to and down from the DeLaveaga water storage tanks.

Coastal Bird Rookeries

The City's General Plan 2030 EIR (City, 2012a) provides a description of coastal birds and rookeries that existing along the shoreline and Municipal Wharf, which is summarized below.

The bluffs, cliffs, seastacks, and rock outcrops, and small coastal islands along the shoreline from Cowell's Beach to Younger Lagoon provide roosting and perching, foraging, and breeding habitat for numerous coastal bird species (City, 2012a). Structures on the Santa Cruz Municipal Wharf provide communal roosting habitat, while other shorebirds nest in the trees and scrub that line the City's aquatic environments.

A number of bird species are known to roost and breed within the coastal habitats of the City including the following special-status birds: double-crested cormorant (*Phalacrocorax auritus*), black-crowned night heron (*Nycticorax nycticorax*), and black oystercatcher (*Haemotopus bachmani*). Other seabirds include other cormorant and heron species, gulls, the great egret, the common merganser, and the pigeon guillemot. The biological review conducted for the General Plan 2030 EIR identified 28 nest colonies and communal roost locations. Thirteen of the sites observed in 2006 support breeding seabirds. The remaining sites were observed to support roosting seabirds. Roosting and breeding habitat in the project area for one or more of these birds was found at the Municipal Wharf, along the shoreline from Cowell's Beach to NBSB, Neary Lagoon, and Arana Gulch.

Monarch Butterfly Overwintering Habitat

The monarch butterfly (*Danaus plexippus*) is known to roost south of Plant Site A-2 across Delaware Avenue in NBSB. While monarch butterfly is not listed by the USFWS or California Department of Fish and Wildlife (CDFW[2]) as threatened or endangered, the California Natural Diversity Database (CNDDB) ranks the monarch butterfly as having a restricted range and being rare statewide, but worldwide is commonly found throughout its range (Rank G5S3)(CDFG, 2011b). Overwintering sites for monarch butterfly are considered sensitive habitats in the *City's General Plan and Local Coastal Program 1990-2005* and in *City of Santa Cruz General Plan 2030* (General Plan 2030) (City, 2003; City, 2012a). Monarch butterflies are known for their vast, seasonal, multi-generational migrations. North America's western population of monarch butterfly overwinters along the California coast and breeds during the summer west of the Rocky Mountains. Along the Santa Cruz County coastline, there are several locations where monarchs form winter roosts between Moore Creek and Watsonville, including Moran Lake County Park (**Appendix S**).

[2] Prior to December 31, 2012, the California Department of Fish and Wildlife (CDFW) was known as the California Department of Fish and Game (CDFG). Throughout this EIR and supporting documentation, the name CDFW is used to refer to interactions with the organization since December 31, 2012, while the name CDFG is used to refer to interactions with (or documentation produced by) the organization prior to this date. The Legislature did not change the name of the California Fish and Game Code, however, so many of the statutes governing the duties of the CDFW are still found in a Code that reflects the agency's original name. Nor did the Legislature change the name of the Fish and Game Commission, an entity separate from CFDW that takes legislative actions such as setting hunting and fishing seasons.

Overwintering roost sites are sheltered groves of trees where adult monarchs spend the winter in more or less dense clusters on branches. Favored trees for monarch roosts include eucalyptus, Monterey pine, and Monterey cypress, although other types of trees can be utilized. The overall overwintering habitat for the monarch consists of roost trees (where the clusters of monarchs form), as well as surrounding trees that provide primary and secondary wind protection, shade, as well as sources of nectar and water. Sufficient water and nectar sources may occur within roost sites or monarchs may fly some distance from the roost trees to obtain nectar and water, including into residential and developed areas.

Biological studies conducted as part of the General Plan 2030 mapped areas as "potential monarch butterfly habitat," which includes tree stands that potentially could or are known to host overwintering monarch butterfly roosts or temporary roosts (i.e., roosting for periods of a few days to a month) based on previous observations, known current or historic roost sites, and reconnaissance surveys to determine the presence of suitable habitat conditions. If a project is within or adjacent to these mapped areas, further project specific studies must be conducted to confirm whether monarchs are, in fact, using the area for roosting and if the project would have impacts to any overwintering sites.

The General Plan 2030 EIR maps delineate the following portions of the project area as potential monarch butterfly habitat: (1) the lower portion of the proposed desalination Plant Site A-2; (2) the area south of Delaware Avenue in NBSB; and (3) several areas in the vicinity of the DeLaveaga water tanks (City, 2012a). These areas are shown on **Figure 5.3-2** and **Figure 5.3-4**. The lower portion of Plant Site A-2 also is located within a circle that is labeled Monarch Butterfly habitat in the LCP (Map EQ-9). The LCP indicates that these monarch habitat locations "are depicted in very general areas" and that further study is needed to determine more precise habitat areas. Entomologist Dr. Richard Arnold conducted a habitat assessment for the entire project area to determine if any portions of the project sites function as winter roosting sites or would affect overwintering habitat for the monarch butterfly (**Appendix S**).

Desalination Plant Site A-2 is located approximately 70 feet north of a large tree stand in NBSB that supports a known monarch butterfly overwintering roost site. Delaware Avenue separates the NBSB overwintering site from a tree stand (mostly cypress) on the lower portion of Plant Site A-2. Plant Site A-2 is not developed with any buildings and is vegetated with trees, shrubs, and herbaceous vegetation, including nectar species typically used by monarch butterflies for foraging. Northeastern portions of the site have been periodically used for construction staging and storage.

No monarch butterflies were observed roosting in the trees located at Plant Site A-2 during the assessment conducted for the proposed project, and the trees at the this site do not have a spatial configuration appropriate for a monarch roost site (**Appendix S**). However, trees on Plant Site A-2 could potentially provide secondary wind break protection to the monarch butterfly roost site in NBSB. Winds in the Santa Cruz area come from all directions. Before, during, and after storm events, winds often come from the west, northwest, and north. In order to assess whether

and to what extent these trees are providing secondary wind break protection to the NBSB roost, anemometers and other weather instruments would need to be placed at various locations at Plant Site A-2 and within NBSB throughout the monarch's overwintering period. This would need to be combined with a detailed study of trees, topography, and monarch activity within and adjacent to NBSB and Plant Site A-2. In the absence of such an extensive and time sensitive study, the analysis in this document assumes the worst-case impact scenario that the tree stand on A-2 is potentially providing secondary wind break protection to the NBSB roost.

Plant Sites A-1 and A-3 are approximately 415 feet and 325 feet, respectively, from the tree stand at NBSB where monarch butterflies are known to overwinter. Plant Sites A-1 and A-3 are not currently developed with any buildings and are primarily characterized by ruderal grassland that is periodically mowed. Portions of both sites are periodically used for firewood storage and construction staging and storage. A row of trees line a driveway on the edge of Plant Sites A-1 and A-3. No monarch butterflies were observed roosting on Plant Sites A-1 and A-3 during the assessment conducted for this project. Additionally the spatial arrangements of trees on these sites do not provide suitable conditions for roosting or wind break protection to the NBSB overwintering site. While highly disturbed, there are nectar plants on these plant sites that could potentially be used by monarchs for foraging.

Historically, two Monarch roost sites were also located in the southern portion of DeLaveaga Park, near a portion of the proposed City-District intertie pipeline alignment off of Brookwood Drive. Monarch butterflies were not observed in the vicinity of either historical roost site during the assessment conducted for the proposed project. However, it is still possible that roosting could occur at these sites given previous observations. Various nectar plants for the monarch occur widely throughout the park and as landscaping in the yards of neighboring residences.

The proposed project would involve upgrades to the McGregor Pump Station, which is currently planned and approved for construction as part of the District's current Capital Improvement Plan. The pump station will be located northwest of and adjacent to New Brighton State Beach, where monarchs were observed roosting in the 1980s. No monarch butterflies were observed roosting at these locations during the assessment conducted for this project. Additionally, the immediate area where the pump station is proposed is characterized by a dense mix of trees that does not have sheltered openings where monarchs could roost (**Appendix S**).

Special-Status Plants

No special-status plant species were identified during the botanical surveys conducted for the proposed project. Prior surveys conducted for portions of the project area were also reviewed and did not identify special-status plant species or the potential for occurrence of such species. Surveys were conducted in the study area during the bloom period, or period of identification, for all of the regionally occurring special-status plants. The vegetation in the study area was dominated by urban landscaping, and escaped or invasive non-native species, with native plants restricted to oak woodland along the intertie pipeline alignment along Brookwood Drive, the

arroyo willow riparian habitat at Plant Site A-2, the SI-18 pump station alternative site, and the intertie pipeline near the Brookwood Drive crossing of Arana Creek (see **Figures 5.3-2** through **5.3-4**). The habitats at the alternative plant site locations lack a significant native plant seedbank, and are dominated by non-native, escaped, and landscaped species. The study area provides low-quality potential habitat for rare plant species of grasslands and woodlands. Therefore, special-status plants will not be addressed further in this section.

City of Santa Cruz Habitat Conservation Plans

There are no adopted state or federal habitat conservation plans that have been prepared under CESA or FESA that would apply to the proposed project. However, the City has a pending habitat conservation plan that is relevant to the proposed project or its study area, as further described below.

The objective of the pending Anadromous Salmonids HCP is to provide the City with coverage under incidental take permits for activities that potentially result in take of steelhead and coho salmon. Steelhead in the geographic area influenced by City activities are part of the Central California Coast DPS, described previously. The HCP area also lies within the Central California Coast Evolutionarily Significant Unit (ESU) for coho salmon (*Oncorhynchus kisutch*), listed as endangered under FESA and CESA.

The HCP Plan Area has been defined to encompass three discrete geographic areas where a broad range of City activities are associated with physical facilities, lands owned and managed by the City, and lands associated with linear features such as water pipelines and their rights-of-way.

A Draft Conservation Strategy was submitted to the National Marine Fisheries Service (NMFS) in August 2011 (City, 2011b). The proposed phased conservation strategy would improve instream flow for anadromous salmonids, while recognizing the limitations of the existing water supply system, which do not allow consistent achievement of optimal flows. The primary focus of the strategy is to avoid or minimize existing and potential effects of the City's activities to the maximum extent practicable, as required under FESA. A major element of the strategy is identification of minimum in-stream flows at City diversions to minimize the effect of diversions on habitat conditions for steelhead and coho salmon. Three alternatives, or tiers, of instream flow targets have been specified, which represent increasing levels of habitat protection. These targets vary by location, hydrologic year type, and month.

The 2012 Revised Draft Conservation Strategy (City in prep., 2012b), submitted to the fisheries agencies in July 2012, introduces a new tier, which will be provided in a similar fashion now and in the future, eliminating the phasing strategy. Since that time, HCP negotiations have focused on evaluating a California Department of Fish and Wildlife recommended flow proposal and potential water infrastructure modifications. According to the City UWMP, the process to secure an incidental take permit involves many more steps (e.g., preparing the HCP, conduction

environmental review) and could potentially take several more years to complete. See **Section 3, Project Background,** for additional information about this pending HCP.

5.3.3 Regulatory Framework

The following subsections describe the applicable regulations that are relevant to the subsequent evaluation of terrestrial biological resource impacts. The regulations are provided below relevant to special-status species, waters and wetlands, and local plans, policies, and regulations. Regulations that pertain specifically to the marine environment are covered in **Section 5.2**. See also **Section 5.4, Land Use, Planning, and Recreation** for evaluation of potential conflicts with relevant land use plans, policies, and regulations of agencies that have jurisdiction over the proposed project.

Special-Status Species

Federal Endangered Species Act

The FESA (16 USC 1531-1544) provides protection for endangered and threatened species and requires conservation of the habitat upon which those species depend. An "endangered" species is a species in danger of extinction throughout all or a significant portion of its range. A "threatened" species is one that is likely to become an endangered species in the foreseeable future throughout all or a significant portion of its range. Other special-status species include "proposed" and "candidate" species. Proposed species are those that have been officially proposed (in the Federal Register) for listing as threatened or endangered. Candidate species are those for which enough information is on file to propose listing as endangered or threatened. A "delisted" species is one whose population has reached its recovery goal and is no longer in jeopardy.

The FESA is administered by the USFWS and the NMFS. In general, NMFS is responsible for protection of FESA-listed marine species and anadromous fishes, while other species are under USFWS jurisdiction.

FESA Section 9 prohibits the "take" of listed species. Taking is defined by FESA [Section 3(19)] to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under federal regulations, take is defined further to include habitat modification or degradation where it actually results, or is reasonably expected to result, in death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Projects that would result in "take" of any federally listed threatened or endangered species are required to obtain authorization from the USFWS or NMFS through either Section 10 (a) (incidental take permit) or Section 7 (Interagency Consultation) of FESA, depending on whether or not the federal government is involved in permitting or funding the project. The Section 10(a) process allows a person to obtain the right to engage in "incidental take" of listed species or their habitat with respect to non-federal activities. Section 7 requires a

federal agency contemplating an action that may affect a listed species to undertake formal consultation with USFWS or NMFS. The two agencies must then determine whether the proposed action would jeopardize the listed species, or destroy or adversely modify designated critical habitat.

If the project will involve instream work at Arana Creek at Brookwood Drive, then formal Section 7 consultation with NMFS for potential impacts to central California coast DPS steelhead would need to be conducted in order to obtain a biological opinion for the project.

Federal Migratory Bird Treaty Act

Migratory birds and their occupied nests are protected by the Migratory Bird Treaty Act (MBTA) (16 USC Section 703 Supp. I 1989). This applies to all wild birds except the house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), rock dove (*Columba livia*), and some game species. The MBTA specifically prohibits the take of birds or active bird nests. "Take" is defined in 50 CFR 10.12 as means to pursue or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect. Only "collect" applies to nests (USFWS, 2003). Recent case law from January 2012 "United States v. Brigham Oil & Gas L.P." appears to limit the scope of the MBTA to not impose criminal liability for legal activities that incidentally result in bird deaths.

According to the MBTA, if a construction activity will directly result in the take of an active nest, a depredation permit will be required, or legal action could be invoked. However, an applicant will only receive a permit if they have demonstrated "every effort" to avoid having to take the nest (or birds). The decision to issue a permit is subjective, and is evaluated on a case-by-case basis. Mitigation (such as habitat improvement in adjacent areas) for the take of the nest can be proposed, but does not ensure the issuance of a permit.

California Endangered Species Act

Similar to FESA, the CESA (California Fish and Game Code 2050-2116), authorizes the California Fish and Game Commission to designate, protect, and regulate the taking of special-status species in the State of California. CESA defines "endangered species" as those whose continued existence in California is jeopardized. State-listed "threatened" species are those not currently threatened with extinction, but which may become endangered if their environments change or deteriorate.

Section 2080 of the California Fish and Game Code generally prohibits the taking of state-listed plants and animals. Under Section 86 of the Fish and Game Code, take is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Under California Fish and Game Code Section 2081, CDFW may "authorize, by permit, the take of endangered species, threatened species, and candidate species if...the take is incidental to an otherwise lawful activity" and if certain other requirements are met.

State agencies, moreover, have additional obligations. Each state lead agency was formerly required to consult with CDFW to ensure that any action it undertakes is not likely to jeopardize the continued existence of any endangered or threatened species, or result in destruction or adverse modification of essential habitat. This requirement expired on January 1, 1999, however, because the original legislation creating it had a sunset date of the end of 1998. Even so, every state agency remains subject to a statutory duty "to seek to conserve endangered species and threatened species." In addition, all state agencies remain subject to the command that they "should not approve projects as proposed which would jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy." However, "in the event specific economic, social, or other conditions make infeasible such alternatives, individual projects may be approved if appropriate mitigation and enhancement measures are provided" (Fish and Game Code, Sections 2053 and 2054.)

In addition to listed species, the CDFW also maintains a list of "Species of Special Concern," most of which are species whose breeding populations in California may face extirpation (local extinction). To avoid the future need to list these species as endangered or threatened, the CDFW recommends consideration of these species, which do not as yet have any legal status, during analysis of the impacts of proposed projects.

Natural Community Conservation Planning Act

The goal of the Natural Community Conservation Planning Act (NCCPA) (Fish and Game Code § 2800 et seq.) is to provide long-term protection of species and habitats through regional, multi-species planning; the intent is that such planning will obviate the need to list species under CESA. The NCCPA is broader in its orientation and objectives than the California and Federal Endangered Species Acts, and is designed to identify and protect individual species that have already declined in number significantly. The primary objective of the NCCPA program is to conserve natural communities at the ecosystem scale, while accommodating compatible land use. The program seeks to anticipate and prevent the controversies and gridlock caused by species' listings by focusing on the long-term stability of wildlife and plant communities, and including key interests in the process.

Other California Fish and Game Code Sections

In the 1960s, before CESA was enacted, the California Legislature identified species for specific protection under the California Fish and Game Code. Fully protected species are described in Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code. These *fully protected* species may not be taken or possessed at any time, and no licenses or permits may be issued for their take, except for collecting these species for necessary scientific research, and relocation of the bird species for the protection of

livestock. Species designated as fully protected or protected may or may not be listed as endangered or threatened.

Bird nests are protected in California under Section 3503 of the California Fish and Game Code. Section 3503 states that it is "unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by CDFW. CDFW may issue permits authorizing a take. Section 3503.5 of the California Fish and Game Code specifies that "it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

CEQA Guidelines Section 15380

As indicated, Section 15380 of the CEQA Guidelines defines "endangered" and "rare" animal and plant species for purposes of CEQA. Species are considered rare or endangered if it can be demonstrated that the species meets the specific criteria established in the CEQA Guidelines Section 15380(b) for a rare or endangered species. Listed species qualify per se, but some unlisted species also come within the definitions. **Appendix R** describes the various categories and lists of species that qualify as special status.

Waters and Wetlands

Federal Clean Water Act, Section 404

Under Section 404 of the Clean Water Act, the USACE regulates the discharge of dredged and fill materials into "Waters of the United States." These jurisdictional waters of the U.S. include, but are not limited to, lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, and wetlands adjacent to any water of the U.S. (33 CFR Section 328). In areas subject to tidal influence, Section 404 jurisdiction extends to the high-tide line. Certain waters of the U.S. are considered "special aquatic sites" because they are generally recognized as having particular ecological value. Such sites include sanctuaries and refuges, mudflats, wetlands, vegetated shallows, coral reefs, and riffle and pool complexes. Special aquatic sites are defined by the U.S. Environmental Protection Agency (USEPA), and may be afforded additional consideration in the permit process for a project.

Projects that impact jurisdictional wetlands and non-wetland waters of the U.S. require a permit from the USACE. There are two types of permits: individual permits, and nationwide permits. Nationwide permits are issued by USACE for specific types of activities that have minimal individual or cumulative adverse environmental impacts. Individual permits are required for more complex projects that exceed the impact threshold for a nationwide permit. This project

could impact potential USACE jurisdictional wetlands and waters; therefore, a Section 404 permit would be required prior to construction activities.

Clean Water Act, Section 401, and Porter-Cologne Act

The Regional Water Quality Control Boards (RWQCBs) protect the beneficial uses of surface water and groundwater in California under the Porter-Cologne Act, and Section 401 of the Clean Water Act, with a focus on water quality. The RWQCBs regulate all pollutant or nuisance discharges that may affect either surface water or groundwater. An RWQCB may exercise jurisdiction over discharges into waters of the state pursuant to the Porter-Cologne Act in cases where the waters are excluded from regulation under the federal CWA. Currently, there is no formal protocol for delineating waters of the state.

A Section 401 Water Quality Certification is necessary when a project requires a 404 permit from the USACE, and under other special circumstances. This certification by the RWQCB is required before or concurrent with requesting a Section 404 permit. A Section 401 Water Quality Certification permit from the Central Coast RWQCB would be required because of the potential for impacts to RWQCB jurisdictional waters or waters of the state and because a Section 404 permit would be required.

A waste discharge identification number would also need to be obtained from the State Water Resources Control Board. The construction contractors would need to comply with all of the terms and conditions of the construction permit in relation to the Porter-Cologne Water Quality Control Act, and would need to develop and implement a Stormwater Pollution Prevention Plan (SWPPP) for the project, as described in detail in **Section 5.1, Hydrology and Water Quality**.

California Coastal Act and City of Santa Cruz Local Coastal Program

Wetlands in California's coastal zone are protected under the California Coastal Act (CCA) of 1976, which is administered by the California Coastal Commission (CCC). CCA Section 30121 defines "wetlands" as "lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens."

In the California Code of Regulations (CCR), wetlands are defined as follows (14 CCR 13577(b)):

> . . . land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface

> water or saturated soil at some time during each year and their location within, or adjacent to, vegetated wetland or deepwater habitats.

The CCC has developed a wetland identification and delineation approach that relies on a single parameter indicative of wetland conditions to determine the presence of a wetland. A positive wetland determination is dependent on either a predominance of hydrophytic vegetation or the presence of hydric soils. CCC staff use methodology developed by the USACE, which is described in **Appendix R**.

Wetlands in the City of Santa Cruz coastal zone are regulated by the City's Local Coastal Program. The City of Santa Cruz's approved City-wide Creeks and Wetlands Management Plan, which is an approved part of the City's Local Coastal Program, defines wetlands as follows:

Wetlands are defined as transitional areas between upland and aquatic areas. These areas have a water table usually at or near the surface or the land is covered by shallow water periodically or permanently. The City's definition of wetlands in the City's General Plan /LCP includes estuaries, lagoons and ponds, as well as seasonal wetlands that may occur as depressions within otherwise upland areas.

The City's Creeks and Wetlands Management Plan requires that wetlands be delineated both according to the USACE methodology and the CCC methodology for those areas in the coastal zone. The management plan also outlines setback and permit requirements for development in and adjacent to wetlands.

California Fish and Game Code Sections 1600-1616

The CDFW regulates activities that would alter the flow, bed, channel, or bank of streams and lakes under the authority of the Lake and Streambed Alteration Agreement, Section 1600 of the Fish and Game Code. In riparian areas, CDFW jurisdictional limits are usually delimited by the tops of the stream bank or the outer edge of contiguous riparian vegetation, whichever is wider. A Lake or Streambed Alteration Agreement with the CDFW is necessary when a project would alter the flow, bed, channel, or bank of a stream or lake. A Streambed Alteration Agreement (1602 permit) would be required if instream work is pursued for the crossing of Arana Creek at Brookwood Drive as part of the construction of the pipeline from the DeLaveaga water storage tanks to the City-District intertie.

The construction of the pipeline from the Morrissey Pump Station to the DeLaveaga water storage tanks would cross under a culverted ephemeral drainage along the dirt portion of Brookwood Drive, and therefore would not disturb this culverted drainage. Streambed Alteration Agreements are also not expected to be required for other elements of the proposed project.

Local Policies, Plans, and Regulations

The subsections below describe local policies, plans, and regulations pertinent to biological resources for the City, County, and Capitola. The details of relevant policies are provided in this section, as there is a specific standard of significance related to conflicts with local biological resource policies that is evaluated in **Section 5.3.4, Impacts and Mitigation Measures** below.

City of Santa Cruz

General Plan Policies

Various City plans, policies, and regulations protect a number of biological resources, including water ways, wetlands, and heritage trees. The City's General Plan 2030, Natural Resources and Conservation Element, includes policies relating to biological resources (City, 2012c). Relevant policies include protection of creeks and wetlands; provision of setbacks; and protection of sensitive habitat areas and important vegetation communities, as further described below:

NRC1.1	Protect the city's river and wetland areas while increasing and enhancing public access where appropriate.
NRC1.1.1	Require setbacks and implementation of standards and guidelines for development and improvements within the city and adjacent to creeks and wetlands as set forth in the Citywide Creeks and Wetlands Management Plan.
NRC2.1.3	Evaluate development for impacts to special-status plant and animal species.
NRC2.1.4	Implement strategies to reduce or minimize impacts.
NRC2.2	Protect sensitive habitat areas and important vegetation communities and wildlife habitat
NRC2.2.1	As part of the CEQA review process for development projects, evaluate and mitigate potential impacts to sensitive habitat (including special-status species) for sites located within or adjacent to these areas.
NRC2.2.2	Protect coastal roosts and rookeries in the course of activities that could disturb or disrupt breeding or result in loss of habitat, such as construction activities, recreational activities, or special events.
NRC2.2.4	Minimize the impact of grading and filling on sensitive habitat areas.
NRC2.3.1	Restrict the use of barriers that can hamper wildlife movement through corridors and buffers.
NRC2.4	Protect, manage, and enhance tree groves and understory that provide sensitive habitat features.

LCP Policies

Although the City's General Plan 2030 has been updated and adopted, the Local Coastal Program (LCP) embodied in the City's prior General Plan and Local Coastal Program 1990-2005 remains in force in the Coastal Zone portion of the City (City, 2003). There are various LCP policies and programs that protect a number of biological resources including water ways, wetlands, and sensitive habitats, as outlined below:

EQ 4.2 Preserve and enhance the character and quality of riparian and wetland habitats, as identified on Maps EQ-8 and EQ-11, or as identified through the planning process or as designated through the environmental review process.

EQ 4.2.2 Minimize the impact of development upon riparian and wetland areas through setback requirements of at least 100 feet from the center of a watercourse for riparian areas and 100 feet from a wetland[3].

EQ 4.2.2.1 Require that all development within 100 feet of these areas be consistent with the applicable management plan provisions under EQ 4.2.1 (management plans) and L 3.4, if one has been established.

EQ 4.5 Continue the protection of rare, endangered, sensitive and limited species and the habitats supporting them as shown in Map EQ-9 or as identified through the planning process or as designated as part of the environmental review process. (See Map EQ-9)

EQ 4.5.3.2 Require development in the vicinity of designated Monarch sites to undergo environmental impact analysis and for development affecting sites prepare a management plan addressing preservation of the habitat that includes criteria such as:

- Prohibiting the cutting, thinning, pruning or removal of any tree or shrub (especially nectar plants used by Monarchs) except as necessary for safety of homes or persons and requiring replacement of comparable vegetation;
- Prohibiting pesticide use and keeping all water sources clean;
- Allowing construction only during the months when Monarchs are not present; and
- Keeping smoke from infiltrating Monarch roosting sites.

[3] The City-wide Creeks and Wetlands Management Plan was adopted by the City in 2006 and certified by the California Coastal Commission in 2008, and provides specific setback requirements for watercourses in the City as discussed in the following subsection. The provisions of the Creeks and Wetlands Plan supersede the setback requirement set forth in LCP programs EQ4.2.2, 4.2.2.1 and 4.2.2.3.

Creeks and Wetlands Management Plan

The City-wide Creeks and Wetlands Management Plan, a component of the City's certified LCP, recommends specific setback requirements based on biological, hydrological, and land use characteristics for various watercourse types in the City (City, 2008a). In order to determine the level of permit review required for the variety of watercourse types within the City, all watercourse reaches are categorized as an "A," "B," or "C" watercourse. These categories are based on the quality, continuity, and enhancement potential of the riparian habitat associated with the watercourse, the potential for the watercourse to support special-status species, and the ability of the habitat to be expanded, based upon existing development.

The recommended setbacks in a designated management area include a riparian corridor, a development setback area, and an additional management area that extends from the outward edge of the development area. The riparian corridor is adjacent to the watercourse and is the width of the riparian and/or immediate watercourse influence area. The development setback area is the area outward from the edge of the designated riparian corridor where development is restricted, providing a buffer between the riparian corridor and development. The management area, riparian corridor, and development setback area distances vary depending on the watercourse area and its categorization. All distances are measured from the centerline of the watercourse outward.

The Creeks and Wetlands Management Plan and Municipal Code Chapter 24.08, Part 21 establish the requirements for obtaining a Watercourse Development Permit, and specifies uses permitted in the designated management area, development setback area, and riparian corridor.

Wildlife Habitats

Section 24.14.080 of the City's Municipal Code includes provisions applied to wildlife habitat areas as identified in Maps EQ-8 and EQ-9 of the Environmental Quality Element of the Coastal Land Use Plan or as designated as part of an environmental review process. The section indicates that the precise boundaries (except for areas defined by the City-wide Creeks and Wetlands Management Plan) shall be determined on a case-by-case basis by a biologist. The section permits construction, grading or removal of vegetation within wildlife habitats where: (a) development is in conformance with the Creeks and Wetlands Plan and supporting zoning regulations; (b) existing vegetation is preserved to the maximum extent possible; (c) the integrity of the area as a habitat is not compromised; (d) landscaping is designed to provide a natural buffer and provide native food-bearing plant species to the greatest extent feasible; and (e) protected species under the federal Endangered Species Act, the California Endangered Species Act, and the California Native Plant Protection Act are not present or jurisdictional permits from the appropriate state or federal agency have been received for their removal.

Heritage Trees

Chapter 9.56 of the City Municipal Code defines heritage trees, establishes permit requirements for the removal of a heritage tree, and sets forth mitigation requirements as adopted by resolution by the City Council. Heritage trees are defined this chapter as "any perennial plant or grove of perennial plants growing on public or private property, having a self-supporting woody main stem or trunk usually characterized by the ability to grow to considerable height and size, and the development of woody branches at some distance above the ground, and meeting criteria set forth in Section 9.56.040." The criteria indicate that the heritage designation shall apply to any tree, grove of trees, shrub or group of shrubs, growing on public or private property within the City which meet(s) the following criteria shall have the "heritage" designation:

- Any tree which has a trunk with a circumference of 44 inches (approximately 14 inches in diameter or more), measured at 54 inches above existing grade.
- Any tree, grove of trees, shrub, or group of shrubs that have historical significance.
- Any tree, grove of trees, shrub, or group of shrubs which have horticultural significance.

A heritage tree permit is required for the removal of heritage trees or shrubs in the City. Preparation and submission of a consulting arborist report is required where three or more heritage trees or three or more heritage shrubs are the subject of any proposed work to be performed. The Director of Parks and Recreation shall make findings upon which the permit shall be granted, conditionally grant the permit specifying mitigation requirements, deny the permit or allow a portion of the proposed work outlined in the permit application to be done. An approved conditional tree removal permit requires mitigation per the approved heritage tree and heritage shrub removal mitigation requirement chart adopted by City Council resolution.

Resolution NS-23,710 adopted by the City Council in April 1998, establishes the criteria for permitting removal of a heritage tree and indicates that one or more of the following findings must be made by the Director:

- The heritage tree or heritage shrub has, or is likely to have, an adverse effect upon the structural integrity of a building, utility, or public or private right of way;
- The physical condition or health of the tree or shrub, such as disease or infestation, warrants alteration or removal; or
- A construction project design cannot be altered to accommodate existing heritage trees or heritage shrubs.

City regulations require tree replacement for removal of a heritage tree to consist of replanting three 15-gallon or one 24-inch box-size specimen for each heritage tree approved for removal. Removal of a heritage tree that is consistent with the criteria, provisions, and requirements set forth in City ordinances is not considered a significant impact.

Santa Cruz County

The *1994 Santa Cruz County General Plan and Local Coastal Program* (County General Plan and LCP) includes a chapter addressing conservation and open space that contains policies for sensitive biological resources (County, 1994). Relevant policies include: the protection of sensitive habitats, such as riparian corridors, wildlife corridors, habitats for special-status species, and habitats adjacent to special-status species locations, as well as provision of a setback of 100 feet from wetlands and 10 feet from edge of riparian corridor, as detailed below. The only location that these policies could apply is at the Brookwood Drive crossing of Arana Creek, because the County's jurisdiction falls on the eastern side of this creek. Relevant policies from the Conservation and Open Space Element are as further described below:

5.2.3 Development activities, land alteration and vegetation disturbance within riparian corridors and wetlands and required buffers shall be prohibited unless an exception is granted per the Riparian Corridor and Wetlands Protection ordinance. As a condition of riparian exception, require evidence of approval for development from the US Army Corps of Engineers, California Department of Fish and Game, and other federal or state agencies that may have regulatory authority over activities within riparian corridors and wetlands.

5.2.4 Require a buffer setback from riparian corridors in addition to the specified distances found in the definition of riparian corridor. This setback shall be identified in the Riparian Corridor and Wetland Protection ordinance and established based on stream characteristics, vegetation and slope. Allow reductions to the buffer setback only upon approval of a riparian exception. Require a 10 foot separation from the edge of the riparian corridor buffer to any structure.

5.2.5 Prohibit development within the 100 foot riparian corridor of all wetlands. Allow exceptions to this setback only where consistent with the Riparian Corridor and Wetlands Protection ordinance, and in all cases, maximize distance between proposed structures and wetlands. Require measures to prevent water quality degradation from adjacent land uses, as outlined in the Water Resources section.

5.2.7 Allow compatible uses in and adjacent to riparian corridors that do not impair or degrade the riparian plant and animal systems, or water supply values, such as non-motorized recreation and pedestrian trails, parks, interpretive facilities and fishing facilities. Allow development in these areas only in conjunction with approval of a riparian exception.

5.2.9 Require development in or adjacent to wetlands to incorporate the recommendations of a management plan which evaluates: migratory waterfowl

use December 1 to April 30; compatibility of agricultural use and biotic and water quality protection; maintenance of biologic productivity and diversity; and the permanent protection of adjoining uplands.

5.2.10 Require development projects in wetland drainage basins to include drainage facilities or Best Management Practices (BMPs) which will maintain surface runoff patterns and water quality, unless a wetland management plan specifies otherwise, and minimize erosion, sedimentation, and introduction of pollutants

The County's Riparian Corridor and Wetland Protection Ordinance (County Code Chapter 16.30) codifies the policies above that pertain to wetlands and riparian habitat.

City of Capitola

Capitola has policies relating to biological resources in the *City of Capitola General Plan* (Capitola, 1989). One relevant policy is the Conservation Element goal of protecting and preserving the natural resources within the Capitola area, including riparian corridors (Policy 10, 11 and 16), and Monarch butterfly roosting habitats (Policy 18). Soquel Creek is addressed in numerous policies, and the Conservation Element policies include preserving natural vegetation, adequate creek flows for fish; and protecting water quality in this creek, other creeks, and wetlands from sedimentation, biochemical degradation, and thermal pollution. These policies are not specified in detail, because they would not apply to the proposed potable water distribution system improvements that would occur in Capitola. These components would be constructed in paved public rights-of-way, or in the already planned and approved McGregor Pump Station building.

5.3.4 Impacts and Mitigation Measures

This section contains the evaluation of potential environmental impacts associated with the proposed project related to terrestrial biological resources. The section identifies the standards of significance used in evaluating the potential environmental effects; the methods used in conducting the analysis; and a detailed evaluation of impacts for the proposed project and any potential future expansion.

Standards of Significance

Based on CEQA Guidelines Section 15065; Appendix G of the CEQA Guidelines; applicable agency plans, policies, and/or guidelines; and agency and professional standards; the proposed project would cause a significant impact related to terrestrial biological resources if it would:

3a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

3b. Substantially reduce the habitat of a fish or wildlife species.

3c. Cause a fish or wildlife population to drop below self-sustaining levels.

3d. Threaten to eliminate a plant or animal community.

3e. Substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

3f. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

3g. 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.

3h. Have a substantial adverse effect on waters of California that are not also waters of the United States, including wetlands meeting criteria used by the Regional Water Quality Control Board, through direct removal, filling, hydrological interruption, or other means.

3i. 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.

3j. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

3k. Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved habitat conservation plan.

Analysis Methodology

The above standards of significance are assessed in this section as the basis for determining the significance of impacts related to terrestrial biological resources. If necessary, mitigation measures are proposed to reduce significant impacts to less than significant. See **Section 5.2** for information about marine biological resource impacts of the proposed project. See also **Section 5.4** for evaluation of potential conflicts with relevant local land use plans, policies, and regulations related to the protection of biological resources.

Potential impacts to terrestrial biological resources in the study area are evaluated based on review of project information as provided in **Section 4**, a literature review, comments received from the agencies, and field surveys. The approach to the analysis of terrestrial biological resources is further described below.

Literature Review

The following sources were reviewed to compile information regarding special-status species and other resources that may occur in the study area:

- CNDDB (CDFG, 2011b), species lists for *Davenport*, *Felton*, *Laurel*, *Santa Cruz*, and *Soquel* 7.5-minute U.S. Geological Survey (USGS) quadrangles;
- California Native Plant Society Online Inventory of Rare and Endangered Plants of California (CNPS, 2011), species lists for *Davenport*, *Felton*, *Laurel*, *Santa Cruz*, and *Soquel* 7.5-minute USGS quadrangles;
- USFWS species list for Santa Cruz County obtained from Ventura Fish and Wildlife Service Office (USFWS, 2010b);
- City-wide Creek and Wetlands Management Plan (City, 2008a);
- USFWS Federal Register publications regarding individual special-status species;
- CDFW and USFWS endangered species websites;
- Biotic Assessment, Lipton Tea Plant Project Site, (Albion Environmental, Inc., 2004);
- Biotic Assessment, Property at Natural Bridges Drive and Delaware Avenue (John Gilchrist & Associates, 2011); and
- City of Santa Cruz Operations & Maintenance Habitat Conservation Plan (City, 2012f).
- Relevant technical information from these documents and background queries is incorporated into this document and summarized in **Appendix R,** and referenced as appropriate.

Vegetation and Habitat Surveys

As documented in **Appendix R**, field surveys by URS biologists for special-status plant and wildlife species, plant communities, and terrestrial wildlife habitats in the study area occurred during the months of April, June, July, and September of 2011; and March of 2012. The entire study area was surveyed on foot, or visually inspected from a short distance. URS conducted protocol rare plant surveys in the study area. These were floristic surveys that followed California Native Plant Society and CDFW protocols. Wildlife surveys and habitat assessments, and mapping of potentially jurisdictional waters and/or wetlands were conducted concurrently with these surveys by URS biologists. Additionally, a habitat assessment survey was conducted in 2011 by Entomological Consulting Services to determine if any portions of the project area function as winter roosting sites or overwintering habitat for the Monarch butterfly (see **Appendix S**).

Vegetation community descriptions are based on the vegetation classification presented in the second edition of *A Manual of California Vegetation* (Sawyer, et al., 2009). The vegetation

information was incorporated into a Geographical Information System database. A list of vascular plant species encountered during the field survey is included in **Appendix R**. Nomenclature follows the Jepson Manual (Baldwin, et al., 2012).

Assessment of Special-Status Species

The literature and database review and field surveys, described above, were conducted in part to determine which special-status species may be present in the study area. The Biotic Resources Survey Report summarizes the special-status species identified in this review (**Appendix R**). Many of these special-status species were determined not to be present based on their historic range or current distribution, and/or the absence of appropriate habitat in the study area. The habitat requirements (i.e., foraging, breeding) of each species were developed based on the available literature, an assessment of the habitat features conducted during the field surveys, and the professional experience and judgment of the URS biologists who conducted the review for this project. **Table 6-1** of the Biotic Resources Survey Report indicates whether a given species has the potential for occurring in the study area. The species with a moderate or high potential to occur in the study area are described and evaluated in detail in this section of the EIR.

Impacts and Mitigation

This section provides a detailed evaluation of terrestrial biological resources impacts associated with the proposed project. The analyses addresses impacts to special-status species (standards 3a through 3e), impacts related to riparian or other sensitive habitats (standard 3f), impacts related to wetlands (standards 3g and 3h), impacts related to wildlife movement (standard 3i), impacts related to conflicts with local plans and policies (standard 3j), and impacts related to conflicts with adopted habitat conservation plans (standard 3k). There are no adopted Natural Community Conservation Plans (NCCP) in the City, County, or Capitola.

The impacts to terrestrial biological resources are summarized in **Table 5.3-3, Summary of Potential Terrestrial Biological Resources Impacts**, and are categorized as either “not applicable,” “no impact,” “less than significant impact,” “less than significant impact with mitigation,” or “significant and unavoidable impact.” The detailed analysis of terrestrial biological resources impacts and mitigation measures follows this table.

Table 5.3-3. Summary of Potential Terrestrial Biology Impacts

Impacts	LEVEL OF SIGNIFICANCE													
	Seawater Intake Site Alternatives								Plant Site Alternatives			Other Components	Project Overall	Possible Future Expansion
	SI-4	SI-5	SI-7	SI-9	SI-14	SI-16	SI-17	SI-18	A-1	A-2	A-3			
Impact 5.3-1: Special-Status Species	NI	NI	NI	NI	LTS	NI	NI	NI	LTS	LTSM	LTS	LTSM	LTSM	LTS/LTSM*
5.3-2: Riparian Habitat	LTSM	NI	NI	NI	LTS	NI	NI	LTSM	LTS	LTSM	LTS	LTSM	LTSM	LTS/LTSM*
5.3-3: Monarch Butterfly Overwinter Habitat	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS	SU	LTS	LTS	LTS/SU*	LTS/SU*
5.3-4: Waters and Wetlands	LTSM	NI	NI	NI	NI	NI	NI	LTSM	NI	LTSM	LTS	LTSM	LTSM	LTS/LTSM*
5.3-5: Native Resident or Migratory Fish or Wildlife Movement	LTSM	LTSM	LTSM	LTSM	LTSM	LTSM	LTSM	LTSM	LTSM	LTSM	LTSM	LTSM	LTSM	LTSM
5.3-6: Conflicts with Local Biological Policies or Ordinances	LTSM	LTSM	LTSM	LTSM	LTSM	LTSM	LTSM	LTSM	LTSM	SU	LTSM	LTSM	LTSM/SU*	LTSM/SU*
5.3-7: Conflicts with Adopted HCPs	--	--	--	--	--	--	--	--	--	--	--	--	B	--

Acronyms:
SU = Significant and Unavoidable Impact
LTSM = Less Than Significant Impact With Mitigation
LTS = Less Than Significant Impact
NI = No Impact
B = Beneficial Impact
-- = Not applicable
* Impact significance of project overall will depend on the site alternative selected

SPECIAL-STATUS SPECIES

Impact 5.3-1:	Construction activities associate with the proposed project could have a substantial adverse effect or could reduce the number or restrict the range of special-status species, including central California coast steelhead, California red-legged frog, foothill yellow-legged frog, and San Francisco dusky-footed woodrat.
Significance before Mitigation:	Potentially significant
Mitigation Measures:	See Mitigation Measures 5.3-1a through 5.3-1d below. See also Mitigation Measures 5.1-1a and 5.1-1b in **Section 5.1, Hydrology and Water Quality**
Significance after Mitigation:	Less than significant

Proposed Project

Construction activities associated with the proposed project could have a substantial adverse effect or could reduce the number or restrict the range of special-status species, including central California coast steelhead, California red-legged frog, foothill yellow-legged frog, and San Francisco dusky-footed woodrat, as further described below. Potential adverse impacts on nesting special-status birds from construction activities are evaluated in Impact 5.3-5 below.

Central California Coast Steelhead DPS

Construction of the City-District intertie system portion of the project would require a number of stream crossings, including Arana Creek, Rodeo Gulch, Soquel Creek, and Noble Gulch. All of these crossings, except the Arana Creek crossing, would not have the potential to involve any instream work, because the new pipelines would be installed in the existing bridges and associated roadways.

Instream work is possible at the Arana Creek crossing at Brookwood Drive, which could potentially affect central California coast steelhead DPS during instream construction. Given the characteristics of this existing roadway crossing, construction of the pipeline within the existing road would not likely be possible. Two options for installing the piping across the creek are considered in **Section 4** and are summarized below:

1. **Open-Cut Trenching** – The stream could be crossed using open-cut trenching methods. This method would cut a trench across the stream channel, but within the Brookwood Drive bridge structure in order to install the new water pipeline. A temporary bypass would be used to divert the stream flow around the construction zone. The temporary bypass would likely consist of sandbags installed upstream of the work area across the

stream channel which would direct stream flow into a temporary pipeline that would convey the stream flow across the work zone, discharging it immediately downstream. The temporary pipeline would remain within the stream channel. Once the temporary pipeline is in place, trenching through the existing Brookwood Drive crossing of the creek would be conducted using a box trench, if needed. Pipe installation, backfilling and compaction, hydrostatic testing, and cleanup and restoration would complete the effort. Once the construction area is restored, the temporary bypass would be removed. This approach would have the potential for releasing sediment and contaminants into the creek, if not properly controlled. The approach would also result in the temporary disturbance of the creek bottom along the trench alignment (see **Figure 4-13, Arana Creek Crossing Construction Options**).

2. **Tunneling** – The new water pipeline could also be installed using tunneling construction methods (e.g., horizontal directional drilling, microtunneling) which would cross below the stream. Tunneling of the pipeline would start and end approximately 100 feet from each side of the creek (see **Figure 4-13**). Pits would be dug on each side of the creek within the road bed and the tunneling equipment would be used to install the new water pipeline. This approach would not result in any instream construction activities, but could potentially result in the inadvertent release of drilling fluids, a naturally based product made of bentonite clay and water (see **Section 5.1**, for additional information).

The water quality effects of both of these options are evaluated in **Section 5.1**. Mitigation Measures 5.1-1a, requiring the implementation of an SWPPP, and Mitigation Measure 5.1-1b, requiring the implementation of a drilling fluids management and response plan if tunneling is used, would reduce water quality impacts to less than significant.

Potential direct and indirect impacts could occur to juvenile or resident central California coast steelhead within designated critical habitat in the eastern and main branch of Arana Creek in and/or adjacent to the culvert crossing under Brookwood Drive. Temporary impacts or degradation of migratory and rearing habitat for the species could occur due to construction activities in this location, if instream work is required. No impacts to this species, including impeding steelhead migration, would result from other onshore components of the proposed project. See **Section 5.2** for an evaluation of the potential effects of the offshore components of the proposed project on special-status fish species.

As indicated in **Section 5.3.2**, the metal culvert on Arana Creek under Brookwood Drive and areas immediate up- and downstream from the culvert are expected to be used primarily as a migratory corridor for resident and adult steelhead travelling to more suitable upstream spawning, foraging, or rearing habitat, and for limited juvenile rearing during emigration. Depending on the timing of construction, resident, juvenile, or adult steelhead may be migrating through this culvert, and could be adversely affected by project construction.

Mitigation Measure 5.3-1a includes NMFS and CDFW consultation, construction timing specifications, preconstruction surveys, and implementation of a stream diversion plan and associated avoidance and minimization measures to reduce potential impacts on this species to less than significant. With the implementation of Mitigation Measure 5.3-1a, the flow of Arana Creek would be diverted, rerouted, and confined to a section of the current streambed that would allow for construction on the exposed streambed outside the diversion channel. Under this measure, diversion of the stream in the construction area would occur only in the dry summer months between June 15 and October 15, when flows in Arana Creek would be greatly reduced. The impacts of rerouting the creek are expected to be minimal, and the main purpose is to ensure that a corridor for steelhead migration and movement remains intact during construction. In addition, proposed protocols for fish relocation would be implemented, should resident or juvenile steelhead be found in portions of the creek channel that are dewatered. These protocols would be described in a stream diversion plan, prepared as part of Mitigation Measure 5.3-1a, which would be followed to reduce the potential adverse impacts of the construction work on steelhead, if any are present. Overall, Mitigation Measure 5.3-1a would reduce potential impacts on this species and its migration to less than significant.

A number of regulatory permits would be required if instream work takes place, including a Section 404 Clean Water Act permit from USACE, a Section 401 Clean Water Act permit from the RWQCB, and a Fish and Game Code Section 1602 Streambed Alteration Agreement from the CDFW. Additionally, a Section 7 consultation under FESA and associated Biological Opinion from NMFS would likely be required for instream work. A County riparian exception under the County's Riparian Corridor and Wetland Protection Ordinance would also be required for instream work. See **Section 5.3.3** for more description of these permits.

Special-Status Amphibians

California Red-Legged Frog. The project could have an adverse effect, either directly or through habitat modifications, on CRLF, a federally threatened species, through impacts to potential low-quality dispersal habitat on Plant Site A-2. As indicated in **Section 5.2**, the ephemeral drainage swale on this site does not provide breeding habitat for this species, but does offer potential low-quality dispersal habitat for potential but unlikely CRLF movements between other nearby populations further north, west, and south. There is a low potential for such dispersal of CRLF into Plant Site A-2, due to long-term predator infestations in nearby, previously documented breeding habitats at the NBSB seasonal pond and Antonelli Pond, which may have extirpated CRLF from both locations. Due to movement barriers in Area A, if CRLF disperse into the ephemeral drainage swale on Plant Site A-2, they would be most likely to use the culvert under Delaware Avenue, which connects to Natural Bridges Creek and the seasonal pond in NBSB.

Construction of the proposed project would not require removal of any of the riparian habitat that could be viewed as potential low-quality dispersal habitat for CRLF in the ephemeral drainage swale on Plant Site A-2. If Plant Site A-2 is selected, the proposed desalination plant facilities

would be outside of the adopted setbacks for this riparian area, which include a 40-foot-wide riparian corridor, 60-foot setback, and an 85-foot management area (see **Table 5.3-1**). Mitigation Measure 5.3-2a (see Impact 5.3-2) would ensure that appropriate setbacks are established on the northern end of this drainage. Therefore, the potential low-quality dispersal habitat for CRLF provided by this drainage swale on Plant Site A-2 would not be impacted by the proposed project, if this site is selected.

However, if CRLF are present in or adjacent to the ephemeral drainage on Plant Site A-2 during construction activities, individuals could potentially be impacted. Mitigation Measure 5.3-1b, which includes pre-construction surveys, construction area fencing near any potential habitat, and education of construction site workers, would ensure that the impacts of the proposed project on this species, if present, are reduced to less than significant. CRLF are not likely to occur or have the potential to be impacted by the proposed project in any other portion of the project area, as described in **Section 5.3.2** and impacts would be less than significant

Foothill Yellow-Legged Frog. FYLF is known to occur in upper Soquel Creek; however, the City-District intertie system would not impact Soquel Creek, because the new pipeline would be installed within existing bridge structure at this location, and no instream work would be required. Limited potential foraging and dispersal habitat for FYLF is present at and near the Brookwood Drive crossing of Arana Creek in the City-District intertie system portion of the study area. As indicated above, given the characteristics of this existing roadway crossing, construction of the pipeline in the existing road would not likely be possible. The stream could be crossed using tunneling methods or instream work, as described above. If instream work is conducted, it could potentially impact this species, if present. Mitigation Measure 5.3-1b, which requires pre-construction surveys, construction area fencing near any potential habitat, and education of construction site workers, would reduce potentially significant impacts to this species to less than significant. No impacts to the species could occur from any other project components or alternatives.

San Francisco Dusky-Footed Woodrat

An active nest of the San Francisco dusky-footed woodrat, a California species of concern, was identified during the biological surveys for the project in the coast live oak woodland below the existing DeLaveaga tanks. Other nests of this species could occur elsewhere in forested or riparian habitats between the DeLaveaga tanks and the Brookwood Drive crossing of Arana Creek. Project construction in these locations could damage or otherwise disturb nests of this species, if present on or immediately adjacent to the project area. No impacts to the species could occur from any other project components or alternatives. Implementation of Mitigation Measure 5.3-1c, which requires preconstruction surveys, and Mitigation Measure 5.3-1d, which requires construction-phase minimization measures, would reduce impacts to less than significant.

Potential Future Expansion

If expansion of the proposed plant and related facilities were pursued in the future, the majority of the additional equipment would be installed in existing structures at the plant, and at the intake pump station. Some additional ground-disturbing activities would be involved in the construction of additional brine storage structure(s) and dissolved air flotation (DAF) basins at the plant, but would not occur elsewhere in the project area. If ground-disturbing activities occur in proximity to the ephemeral drainage on Plant Site A-2, Mitigation Measure 5.3-1b would ensure that potential construction-phase effects to CRLF are reduced to less than significant. No impacts to central California coast steelhead, FYLF, or San Francisco dusky-footed woodrat would occur with potential future expansion of the project, as no construction activities would be required on the City-District intertie portion of the project.

Mitigation Measures

See Mitigation Measures 5.1-1a and 5.1-1b (**Section 5.1**); as well as the mitigation measures outlined below.

Mitigation Measure 5.3-1a

This mitigation measure applies to the Arana Creek/Brookwood Drive crossing of the City-District intertie system, if instream work is pursued. The following measures shall be implemented to minimize the effects to central California coast steelhead and its designated critical habitat, if instream work is pursued to provide for the pipeline crossing of Arana Creek at Brookwood Drive. Because the project would require formal consultation with NMFS pursuant to Section 7 of the FESA, additional measures to avoid and minimize impacts to steelhead may be identified during the consultation process. Any such additional measures shall also be implemented in addition to the requirements of this mitigation measure.

- Diversion of the stream in the construction area shall occur only in the dry summer months between June 15 and October 15 when flows in Arana Creek would be greatly reduced.
- A preconstruction survey shall be conducted by a qualified fisheries biologist immediately prior to project disturbance activities for the presence of special-status species. These surveys shall be conducted immediately prior to disturbance activities, such as the installation and removal of diversion facilities. Prior to all dewatering activities, the fisheries biologist shall survey the water using appropriate survey techniques to capture and relocate steelhead. Dewatering activities shall begin once the biologist has relocated any steelhead present.
- Prior to any instream work in the bed and banks of Arana Creek that requires the construction of cofferdams or dewatering of the creek bed, a stream diversion plan shall be prepared by a qualified biologist after consultation with NMFS and CDFW, and per an

approved Streambed Alternation Agreement. The stream diversion plan shall require that: (1) a qualified fisheries biologist be present during the closing and dewatering of all cofferdams; (2) a qualified fisheries biologists collect, handle, and relocate fish in dewatered areas; and (3) all pump intakes are screened according to CDFW and NMFS criteria. Construction specifications shall incorporate the terms of the stream diversion plan.

- Diversion and routing of the stream channel to a temporary diversion channel to allow construction work in the existing channel shall be supervised by the qualified fisheries biologist after consultation with NMFS and CDFW, consistent with any terms imposed by those two agencies pursuant to their regulatory authorities under FESA and/or Section 1602 of the California Fish and Game Code. The diversion and routing shall not disrupt the connectivity of the upstream reaches with the lower reaches of the creek. The existing channel shall remain untouched until the temporary diversions are constructed and the erosion control measures are in place. Diversion channels shall be opened from the downstream end first; and only clean washed material shall be used to close existing channels to divert water to temporary diversion channels. The temporary diversion channel shall be designed to accommodate the flow of expected storm events, and have gradient controls to ensure that diversion channel slopes correspond to the existing channel gradients.

Mitigation Measure 5.3-1b

This mitigation measure applies to Plant Site A-2 (CRLF) and the Arana Creek/Brookwood Drive crossing (FYLF). The following measures shall be implemented to minimize any potentially significant impacts to CRLF or FYLF:

- A qualified biologist shall conduct preconstruction surveys of the above identified portions of the project area where any potential dispersal habitat occurs. Surveys for CRLF, to be conducted by a USFWS-approved biologist, will be conducted if Plant Site A-2 is selected. Surveys for FYLF shall be conducted for the Brookwood Drive crossing of Arana Creek if instream work is required. These surveys shall be conducted no more than 48 hours prior to start of construction activities. If CRLF or FYLF are found in the project area during any preconstruction surveys, the USFWS or the CDFW would be contacted, as appropriate for these species, and the frogs shall be relocated to a safe location outside the project area and prevented from re-entering the project area with the installation of silt fencing or other exclusion fencing. Only a USFWS-approved biologist with a permit to handle CRLF shall participate in any relocation of CRLF. Construction specifications shall account for this measure.
- Construction fencing shall be installed at the margins of the work area, where any potential habitat for CRLF or FYLF occurs, to prevent workers from encroaching into adjacent habitat and to prevent CRLF or FYLF from entering the construction area. All fencing shall be periodically monitored and maintained for the duration of construction,

and removed upon project completion. Construction specifications shall account for this measure.

- Before construction activities begin in these areas, a USFWS-approved biologist shall conduct a training session for all construction personnel, if Plant Site A-2 is selected. At a minimum, the training shall include a description of the CRLF and its habitat, the importance of the CRLF and its habitat, general measures that are being implemented to conserve the CRLF as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions. This training shall be provided before construction begins, and as new construction crews arrive at Plant Site A-2. A similar training for FYLF shall be conducted by a qualified biologist (USFWS approval not required) prior to construction activities associated with the Brookwood Drive crossing of Arana Creek. Construction specifications shall account for this measure.
- A USFWS-approved biologist shall be present at Plant Site A-2 until such time as all removal of CRLF, instruction of workers, and disturbance of habitat have been completed. After this time, the contractor or City and District shall designate a person to monitor on-site compliance with the above minimization measures and any future staff training. The USFWS-approved biologist shall ensure that this individual receives training as outlined above. The monitor and the USFWS-approved biologist shall have the authority to stop work if CRLF are in harm's way.

Mitigation Measure 5.3-1c

This mitigation measure applies to the City-District intertie system where woodland, forest, or riparian habitats exist near the DeLaveaga tanks and the Brookwood Drive crossing of Arana Creek. At least 2 weeks prior to the start of construction, a qualified biologist shall conduct preconstruction surveys for San Francisco dusky-footed woodrat in woodland, forest, or riparian habitats where vegetation removal could occur. If active woodrat nests are located in the project area, the biologist shall consult with CDFW to determine an appropriate course of action to relocate the nest outside of the project area in a way that does not cause excessive stress, injury, or mortality to the resident woodrats. If nests occur within 10 feet of the construction area, the nests shall be separated from construction as an environmentally sensitive area with fencing, and the fence shall be regularly monitored and maintained throughout the duration of construction in the area before it is removed, following the completion of work. Construction specifications shall include this measure.

Mitigation Measure 5.3-1d

This mitigation measure applies to the City-District intertie system near DeLaveaga tanks and the Brookwood Drive crossing of Arana Creek. All open holes, trenches, or pits shall be covered overnight and when not in use to avoid any wildlife (e.g., San Francisco dusky-footed woodrat) being trapped. If covering is not possible, escape ramps shall be used.

RIPARIAN HABITAT	
Impact 5.3-2:	The proposed project could have the potential for substantial adverse effects to riparian habitat at Plant Site A-2, Intake Sites SI-4 and SI-18, and along the City-District intertie system at the Brookwood Drive crossing of Arana Creek along.
Significance before Mitigation:	Potentially significant
Mitigation Measures:	See Mitigation Measures 5.3-2a through 5.3-2c. See also Mitigation Measures 5.1-1a and 5.1-1b in **Section 5.1**.
Significance after Mitigation:	Less than significant

Proposed Project

Intake Pump Station Sites

Construction of an intake pump station at SI-4 or SI-18 would be outside of the identified 55-foot management area along Bethany Curve Creek, and the assumed 100-foot setback for the Neary Lagoon outlet channel (see **Table 5.3-1** and **Figure 5.3-3**). Likewise, construction of an intake pump station at SI-4 or SI-18 would not result in removal of riparian vegetation, based on current plans. However, riparian setbacks could be encroached upon and riparian vegetation could be removed or degraded inadvertently during construction.

Mitigation Measure 5.3-2b would be implemented at SI-4 and SI-18 to ensure that riparian setbacks are maintained and that riparian habitat and vegetation is protected during construction, which would reduce any potentially significant impact to riparian habitat in these areas to less than significant. If an intake pump station at SI-14 were selected, it would be located at either Plant Site A-1 or A-3 and is incorporated below under the evaluation of **Plant Sites**. None of the other intake pump station sites would be located in proximity to riparian vegetation or habitat and therefore no impacts would occur at these locations.

Plant Sites

As indicated in **Section 5.3.2**, the City-Wide Creeks and Wetlands Management Plan establishes setbacks from creeks and drainages in the City. Plant Sites A-1 and A-3 fall outside of the 95-foot-wide management area along the adjacent Arroyo Seco drainage to the east (see **Table 5.3-1** and **Figure 5.3-2**). Because a desalination plant on either of these sites would not encroach into the above setbacks and would not result in the removal of riparian vegetation or riparian habitat, impacts related to riparian habitat would be less than significant for a desalination plant located on either of these plant sites.

The riparian swale and ephemeral drainage on Plant Site A-2 is mentioned in the City-Wide Creeks and Wetlands Management Plan as an area requiring further study. John Gilchrist and Associates has recently completed a study of this area that evaluated the riparian area and drainage using the criteria established by the City's plan (John Gilchrist & Associates, 2011). Based on required setbacks for other similar drainages covered by the plan, a 40-foot-wide riparian corridor with a 60-foot development setback and an 85-foot management area were adopted for the drainage on Plant Site A-2 (see **Table 5.3-1** and **Figure 5.3-2**).

The project would adhere to these recently adopted setbacks for this riparian area as established in the above study and as approved on March 21, 2012 by the City's Zoning Administrator as part of a Watercourse Development Permit for a restoration project on the site. These setbacks are account for in the preliminary site plan for Plant Site A-2 (see **Figure 4-8, Conceptual Site Plan for Desalination Plant Site A-2**). Further, construction of the desalination plant on Plant Site A-2 would not result in the removal of riparian vegetation or riparian habitat. However, because the newly adopted setbacks were only established and adopted for the southernmost parcel on Plant Site A-2, as part of a separate approval, the setbacks likely need to be established and extended north of that parcel and into an area identified for an access road, and for facilities that would be needed if the plant were ever expanded in the future. Given that, as currently proposed, construction on Plant Site A-2 could potentially encroach into an area that would ultimately be included in the development setback and management area for the unnamed drainage on Plant Site A-2.

Mitigation Measure 5.3-2a requires the establishment of appropriate setbacks on this portion of A-2 and indicates that final design of the plant site would account for these setbacks through redesign, as appropriate, per the City's requirements. Implementation of Mitigation Measure 5.3-2b, requires construction fencing to protect riparian habitat areas during construction. Mitigation Measures 5.1-1a and 5.1-1b in **Section 5.1** would also reduce construction-phase water quality impacts that could impact riparian habitat. With the implementation of Mitigation Measures 5.3-2a, 5.3-2b, 5.1-1a, and 5.1-1b, direct and indirect impacts related to riparian habitat would be less than significant for a desalination plant on Plant Site A-2.

It should be noted that construction in the outer management area is allowable in a Class B watercourse, such as is the drainage on Plant Site A-2. A watercourse development permit would be required for Plant Site A-2 only if construction or development were to encroach into the identified development setback, which is not currently anticipated.

Potable Water Distribution System

Potential impacts to riparian habitat near the Brookwood Drive crossing of Arana Creek would depend on the construction techniques implemented for this crossing. Given the characteristics of this existing roadway crossing, construction of the pipeline within the existing road structure would not likely be possible. The stream would be crossed using either instream work or tunneling methods, as described in Impact 5.3-1 above. Tunneling under the stream would not

likely result in any impacts to riparian vegetation along the immediate roadside. However, it is possible that tree trimming would be required in immediate proximity to the road.

Instream work would result in trenching through the road bed and into the streambed. Given that trenching would occur along the existing roadway alignment, riparian vegetation and trees would not be removed. However, it is possible that tree root systems could be damaged with this activity, where tree canopies overhang the pipeline and trench alignment. Such root damage can lead to the ultimate decline of trees that experience such damage. This root damage could also occur for the segment of the pipeline that would run down Brookwood Drive between Prospect Heights and the bridge crossing, as coast live oak woodland exists along the branch of Arana Creek that parallels Brookwood Drive along this pipeline segment.

Mitigation Measures 5.3-2b and 5.3-2c would be implemented to protect riparian vegetation and trees, as well as oak trees along this pipeline segment. The measures call for the installation of construction fencing to protect riparian vegetation and the preparation and implementation of an arborists report to minimize inadvertent damage to trees and their root zones during construction and to provide techniques for pruning trees, if needed adjacent construction areas. Should any construction activity impact enough of the root zones of any mature native riparian tree such that an arborist determines that the tree will likely die, then replacement trees would be planted. Mitigation Measures 5.1-1a and 5.1-1b in **Section 5.1** would also reduce construction-phase water quality impacts that could impact riparian habitat. With the implementation of Mitigation Measures 5.3-2b, 5.3-2c, 5.1-1a, and 5.1-1b, direct and indirect impacts related to riparian habitat would be reduced to less than significant at the Brookwood Drive crossing of Arana Creek and immediate vicinity.

It should also be noted that a watercourse development permit would be required for the Brookwood Drive crossing of Arana Creek if instream work is required, given that construction activities would take place in the identified 155-foot management area of this Class A watercourse. Additionally, because the Arana Creek centerline is the location of the City-County boundary, development activities, land alteration, and vegetation disturbance in the riparian habitat along the eastern side of Arana Creek would be prohibited unless a riparian exception is granted per the County's Riparian Corridor and Wetlands Protection ordinance (see County Policy 5.2.3 above and County Code Chapter 16.30). As a condition of the riparian exception, the City and District would need to provide evidence of approval for development from the USACE, CDFW, RWQCB, and NMFS, as described above under Impact 5.3-1 and **Section 5.3.3**.

Potential Future Expansion

If expansion of the proposed plant and related facilities were pursued in the future, the majority of the additional equipment would be installed in existing structures at the plant, and at the intake pump station. Some additional ground-disturbing activities would be involved in the construction of additional brine storage structure(s) and DAF basins at the plant, but would not occur

elsewhere in the project area, including along the City-District intertie system. If Plant Site A-2 is selected, Mitigation Measure 5.3-2b would need to be implemented to ensure that construction-phase impacts on riparian habitat would be reduced to less than significant.

Mitigation

Mitigation Measure 5.3-2a

This mitigation measure applies to Plant Site A-2, if this site is selected for the desalination plant. Prior to initiation of final design, riparian setbacks shall be established per the City-Wide Creeks and Wetland Management Plan methodology for the northern end of the ephemeral drainage on Plant Site A-2. This shall involve establishment of the riparian corridor, development setback, and management area, as called for in the above plan. The preliminary design for Plant Site A-2 shall be redesigned where needed to avoid construction, and the placement of structures in the established riparian corridor and development setback for this drainage.

Mitigation Measure 5.3-2b

This mitigation measure applies to Plant Site A-2 and the City-District intertie system at the Brookwood Drive crossing of Arana Creek. Where construction activities would be in or adjacent to riparian habitats, these areas would be protected from construction activities with fencing. Construction fencing backed by silt fencing shall be installed to prevent construction personnel or equipment from entering or impacting these sensitive areas. This fencing shall be installed prior to the initiation of construction activities, at the direction of a qualified biologist. Construction specifications will account for this measure.

Mitigation Measure 5.3-2c

This mitigation measure applies to the City-District intertie system at the Brookwood Drive crossing of Arana Creek. Prior to construction, prepare an arborist report for the Brookwood Drive pipeline segment between Prospect Heights and the Arana Creek bridge crossing. Implement measures from the report to protect trees to be retained, in order to minimize inadvertent damage to protected trees and their root zones during construction. Measures shall include, but not limited to, the following: installation of temporary construction fencing around the dripline of the trees, prohibition of storage or dumping of any kind inside the fenced area, protection of the trees and root zones as specified, and pruning as may be specified in the report.

Should the arborist determine that construction activities would result in enough root damage so as to cause any mature native riparian tree to die, then the arborist shall recommend replacement plantings at ratios appropriate to that species in or near the affected area. The project arborist shall be retained throughout the duration of the trenching along this segment of pipeline to inspect and monitor tree protection zones at regular intervals and to ensure that all arborist recommendations are implemented.

MONARCH OVERWINTERING HABITAT	
Impact 5.3-3:	The proposed project would have the potential for substantial adverse effects to Monarch overwintering habitat at Natural Bridges State Beach, if Plant Site A-2 is selected.
Significance before Mitigation:	Potentially significant
Mitigation Measures:	See Mitigation Measures 5.3-3a and 5.3-3b below.
Significance after Mitigation:	Potentially significant and unavoidable

Proposed Project

No monarch butterflies were observed roosting in any of the proposed project sites. However, portions of the project area are adjacent to known active and historic overwintering sites.

Historically, monarch butterflies have been observed roosting near the existing water storage tanks in DeLaveaga Park; and in New Brighton State Beach, which is adjacent to the planned McGregor Pump Station that would be upgraded with the proposed project. However, no monarch butterflies were seen roosting at these sites as part of an assessment conducted for the project (**Appendix S**). The proposed project would result in trenching for pipeline installation near the water tanks and the installation of new equipment at the McGregor Pump Station, but would not result in permanent vegetation removal or expansion of aboveground buildings or tanks. For these reasons, this work would not impact monarchs or their overwintering sites should they still roost at these historic locations. Additionally, the tree stand in the immediate vicinity of the planned McGregor Pump Station is not suitable for roosting (**Appendix S**).

Desalination Plant Sites A-1 and A-3 do not contain suitable overwintering roosting habitat for monarch butterflies (**Appendix S**). These sites are located approximately 415 and 325 feet respectively from the tree stand in NBSB that supports a known monarch butterfly overwintering site (**Appendix S**). While highly disturbed, Plant Sites A-1 and A-3 are vegetated with plants that could potentially provide foraging opportunities for monarch butterflies, as do several areas on the Westside of Santa Cruz, including grassland areas within NBSB, Antonelli Pond, Terrace Point, Moore Creek Preserve, Wilder Ranch State Park, as well as surrounding residential and other developed areas.

The environmental design features of the project include planting nectar plant species within sunlit, low activity areas at the proposed desalination plant sites. Additionally, construction methods such as tunneling and placement of new pipes in existing right of ways would avoid impacts to overwintering habitats south of Plant Sites A-1 and A-3 in NBSB. Given the distance to the NBSB overwintering site and the types of activities proposed, construction and operation of Plant Sites A-1 or A-3 would not directly affect the NBSB overwintering site or indirectly result in significant impacts to any overwintering monarch butterfly sites.

Desalination Plant Site A-2 is vegetated with a stand of trees (mostly cypress) that does not provide a spatial configuration that is appropriate for a monarch roost site. However, this stand of trees could potentially be providing secondary wind protection to the active monarch butterfly overwintering roost site at NBSB (see **Section 5.3.2** for details). Additionally, the site contains trees, shrubs, and herbaceous vegetation that are typically used by monarch butterflies for foraging (**Appendix S**). As indicated above, the environmental design features of the project include planting nectar plant species within sunlit, low activity areas at the proposed desalination plant sites.

Overwintering monarch butterflies can be very sensitive to wind conditions at a roost site. Trees and topographical features providing primary and secondary wind protection to the roost trees are important features of overwintering sites. In the absence of an extensive study of wind patterns, trees, topography, and monarch activity within and north of NBSB, it is not known to what extent (if any) the trees on Plant Site A-2 are providing any key wind break protection to the roost site at NBSB (see **Section 5.3.2** for more detail). In the absence of such a study, this analysis assumes a worst-case impact scenario that the trees on Plant Site A-2 are potentially providing secondary wind protection to the roost site at NBSB.

The overall development area of Plant Site A-2 includes 33 trees of varying size that would be removed or could potentially be affected during construction, depending on the final design of the plant. Twenty seven trees are outside of the potential development area and would remain onsite. New buildings on Plant Site A-2, with heights of 24 and 36 feet, would offer some wind protection. However the buildings are in some cases smaller than existing onsite trees and may not adequately replace any wind break protection that may be provided by the existing trees on Plant Site A-2 to the NBSB overwintering site. California Department of Parks and Recreation has planted coast live oak and Monterey cypress trees at the northern portion of the NBSB to enhance wind protection and to replace eucalyptus trees that have died or are in decline at the NBSB roost site. However, these trees will take time to mature and it is unclear whether these trees could replace any wind break protection that may be provided by the existing trees on A-2.

Mitigation Measure 5.3-3a requires the final design of Plant Site A-2, if selected, to avoid impacts to trees onsite to the extent feasible. Additionally, Mitigation Measure 5.3-6 outlines protection measures during construction for those trees remaining onsite. Mitigation Measure 5.3-3b requires that replacement trees be planted to provide wind protection to the NBSB roost site. However, it is unlikely that enough area would remain on Plant Site A-2 to plant all necessary replacement trees. Although replacement trees could be planted on the north end of NBSB, any such planting would require approval from California Department of Parks and Recreation. Much of NBSB has already been planted and it is not known if California State Parks and Recreation would either have space or approve of replacement planting of trees in the park. Additionally, there could be a temporary loss of potential wind protection while replacement trees mature.

In the absence of additional field data from a study of the wind patterns and butterfly use in the area, it is conservatively assumed that potential secondary wind protection to the NBSB monarch overwintering site would be partially eliminated as a result of tree removal associated with construction of a desalination facility at Plant Site A-2. Further, it cannot be assured that any potential secondary wind protection provided by existing trees on Plant Site A-2 could be replaced in a timely or adequate manner with the mitigation measures outlined below. Therefore, it must be assumed, in the absence of additional study, that construction of Plant Site A-2 could potentially result in a significant, unavoidable impact to the monarch butterfly overwintering site at NBSB.

Potential Future Expansion

If expansion of the proposed plant and related facilities were pursued in the future, the majority of additional needed equipment would be installed in existing structures at the plant and at the intake and intertie pump stations. Some additional ground-disturbing activities would be involved in the construction of additional brine storage structure(s) and DAF basin(s) at the desalination plant.

Given that Plant Sites A-1 and A-3 do not contain monarch butterfly roost habitats, expansion of the plant at these locations would not lead to significant impacts to overwintering monarch butterflies. If future expansion of the plant were to disturb butterfly nectar plants, additional suitable areas on the desalination plant site or offsite in close proximity to NBSB would be planted and maintained with nectar species as outlined in the environmental design features for the project. Therefore, impacts of potential future expansion would be less than significant, if Plant Site A-1 or A-3 is selected.

If Plant Site A-2 is expanded, ground disturbing activities could potentially result in the need for additional tree removal on Plant Site A-2, depending on the final design for the plant. If additional tree removal would be required, such removal could further contribute to the loss of secondary wind protection to the monarch butterfly overwintering site at NBSB. Mitigation Measures 5.3-3a, 5.3-3b, and 5.3-6 would minimize impacts to the extent feasible. However, at this time, it is not certain that any potentially significant impacts to the NBSB roost could be mitigated to less than significant. Therefore, impacts of potential future expansion could be potentially significant and unavoidable, if Plant Site A-2 is selected.

Environmental Design Features

The environmental design feature (**Section 4**, **Table 4-12**) of the proposed project related to landscaping includes the following:

- Nectar plant species preferred by foraging adult monarch butterflies during the fall and winter months will be planted and maintained at the desalination plant site. The plantings will be in sunlit areas, preferably on the southern and western portions of the site and

away from substantial vehicle traffic and human activity. A qualified biologist specializing in monarch butterflies will review the planting plans prior to construction. Planting will occur as soon as possible following ground disturbing activities. Should future changes or expansion of the plant result in unsuitable conditions for the nectar plants, additional suitable areas on the desalination plant site or offsite in close proximity to NBSB will be planted and maintained with nectar species.

Mitigation Measures

Mitigation Measure 5.3-3a

This mitigation measure applied to Plant Site A-2. Final design of Plant Site A-2 shall avoid, to the extent feasible, removal of tree species that may provide wind protection to the monarch butterfly roost in NBSB. See Mitigation Measure 5.3-6 for tree protection measures during construction.

Mitigation Measure 5.3-3b

This mitigation measure applies to Plant Site A-2. A mixture of tall, medium, and short tree species known to function as wind protection for monarch butterfly roost sites shall be planted on the desalination plant site or offsite to provide wind protection to the monarch butterfly roost area in Natural Bridges State Beach. Trees shall either be faster growing species or mature trees. Evergreen tree species that provide good windscreen function include Coast redwood (*Sequoia sempervirens*), Monterey cypress (*Hesperocyparis macrocarpus*), swamp mahogany (*Eucalyptus robusta*), Sydney blue gum (*Eucalyptus saligna*), and coolibah (*Eucalyptus microtheca*). These evergreens should be planted in the drier locations of the southwestern portion of Plant Site A-2. In the wetter portions of Plant Site A-2, California white alder (*Alnus rhombifolia*), red alder (*Alnus rubra*), and willows (*Salix hindsiana, S. lucida,* and *S. lasiolepis*) are appropriate trees for this purpose. Replacement trees should be planted at a minimum 2:1 ratio to those removed to the extent available land and any landowner approvals allow. Plantings should be timed, to the extent feasible, to minimize any time lag in the loss of wind protection to the NBSB monarch roost area.

WATERS AND WETLANDS	
Impact 5.3-4:	The proposed project could potentially have a substantial adverse effect on state- or federally-protected wetlands or waters through inadvertent filling, hydrological interruption, or other means during construction.
Significance:	Potentially significant
Mitigation Measures:	See Mitigation Measures 5.3-2a through 5.3-2c. See also Mitigation Measures 5.1-1a and 5.1-1b in **Section 5.1**.
Significance after Mitigation:	Less than significant

Proposed Project

Implementation of the proposed project could affect potentially jurisdictional waters in some locations. If Plant Site A-1 is selected, potentially jurisdictional waters would not be impacted, because no such waters exist on this site. If Plant Site A-2, or intake pump station sites SI-4 or SI-18 are selected, impacts to potentially jurisdictional waters would be reduced to less than significant through the implementation of mitigation measures identified in Impact 5.3-2 (Mitigation Measures 5.3-2a, 5.3-2b, and 5.1-1a).

If Plant Site A-3 is selected, impacts to such waters would occur during construction, because there is a stormwater culvert (CWUS-3) and an associated seasonal wetland (WWUS-1) that drain to a concrete ephemeral stormwater ditch (OWUS-10)—and ultimately to Natural Bridges Creek—that would be impacted if the desalination plant is constructed on this site (see **Table 5.3-2** and **Figure 5.3-2**). These areas constitute less than 0.1 acre of potentially jurisdictional waters that would be permanently filled if Plant Site A-3 is selected. Two of the three features, the culvert (CWUS-3) and the concrete stormwater ditch (OWUS-10) are features that convey stormwater but are hardscape and therefore provide minimal benefit to the ecology and water quality. The seasonal wetland (WWUS-1) constitutes less than 0.02 acres that would be filled if Plant Site A-3 is selected. Within the context of the region, the small amount of wetland to be permanently filled combined with the nature of the hardscape features to be impacted make the potential impact of Plant Site A-3 to jurisdictional waters less than significant.

Other potential impacts to waters of the U.S. and/or waters of the state in the study area occur in the City-District intertie system area at stream or creek crossings. The only crossing where waters could be impacted, however, is the Brookwood Drive crossing of Arana Creek noted above in Impact 5.3-1 and Impact 5.3-2. Arana Creek at the Brookwood Drive crossing could require a culvert replacement and/or streambed alteration to complete project work if instream work is conducted. This would result in fill of potentially jurisdictional waters of approximately 0.05 acre, if instream work is conducted for the pipeline crossing. This fill would result in only

temporary construction-phase impacts and not permanent impacts to such waters. Mitigation Measures 5.3-2b, 5.3-2c, 5.1-1a, and 5.1-1b would reduce any temporary effects on jurisdictional waters associated with the Brookwood Drive crossing to less than significant. No other components of the proposed project would result in direct fill or other effects to potentially jurisdictional waters.

As indicated previously, USACE and RWQCB permits under the Clean Water Act will be required if Plant Site A-3 is selected, and/or if instream work is conducted at the Arana Creek crossing near Brookwood Drive.

Potential Future Expansion

If expansion of the proposed plant and related facilities were pursued in the future, the majority of the additional equipment would be installed in existing structures at the plant, and at the intake pump station. Some additional ground-disturbing activities would be involved in the construction of additional brine storage structure(s) and DAF basin(s) at the plant, but would not occur elsewhere in the project area, including along the City-District intertie system. If Plant Site A-2 is selected, Mitigation Measure 5.3-2b would need to be implemented to ensure that inadvertent, construction-phase impacts on potentially jurisdictional waters would be reduced to less than significant. If Plant Site A-1 or A-3 is selected, no additional impacts on potentially jurisdictional waters would result from potential future expansion of the project.

Mitigation Measures

See Mitigation Measures 5.3-2a through 5.3-2c above. See also Mitigation Measures 5.1-1a and 5.1-1b in **Section 5.1**.

NATIVE RESIDENT OR MIGRATORY FISH OR WILDLIFE MOVEMENT

Impact 5.3-5:	The project would potentially interfere substantially with the movement of native resident or migratory steelhead and nesting activities of native resident or migratory birds.
Significance before Mitigation:	Potentially significant
Mitigation Measures:	See Mitigation Measure 5.3-1a above and Mitigation Measure 5.3-5 below.
Significance after Mitigation:	Less than significant

Proposed Project

Migratory Steelhead

See Impact 5.3-1 for a discussion of the potential impacts of the project related to steelhead and their potential use of Arana Creek for migratory activities. If instream work is conducted at the Brookwood Drive crossing of Arana Creek, Mitigation Measure 5.3-1a would reduce impacts to less than significant by ensuring that continued passage for steelhead is provided for during construction.

Nesting Birds

Potential habitat for nesting special-status birds, including nesting raptors, state bird species of special concern, and MBTA birds occurs at or near: Plant Site A-2; intake pump station sites along West Cliff Drive, Beach Area, and Municipal Wharf (SI-4, SI-5, SI-7, SI-17, and SI-18); and portions of the City-District intertie system. Portions of the intertie system include the pipeline alignment between the DeLaveaga tanks and Paul Sweet Road, and near the bridge crossings of Rodeo Gulch, Soquel Creek, and Noble Gulch. Other vegetation and residential or commercial landscaping also occurs in or near the project area, which could function as nesting habitat. Construction activities that cause noise, dust, and vibration could disrupt nesting activities of special-status birds, which would constitute a potentially significant impact. Mitigation Measure 5.3-5, which requires preconstruction surveys and establishment of no-disturbance buffers, would reduce impacts to nesting special-status bird species to less than significant.

Potential Future Expansion

If expansion of the proposed plant and related facilities were pursued in the future, the majority of the additional equipment would be installed in existing structures at the plant, and at the intake pump station. Some additional ground-disturbing activities would be involved in the construction of additional brine storage structure(s) and DAF basin(s) at the plant, but would not occur

elsewhere in the project area, including along the City-District intertie system. Therefore, no additional impacts to steelhead migration would be expected to occur if expansion of the plant and related facilities were to take place in the future. Mitigation Measure 5.3-5 would be implemented for future construction activities that could occur near trees or the shoreline, which would reduce any potential impact to nesting birds to less than significant.

Mitigation Measures

Mitigation Measure 5.3-5

This mitigation measure applies to all project components. Within 30 days prior to initiating any construction activity during the nesting period (February 1 to August 31st), a pre-construction nesting bird survey for the presence of nesting birds protected under the MBTA, including raptors and other special-status bird species, shall be conducted by a qualified biologist to establish the status of these species in the project area, and identify any active nests within 500 feet of the various construction sites. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction survey during the nesting period, the site shall be resurveyed.

If occupied raptor nests or other nesting MBTA are observed within 500 feet of proposed construction activities, the City shall consult with a qualified biologist and CDFW and/or USFWS, as needed, to develop measures, including establishing an appropriate buffer distance to avoid disturbance of nesting species, prior to the initiation of any construction activities. Minimum buffer zones are typically 50 feet, and they may be larger for sensitive species. If a buffer distance is established around an active nest, no activities of any kind will occur within the buffer until chicks have fledged (actual time to be determined by qualified biologist).

CONFLICTS WITH LOCAL BIOLOGICAL POLICIES OR ORDINANCES

Impact 5.3-6:	The project could conflict with local policies or ordinances protecting biological resources, such as relevant General Plan and LCP policies, and tree preservation policy ordinance.
Significance before Mitigation:	Potentially significant
Mitigation Measures:	See Mitigation Measures 5.3-1a through 5.3-1d, 5.3-2a through 5.3-2c, 5.3-3a, 5.3-3b, 5.3-5 above. See Mitigation Measure 5.3-6 below.
Significance after Mitigation:	Potentially significant and unavoidable for Plant Site A-2

Proposed Project

City General Plan and LCP Policies

The project provides riparian setbacks in accordance with City requirements as set forth in the City-wide Creeks and Wetlands Management Plan, and with the implementation of the mitigation measures identified above related to special-status species, riparian habitat, and other sensitive habitats, the proposed project would not conflict with General Plan 2030 and LCP policies related to biological resources (see **Section 5.3.3** for list of relevant policies). Thus, potentially significant impacts related to conflicts with City and/or County biological resource policies, as relevant, would be reduced to less than significant with the implementation of mitigation measures identified above, with the potential exception of monarch butterfly overwintering habitat, as further discussed below.

General Plan 2030 Policy NRC2.2 and LCP Policy EQ4.5 seek to protect sensitive habitat areas as shown on General Plan or LCP maps and as assessed during the CEQA review process. Additionally, General Plan Policy NRC2.4 calls for protection, management and enhancement of tree groves and understory that provide sensitive habitat features. LCP Program EQ4.5.3.2 indicates that development affecting monarch sites should prepare a management plan addressing criteria such as prohibiting cutting, thinning or removal of any tree or shrub; prohibiting pesticide use; allowing construction only when monarchs are not present; and keeping smoke from infiltrating monarch roosting sites.

The lower portion of Plant Site A-2 is within an area identified as potential monarch butterfly habitat in both the City's General Plan and LCP (see **Figure 5.3-2**). The analysis in this EIR (including **Appendix S**) provides site-specific reviews to determine presence of and potential impacts to monarch butterfly overwintering habitat. This has been conducted as part of the environmental review process as required by General Plan Program NRC2.2.1 and LCP Policy EQ4.5. As described in the Impact 5.3-3 analysis above, the proposed alternative desalination plant sites are set back from the NBSB monarch overwintering site by approximately 70 to 415

feet, and development would not directly impact the area in NBSB where overwintering monarchs roost. The biological review conducted for this EIR found that none of the project sites provide trees where monarchs actively roost.

However, the existing trees on Plant Site A-2 may provide secondary wind protection to the NBSB overwintering roost. Construction on Plant Site A-2 would result in removal of trees that could potentially affect the overwintering roost site at NBSB, but would not result in direct removal of trees where monarchs roost. The environmental design features of the project include planting nectar plant species. Development at the proposed plant sites would not involve use of pesticides or result in smoke or other stationary emissions. Further, construction would not occur directly adjacent to the area where monarch butterflies are roosting at NBSB. Thus, the project would not directly affect roosting trees and would not conflict with most of the provisions identified in LCP Program EQ4.5.3.2, although the removal of trees on Plant Site A-2 could potentially affect the overwintering roost site at NBSB if they are providing secondary wind protection to the NBSB roosting site.

While identified mitigation measures (MM 5.3-3a, 5.3-3b, and 5.3-6) would avoid removal of trees to the extent feasible, require the planting of replacement trees on or near Plant Site A-2, and protect trees to be retained, it cannot be assured that these measures would reduce potentially significant impacts to the NBSB roost, if onsite trees are serving as secondary wind break. To the extent that trees on Plant Site A-2 may provide secondary wind protection to the NBSB roost, removal could potentially partially conflict with General Plan and LCP policies NRC2.2 and EQ4.5, respectively, to protect sensitive habitat. If Plant Site A-2 is pursued, the City decision-makers would provide a final determination as to whether the project conflicts with applicable General Plan and LCP policies. If such policy conflicts are identified by the City decision-makers, this would be considered a potentially significant and unavoidable impact, for the reasons identified above.

City Heritage Tree Ordinance

Plant Site A-1. Construction of a desalination plant on Plant Site A-1 would not result in the removal of any trees. Therefore, conflicts with the City's heritage tree ordinance would not occur, and the impact would be less than significant.

Plant Site A-2. Impacts to heritage trees in the City associated with the proposed project could occur if such trees are removed or substantially damaged during construction. Potential heritage trees that could be removed by the proposed project include approximately 33 trees, most of which are Monterey cypress trees at Plant Site A-2 that are between 16 inches to 41 inches dbh (Joni L. Janecki & Associates, 2012). Eight other cypress trees would likely be retained in the development area for Plant Site A-2, five of which could be heritage trees, due to their size. Riparian trees in the unnamed drainage on A-2 would not be removed with the project, because development would adhere to the adopted setbacks in this area.

As indicated in **Section 5.3.3**, a heritage tree removal permit from the City would be required for the removal of these heritage trees if Plant Site A-2 is selected. An arborist report would be required as part of the permit application to formally identify, assess the heritage status and health of trees to be removed, and identify trees that should be preserved. To approve such a permit, the Director of Parks and Recreation will have to find that the physical condition or health of the tree or shrub warrants alteration or removal, or that the proposed project design cannot be altered to accommodate the existing heritage trees (see **Section 5.3.3**).

Approval of a heritage tree removal permit automatically requires replacement trees. City regulations require tree replacement for removal of a heritage tree to consist of replanting three 15-gallon or one 24-inch-sized specimen for each heritage tree approved for removal. Therefore, approximately 33 trees of this size would need to be planted on Plant Site A-2, or at an approved offsite location, consistent with the requirements for heritage tree removal. Because available landscape plans for the alternative desalination plant sites are only very preliminary, the site plan for Plant Site A-2 does not currently show replacement plantings of this magnitude. If Plant Site A-2 is selected and a heritage tree removal permit is pursued, then final landscape plans would need to incorporate replacement tree plantings per the above requirements, and/or an offsite location would need to be identified and approved as part of the tree removal permit process. Removal of heritage trees that is consistent with the criteria, provisions, and requirements set forth in City ordinances is not considered a significant impact.

The retained heritage trees on Plant Site A-2 could be inadvertently damaged during grading and construction. Grading and soil compaction and inadvertent damage due to construction equipment could damage the root zones unless the trees and root zones are adequately protected during construction. Mitigation Measure 5.3-6 provides for the preparation and implementation of an arborist report; and in particular, the implementation of measures identified in the report to protect the heritage trees to be retained during construction and techniques for pruning trees near building sites. With the implementation of this mitigation measure, impacts on retained heritage trees would be reduced to less than significant.

Plant Site A-3. Construction of a desalination plant on Plant Site A-3 could result in the removal of some smaller trees along the existing entrance road to the Harmony building. Because none of these trees are large enough to be considered heritage, conflicts with the City's heritage tree ordinance would not occur and the impact would be less than significant.

Other Project Components. No other heritage trees would be impacted by other components of the project in the County or Capitola.

County General Plan and LCP Policies

With the implementation of the mitigation measures identified above related to special-status species and riparian habitat, the proposed project would not conflict with County General Plan and LCP policies related to riparian resources, as provided in **Section 5.3.3**. It should be noted

that a riparian exception would need to be granted per the County's Riparian Corridor and Wetlands Protection ordinance if instream work would be conducted at the Arana Creek crossing at Brookwood Drive, as acknowledged under Impact 5.3-2.

Potential Future Expansion

If expansion of the proposed plant and related facilities were pursued in the future, the majority of the additional equipment would be installed in existing structures at the plant, and at the intake pump station. Some additional ground-disturbing activities would be involved in the construction of additional brine storage structure(s) and DAF basin(s) at the plant, but would not occur elsewhere in the project area. If ground-disturbing activities occur in proximity to the ephemeral drainage on Plant Site A-2, Mitigation Measure 5.3-1b would ensure that potential construction-phase effects to CRLF are reduced to less than significant. Mitigation Measure 5.3-5 would be implemented for future construction activities that could occur near trees, which would reduce any potential impact to nesting special-status birds to less than significant. If these structures could impact additional heritage trees on Plant Site A-2, an additional heritage tree removal permit would also be required, as described above for the proposed project. Retained trees near construction zones will be protected through the implementation of Mitigation Measure 5.3-6, which would reduce any potential impact on retained trees to less than significant.

If Plant Site A-2 is selected and subjected to expansion, ground disturbing activities could potentially result in the need for additional tree removal on Plant Site A-2, depending on the final design for the plant. To the extent that trees on Plant Site A-2 may provide secondary wind protection to the NBSB roost, additional tree removal could also potentially partially conflict with General Plan and LCP policies NRC2.2 and EQ4.5, respectively, as described above. If such policy conflicts are identified by the City decision-makers, this would also be considered a potentially significant and unavoidable impact, for the reasons identified above.

Mitigation Measures

Mitigation Measure 5.3-6

This mitigation measure applies to Plant Site A-2. Prepare an arborist report if Plant Site A-2 is selected. Implement measures from the report to protect trees to be retained in order to minimize inadvertent damage to protected trees and their root zones during construction. Measures shall include, but not limited to, the following: installation of temporary construction fencing around the dripline of the trees, prohibition of storage or dumping of any kind inside the fenced area, protection of the trees and root zones as specified, and pruning as may be specified in the report. Require that the project arborist be retained throughout the duration of the project to inspect and monitor tree protection zones at regular intervals and to ensure that all arborist recommendations are implemented.

CONFLICTS WITH ADOPTED HCPS	
Impact 5.3-7:	The project would not conflict with an adopted HCP, NCCP, or other approved conservation plan, but would support the City's current HCP planning process related to steelhead and coho salmon.
Significance:	Beneficial
Mitigation Measures:	None required

Proposed Project

As indicated in the IWP Program EIR and in the Initial Study for the proposed project (see **Appendix A**), the study area is not in or adjacent to the boundaries of an adopted regional HCP or NCCP; therefore, the proposed project would not conflict with such a plan.

The City of Santa Cruz is currently developing an HCP that is required in order to protect federally listed fish and other species in local streams, and to comply with FESA, as described in **Section 5.3.2**. Similar planning will also be completed in compliance with CESA. All of the streams from which the City diverts water currently support steelhead trout. In addition, the San Lorenzo River may potentially support coho salmon. Both of these fish species are listed under FESA and/or CESA as either "threatened" or "endangered," as described in **Section 5.3.3**.

The HCP will include limitations on the amount of surface water taken from local streams in order to protect these listed species. The proposed project would not be subject to this HCP, but it would provide a supplemental water supply that is needed to reduce water diverted from local streams. Specifically, the proposed project would allow the City to reduce water diversions from local streams, especially during the dry season, when stream flows are already naturally low and domestic water use is increased. More water available in streams provides more rearing, migratory and spawning habitat for anadromous fish, and would likely improve habitat conditions by potentially lowering summer water temperatures through deeper and wider stream channels, and increased streamflow and groundwater recharge. Consequently, the proposed project would facilitate compliance with the HCP once adopted. Therefore, the proposed project would have a beneficial impact because it would enable the City to reduce water diversions from the local streams, which would improve habitat for the listed species identified above.

Potential Future Expansion

Future applicable adopted HCPs or other approved conservation plans would need to be reviewed, if and when any expansion is proposed, to determine if the expansion is consistent with such plans in effect at the time.

Mitigation Measures

None required.