APPENDIX 11.3
Biological Resources Reports

BAY BRIDGE PUMP STATION

MARINE RESOURCES TECHNICAL STUDY

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1.0 INTRODUCTION

The City of Newport Beach (City) is located in the coastal center of Orange County, with Los Angeles County to the north and San Diego County to the south. The City was incorporated September 1, 1906 and the current City Charter was adopted in 1954. It has an estimated permanent population of 86,738 but during the summer months, the population grows to more than 100,000 with 20,000 to 100,000 tourists daily. The City surrounds Newport Bay, where approximately 4,300 boats are docked within the 21-square-mile harbor area (City of Newport Beach 2018).

Orange County Sanitation District (OCSD) owns, operates, and maintains the existing pump station and associated force mains, which convey wastewater from Newport Beach to OCSD Plant No. 2 wastewater treatment facility in Huntington Beach. The existing pump station facility is the furthest upstream pump station within the Newport force main network. Since original construction, portions of the existing Bay Bridge Pump Station (BBPS) and associated force mains have deteriorated and require repairs to meet safety requirements. The existing facility is critical to OCSD operations as it conveys approximately 50 to 60 percent of the total Newport Beach flow through these force mains; it is imperative to ensure continuous service to the community and avoid spills for the next design lifespan (an additional 50 years). This would be accomplished through an upgrade to the existing pump station/force main infrastructure.

Newport Bay is considered sensitive marine habitat and afforded protection to conserve and protect the natural resources of the Bay. The Project Area is surrounded by sensitive areas to the north and south. Upper Newport Bay is a State of California Marine Protected Area (MPA), specifically designated as a State Marine Conservation Area (SMCA). Upper Newport Bay is an estuary and supports extensive eelgrass beds, both of which are considered habitat areas of particular concern (HAPC) for various federally managed fish species. The lower Newport Coast is adjacent to sensitive Areas of Special Biological Significance (ASBS) as designated by the State Water Resources Control Board (SWRCB).

The project vicinity consists of developed channels, beaches, and hardscape areas with a wide range of recreational activities such as sport fishing, kayaking, diving, wind surfing, sailboat racing, excursion, and entertainment boat activities, as well as visitor serving commercial and recreational uses and waterfront residences (Figure 1). The Newport Bay Channel ranges can reach a maximum of -16 feet (ft) mean lower low water (MLLW) depth.

This biological report has been prepared in order to evaluate the potential for sensitive biological resources to occur within or adjacent to the proposed Project Area.

1.1 Project Description

The proposed project would replace the existing BBPS and associated force mains to bring the pump station facility and force mains to current design and reliability standards, ensuring continuous service for the Newport Coast service area. Locally, the project site includes sewer pump station improvements located within a property located at 300 Pacific Coast Highway (PCH). The project also includes sewer force main improvements that would extend from the proposed pump station, proceeding westerly beneath the Newport Bay Channel (south of Bay Bridge), to connect to an existing OCSD valve vault on the west side of Bay Bridge. Two pump station locations and three force main alignments are proposed across the Newport Bay Channel (Figure 2).

In addition to the pump station facility, existing force mains consist of dual 24 inch (in.) force mains approximately 1,250 ft in length that start from the pump station and route across PCH, crossing Balboa Marina property just south

of PCH, then routing under the Newport Bay Channel (south of Bay Bridge) to an existing valve vault located on the west side of Bay Bridge approximately 0.25 miles (mi) west of the pump station The valve vault is located immediately north of the existing Bayshore Apartments. The existing force mains were originally constructed as mortar lined and coated steel, and the lines were sliplined in 1981 with 20 in. high density polyethylene (HDPE).

Modifications to the existing gravity sewer system are required to route gravity sewage flows to the new pump station's wet well. These gravity sewer improvements include installing 320 linear feet (LF) of 12 in. vitrified clay pipe (VCP) within PCH immediately west of Bayside Drive, 320 LF of 36 in. VCP along Bayside Drive immediately north of PCH, and 100 LF of 42 in. VCP from Bayside Drive to the new pump station. These pipes would be installed via open trench excavation along PCH and Bayside Drive and is anticipated to take two to four weeks to complete.

In order to convey wastewater from the new pump station, the project proposes to install 32 in. HDPE dual force mains underneath the existing Newport Bay Channel via horizontal directional drilling (HDD). HDD is a trenchless method of installing underground utilities (e.g., pipelines, conduit, or cables) with minimal impact. The drilling technique involves a launch and receiving pit at each end of the proposed alignment to guide a drill string along a prescribed bore path to avoid obstacles, such as the existing Newport Bay Channel.

At the new pump station site, approximately 150 LF of dual 32 in. sewer force main would be constructed in a trench between the HDD bore pit and the new pump station. The dual force mains would exit the pump station's west side, through a flow meter and valve vault, and continue west to cross under the Newport Bay Channel (north of Bay Bridge). The lowest point of crossing would be at approximately -60 to -70 ft in elevation. The tunnels would be approximately 1,360 ft long and would be drilled from either side of the Newport Bay Channel. From the side the pipe is being installed on, a continuous pipe stringer would be utilized.

Microtunneling may be utilized as an alternate option for construction of the force mains across the Newport Bay Channel, which would result in a similar range of impacts in regard to construction activity, work areas, and construction duration. Microtunneling is a digging process that uses a remote-controlled microtunnel boring machine combined with a pipe jack-and-bore method to install pipes underground in a single pass. Similar to HDD, microtunneling avoids the need to have long stretches of open trench for pipe-laying construction.

After crossing the Newport Bay Channel, the force main alignment would head south from a disturbed area in Castaways Park to the existing OCSD force main system. Within the disturbed area in Castaways Park, the force mains would be trenched via open cut excavation for approximately 260 LF in a westerly and southerly direction towards West Coast Highway. To avoid impacts to traffic along West Coast Highway, the force mains would be microtunneled beneath the roadway surface to extend to the existing OCSD valve vault. The microtunnel would begin within the southerly portion of the disturbed area south of Castaway Park and would extend approximately 260 LF within two separate tunnels (each carried in a 48 in. casing) and terminate at the existing valve vault.

The following biological report takes into account both direct and indirect potential impacts to marine resources that may occur within the Project Area as presented in the Project description, which includes microtunneling, trenching, and HDD installation methods during force main, pump station, and gravity sewer improvements.

Figure 1. Project Area Overview

Figure 2. Bay Bridge Pump Station (BBPS) Conceptual Site Plan

2.0 POTENTIAL IMPACTS TO MARINE RESOURCES

2.1 Birds

The Migratory Bird Treaty Act of 1918 (MBTA) provides for the protection of migratory birds by making it illegal to possess, pursue, hunt, take, or kill any migratory bird species. The Act also applies to removal of nests occupied by migratory birds during the breeding season (Nongame Wildlife Program 2016). Newport Bay is home to endemic and sensitive bird species. Noise, lighting, and reduced foraging associated with construction may negatively impact avian species. Foraging habitat may be disrupted due to construction-related turbidity and the increased activity of workboats and work operations within the Bay under the PCH bridge.

Sensitive and/or protected bird species, designated by the California Department of Fish and Wildlife (CDFW) and the United States Fish and Wildlife Service (USFWS), that potentially may occur in or adjacent to the Project Area are the California Brown Pelican (*Pelecanus occidentalis californicus)*, the Osprey (*Pandion haliaetus carolinensis),* the American Peregrine Falcon *(Falco peregrinus anatum),* the California Least Tern (*Sterna antillarum browni*), and the Light-footed Ridgway's Rail (*Rallus obsoletus levipes*). The species are described below and presented in Table 1. While species like the Light-footed Ridgway's Rail and California Least Tern are significantly outside the project area, they are included here to recognize their regional importance and sensitivities with respect to the project description.

California Brown Pelican (*Pelecanus occidentalis californicus*): This species was previously listed as endangered; however, it recovered and was delisted by the state and federal governments in 2009. It is a Fully Protected Species (CDFW) present year-round in Newport Bay. They forage by plunge-diving into water using visual detection to capture prey within one meter of the water surface. Their distribution and foraging are strongly associated with the water temperatures and availability of fish stocks within particular temperature zones. They can be opportunistic or rely on a largely single-species diet, preferentially feeding on Northern Anchovy. California Brown Pelicans are colonial nesters utilizing relatively small, inaccessible coastal islands or bays for colony sites (Nongame Wildlife Program 2016). Due to its high mobility and capability to access other areas for feeding and foraging, the California Brown Pelican is expected to avoid construction activities and utilize other parts of the Bay for nesting sites.

Osprey (*Pandion haliaetus carolinensis*): This North American raptor was previously listed as a Species of Special Concern (CDFW) but was removed in 2008 and moved to a Watchlist (CDFW). It is found across North America near large bodies of open water with an abundant food supply; virtually any wetland such as coasts, rivers, large lakes, and marshes are suitable. This species subsists on many types of fish, swooping down and snatching prey with its large talons. Ospreys build stick nests on top of natural structures such as trees and cliffs or manmade structures such as utility poles and channel markers. Nesting of two to four eggs begins in the spring, hatching around June. Construction activities along Newport Bay should not affect the Osprey due to its wide range (Sea and Sage Audubon Society 2018).

American Peregrine Falcon (*Falco peregrinus anatum*): This Fully Protected Species (CDFW) is a large raptor that can be found nearly everywhere on Earth except polar regions, making it the most widespread raptor (Sea and Sage Audubon Society). The American Peregrine Falcon subsists on mostly other birds such as pigeons and waterfowl, but also hunts small mammals, reptiles, and insects during dawn and dusk. Its diverse range covers mountains, rivers, coastlines, and urban areas. The American Peregrine Falcon often nests in scrapes off cliff edges, with no nesting material utilized. Eggs are hatched around March after a month of incubation. Construction activities within the Project Area should not affect this species due to its wide foraging range.

California Least Tern (*Sterna antillarum browni*): The smallest member of the Tern family, this migratory bird species occurs and breeds along the Pacific Ocean and is state and federally endangered. Their nesting sites are usually on exposed sandy beaches. The nest is a simple scrape, sometimes lined with small pieces of shell. Nesting begins in

May and ends in June. The California Least Tern hunts primarily fish, including anchovies and smelt, along with crustaceans. Since this species is found on sandy beaches, they may be found on the shores of nearby Newport Beach, but it is unlikely they would be found on the embankments or foraging in the Project Area.

Light-footed Ridgway's Rail *(Rallus obsoletus levipes)*: This state and federally endangered bird is difficult to spot, hiding in dense marsh vegetation. Light-footed Ridgway's Rails depend on coastal saltmarsh, specifically cord grass for nesting (Newport Bay Conservancy). They prefer to walk or run rather than fly or swim. They forage on mussels, crabs, and clams in marsh vegetation or along creeks and mudflats. Mating begins in February, with nesting beginning in March and ending in August. The nearby Upper Newport Bay subpopulation is the largest in California (CDFW 2016), however, this species is highly unlikely to venture south into the Project Area since it does not contain marsh habitat.

Table 1. Potential Special Status Avian Species Found Near the Project Area

Common Name	Scientific Name	Status and Protection	Presence at Site
California Brown Pelican	*Pelecanus occidentalis californicus*	-CDFW: Fully Protected Species -ESA and CESA delisted in 2009	Common
Osprey	*Pandion haliaetus carolinensis*	-CDFW Watchlist: Listed in 1992 as a Species of Special Concern (CDFW), removed in 2008	Occasional
American Peregrine Falcon	*Falco peregrinus anatum*	-CDFW: Fully Protected Species -ESA delisted in 1999; CESA delisted in 2009 -USFWS Birds of Conservation Concern Listed	Occasional
California Least Tern	*Sterna antillarum browni*	-CDFW: Fully Protected Species -Listed as Endangered by the State of California (CESA) and Federally (ESA)	Rare
Light-footed Ridgway's Rail	*Rallus obsoletus levipes*	-CDFW: Fully Protected Species -Listed as Endangered by the State of California (CESA) and Federally (ESA)	Rare

2.2 Marine Mammals

The Marine Mammal Protection Act (MMPA) of 1972 prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States. The USFWS and the National Marine Fisheries Service (NMFS) administer the MMPA. No MMPA take authorization is anticipated to be required for this project.

Newport Bay and Harbor are home to two species covered by the MMPA: the California Sea Lion (*Zalophus californianus)* and the Pacific Harbor Seal (*Phoca vitulina richardii)* (Table 2). Marine mammals can often be seen feeding and foraging near bait docks, following fishing boats to their respective marinas in an effort to eat baitfish or fish thrown back into the bay and harbor. The potential for impact results from activities associated with pipeline construction-related turbidity, light and noise, and increased workboat activity. Potential impacts to marine mammals may include temporary disruption and/or loss of foraging habitat, localized and short-term noise impacts from construction activities, and the potential for reduced foraging success due to project-related turbidity.

California Sea Lion (*Zalophus californianus*): This species is a coastal eared seal native to western North America. Sea Lions are polygynous and sexually dimorphic, with males weighing up to 770 lbs and measuring up to 7.9 ft long. They frequent both sandy and rocky beaches as well as manmade environments such as marinas or wharves. Sea Lions feed on a number of species of fish and squid. They are preyed upon by orcas and white sharks. From May to August, males establish territories and try to attract potential mates. Sea Lions communicate with numerous vocalizations, notably with barks and mother-pup contact calls (California Natural Diversity Database 2016). Outside of their season, Sea Lions spend much of their time at sea, but they come to shore to molt. The United States stock

usually breeds on the Channel Islands. The California Sea Lion will likely be within Newport Bay, but noise from construction activities should successfully deter any from swimming within close proximity of the Project Area.

Pacific Harbor Seal (*Phoca vitulina richardii*): This true seal has spotted coats in a variety of shades from silver-grey to black and dark brown, reaching five to six feet in length and weighing up to 300 lb. They have small flippers and must move on land by flopping along on their bellies. They favor near-shore coastal waters and are often seen on rocky islands, temperate coastal sandy beaches, mudflats, bays, and estuaries in small groups, but can sometimes number in the hundreds. Harbor seals haul out on land for rest, thermal regulation, social interaction, and to give birth. Seals also haul out to avoid predators such as orcas and white sharks. Harbor Seal pups are born between February and April in California and weigh about 20 to 24 lbs at birth. A pup can swim at birth and after about four weeks, the pups are weaned. Adult females usually mate and give birth every year to a single pup. Pacific Harbor Seals live 25-30 years, spending about half their time on land and half in water. They can dive to 1,500 ft for up to 40 minutes, although their average dive lasts three to seven minutes and is typically shallow. They are opportunistic feeders, eating sole, flounder, sculpin, hake, cod, herring, octopus, and squid (CDFW 2016). Harbor Seals will likely be around Newport Bay and the Project Area, but construction activity noises should deter any individuals from attempting to enter the Project Area.

Table 2. Potential Marine Mammals Found Near the Project Area

Common Name	Scientific Name	Status and Protection	Presence at Site
California Sea Lion	*Zalophus californianus*	Protected under the Marine Mammal Protection Act	Occasional
Pacific Harbor Seal	*Phoca vitulina richardii*		Occasional

2.3 Essential Fish Habitat

Newport Bay is home to eelgrass (*Zostera marina* and *Z. pacifica)*. Eelgrass warrants a strong protection strategy because of the important habitat it provides to managed species under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). Pursuant to the MSA, eelgrass is designated as an essential fish habitat (EFH) area of particular concern (HAPC) for various federally-managed fish species within the Pacific Coast Groundfish Fishery Management Plan (FMP) (Pacific Fishery Management Council 2008).

Eelgrass species (*Zostera marina* and *Z. pacifica*) are rooted aquatic plants that inhabit shallow soft-bottom habitats in quiet waters of bays and estuaries, as well as sheltered coastal areas. Eelgrass can form dense beds that provide substrate, food, and shelter for a variety of marine organisms. Eelgrass beds are considered “special aquatic sites” under the Clean Water Act (CWA) (40 CFR Part 230). Eelgrass contributes to ecosystem functions at multiple levels as a primary and secondary producer, as a habitat structuring element, as a substrate for epiphytes and epifauna, and as a sediment stabilizer and nutrient cycling facilitator. Eelgrass provides important foraging areas and shelter to young fish and invertebrates, food for migratory waterfowl and sea turtles, and spawning surfaces for invertebrates and fish such as the Pacific Herring. Eelgrass also provides a significant source of carbon to the detrital pool which provides important organic matter in sometimes food-limited environments. In addition, eelgrass has the capacity to sequester carbon in the underlying sediments and may help offset carbon emissions (National Oceanic and Atmospheric Administration 2014).

2.4 Fish

Roughly 80 species of fish have been found in Newport Bay. Many fish species make the eelgrass found within the Bay their home. The National Oceanic and Atmospheric Administration (NOAA) EFH Mapper indicates that Newport Bay contains species managed under both the Coastal Pelagic FMP as well as the Pacific Groundfish FMP. Only a few of these species would be expected at the Project Area due to the lack of habitat variety and restricted water circulation. These fish are described below and also presented in Table 3.

2.4.1 Coastal Pelagic FMP

Biological descriptions and life history information for harbor fish species managed under the Coastal Pelagic FMP which may opportunistically or temporarily use this area for some limited biological function includes three species: Northern Anchovy (*Engraulis mordax*), Top Smelt (*Atherinops affinis*), Pacific Sardine (*Sardinops sagax*).

Northern Anchovy (*Engraulis mordax*): Northern Anchovy spend much of their time as adults offshore, and nearshore as juveniles. Pelagic eggs and larvae enter the Bay during tidal exchange with nearshore ocean waters. Northern Anchovy young-of-year recruit to the mid-water column in nearshore habitats with numbers peaking in late spring and early summer (Allen et al. 2002; Allen 1999). During this time, Northern Anchovy abundance can fluctuate. High abundances of Northern Anchovy are nearly exclusively confined to summer months but may occur throughout the year. In 2012, 2,528 metric tons of northern anchovies were landed in California (CDFW 2013).

Topsmelt (*Atherinops affinis*): Silverside Topsmelt are common in coastal bays, muddy and rocky areas, kelp beds, and estuaries. They can be found from Canada to Baja California, and the upper Gulf of California. Topsmelt form schools, where adults feed on zooplankton while juveniles feed on algae and kelp fly larvae. They are demersal oviparous spawners in nearshore habitats (Robertson and Allen 2002). Eggs are laid primarily on eelgrass (*Zostera spp.*) and adhere to macroalgae on tidal flats. Larvae are often found over soft, unconsolidated sediments and other substrates. Juveniles and adults occur along sandy beaches, in kelp beds, over rocky reefs, and around piers (NOAA 2011). They grow to about two feet with a green back, bright stripe on flank, and silvery below.

Pacific Sardine (*Sardinops sagax*): In southern California, Pacific Sardines have a seasonal component with abundances highest during the summer and early fall. Populations may be seemingly near absence during the winter. Regional fish catch data suggests that most the Pacific Sardines landed were collected during the July and October survey efforts. The Pacific Sardine and can be easily confused with the Northern Anchovy. Small blueish dots on the ventral side of the Pacific Sardine are a general identification tool (CDFW 2013).

2.4.2 Pacific Groundfish FMP

The Pacific Groundfish FMP includes over 90 different species that, with a few exceptions, live on or near the bottom of the ocean. Newport Bay may contain certain rockfish, roundfish, sharks, and skates found within this FMP such as the Black-and-yellow Rockfish (*Sebastes chrysomelas*), the Grass Rockfish (*Sebastes rastrelliger*), the Lingcod *(Ophiodon elongates),* the Leopard Shark (*Triakis semifasciata),* the Brown Rockfish, *(Sebastes auriculatus*), the California Scorpionfish *(Scorpaena guttata),* the Kelp Greenling *(Hexagrammos decagrammus),* and the Treefish (*Sebastes serriceps*).

Black-and-yellow Rockfish (*Sebastes chrysomelas*): This species is distributed from Cape Blanco, Oregon to Isla San Natividad, central Baja California. They are demersal, usually in water less than 60 ft. They are a residential species that inhabit kelp beds and rocky reefs. This species can live up to 30 years with an average length of about one foot. Spawning occurs off California from February through the end of July, with peak spawning in February and March. Female Black-and-yellows may be carrying fertilized eggs anytime between October and the end of February. Adult Black-and-yellows are nocturnal feeders, ambushing their prey between dawn and dusk. Predators of the adults include sharks, dolphins, and seals, while juveniles are prey of birds, porpoises, and fishes, including rockfishes, Lingcod, Cabezon, and salmon (PFMC 2005).

Grass Rockfish (*Sebastes rastrelliger*): Most common from northern California south, this is a shallow water species inhabiting the intertidal to depths between 20 ft and 150 ft. As juveniles, they are pelagic, but as they mature and become adults they associate with kelp beds and reefs. Juveniles and subadults can be found in tide pools, with a maximum life expectancy of 23 years. This species is considered residential, moving less than a meter from its home range. In southern California waters, spawning takes place between January and March with peak spawning in January. Young-of-the-year first appear in shallow waters between spring and summer. Juveniles and adults prey upon crustaceans, but the adults also eat other fish. Among rockfishes, they have one of the shallowest and relatively narrow depth ranges (CDFW 2012).

Lingcod (*Ophiodon elongates*): This species is not a rockfish but due to their life history are covered under the Pacific Groundfish Fisheries Management Plan. They are voracious predators, growing to weigh over 70 lbs and measure 60 in. in length. They are characterized by a large mouth with 18 sharp teeth. Their color is variable, usually with dark brown or copper blotches arranged in clusters. Lingcod are only found on the west coast of North America. They can be found from the Alaska Peninsula/Aleutian Islands south to Baja California. While found to depths of 1,000 ft, lingcod typically inhabit nearshore rocky reefs from 30 to 330 ft. Lingcod larvae hatch in late winter or early spring, passively moving with surface ocean currents and primarily feeding on copepods. By midsummer they settle on eelgrass or kelp beds. They are sedentary and non-schooling fish which can live up to 25 years, with sexually dimorphic males and females maturing at different times (Alaska Department of Fish and Game 2012).

Leopard Shark (*Triakis semifasciata*): Found along the Pacific coast of North America, this harmless shark species is typically four to five feet long and slender-bodied with a striking pattern of black saddle-like markings and large spots over its back. Large schools of leopard sharks are a common sight in bays and estuaries near the coast less than 13 ft deep, swimming over sandy or muddy flats or rock-strewn areas over kelp beds and reefs. They are active-swimming opportunistic predators that follow the tide onto intertidal mudflats to forage for benthic and littoral prey items such as clams, spoon worms, crabs, shrimp, bony fish, and fish eggs. They are aplacental viviparous, with females giving birth to as many as 37 young after about a year-long gestation period. They are slow growing, finally reaching maturity at 10 to 15 years with a maximum life span of 30 years (CDFW 2014).

Brown Rockfish (*Sebastes auriculatus*): This species is found from Baja California to southeastern Alaska, generally in waters less than 150 ft, with juveniles and sub-adult fish inhabiting shallow water depth (Love 1996). Brown Rockfish tend to prefer mixed habitats, including sandy reefs, eelgrass beds, or docks and marinas. Brown Rockfish maintain small home ranges and females spawn more than once per season. Prey items include small fishes, small invertebrates, small crustaceans, and polychaetes (PFMC 2005).

California Scorpionfish (*Scorpaena guttata*): Ranging from northern California south to Baja California, it is a demersal species found in both sandy and hard substrate type habitats (Love 1996). Structure-preferring fish, the young are generally found in shallow habitats, hidden within dense algae and bottom-encrusting organisms. Spawning occurs between May and September and peaks in July. Eggs are laid in a gelatinous mass that floats near the surface (California Natural Diversity Database 2016).

Kelp Greenling (*Hexagrammos decagrammus*): This species frequents subtidal habitats in or around rocky reef areas, in kelp beds, and any area with dense algal growth. They are sexually dimorphic, with body color variable in both sexes ranging from light gray to brown. Adults are often territorial and are not known to migrate. Kelp greenlings grow faster than most nearshore fishes during their first three years. They have been aged to a maximum of 12 years. Kelp Greenling sexually mature by five years of age and an average length of two feet. This species' larvae prey on a wide variety of planktonic organisms. For most of the year, juveniles and adults consume a variety of prey including crabs, shrimp, snails, chiton, abalones, octopi, fish, fish eggs, and algae. The primary predators of adult Kelp Greenling are Lingcod and Harbor Seals. Kelp Greenling range in depth from the intertidal to approximately 500 ft deep but are more common at depths of 150 ft or less (CDFW 2014).

Treefish (*Sebastes serriceps*): A nearshore rockfish species that inhabits shallow, rocky habitats, Treefish are striking in appearance with a yellowish ground color and five to six vertical black bars on the side. Treefish range extends across the California coast, where they inhabit shallow waters up to 150 ft deep. They can live up to 25 years with a maximum size of 16 in. Treefish are thought to spawn annually in late winter. They are ambush predators that feed nocturnally on benthic invertebrates, including mollusks, crustaceans, and small fish. Juveniles are fed upon by rockfishes, Lingcod, Cabezon, salmon, birds, porpoises, and Least Terns. Adults are preyed upon by sharks, dolphins, and seals. Treefish are solitary and highly territorial, competing with other rockfish for habitat and prey availability (PFMC 2005).

Table 3. Potential FMP Managed Fish Species Found Near the Project Area

Common Name	Scientific Name	Status and Protection	Presence at Site
Northern Anchovy	*Engraulis mordax*	Coastal Pelagics Fisheries Management Plan	Common
Topsmelt	*Atherinops affinis*		Common
Pacific Sardine	*Sardinops sagax*		Occasional
Black-and-yellow Rockfish	*Sebastes chrysomelas*	Pacific Groundfish Fisheries Management Plan	Occasional
Grass Rockfish	*Sebastes rastrelliger*		Occasional
Lingcod	*Ophiodon elongatus*		Occasional
Leopard Shark	*Triakis semifasciata*		Occasional
Brown Rockfish	*Sebastes auriculatus*		Rare
California Scorpionfish	*Scorpaena guttata*		Rare
Kelp Greenling	*Hexagrammos decagrammus*		Rare
Treefish	*Sebastes serriceps*		Rare

2.5 Turtles

At present, marine reptiles are rarely seen within Newport Bay. However, due to the nearby Bolsa Chica Green Sea Turtle (*Chelonia mydas*) population, they are included as a possible species of special concern seen during construction activity; Green Sea Turtles may utilize the nearby eelgrass beds within Newport Bay as one source of nutrition. All Green Sea Turtle populations in the United States are listed as either endangered or threatened on the federal endangered species list. The East Pacific Green Sea Turtle population segment is listed as threatened.

Green Sea Turtle (*Chelonia mydas*): This species migrates long distances between feeding grounds and hatching beaches to breed. Females crawl out on beaches, dig nests and lay eggs during the night. Later, hatchlings emerge and scramble into the water. In the wild, those that reach maturity can live more than 80 years. Adult Green Sea turtles grow up to five feet long, weighing hundreds of pounds depending on maturity. Unlike other turtles, the Green Sea Turtles' beak is not hooked and its snout is short. The carapace of the turtle changes various color patterns over time, ranging from bright green to olive (NOAA 2018). Their native range is global subtropical and tropical waters. Nesting grounds are found all around the Mexican coast, feeding in seagrass pastures along the Gulf of California. Their habitat changes through life stages, from being hatched at beaches to swimming within shallow coastal waters with lush seagrass beds along bays, lagoons, and salt marshes. The Bolsa Chica Green Sea Turtle population is about 20 miles from Newport Bay, making their presence at the project site possible but highly unlikely.

3.0 RESOURCE IMPACT ASSESSMENT

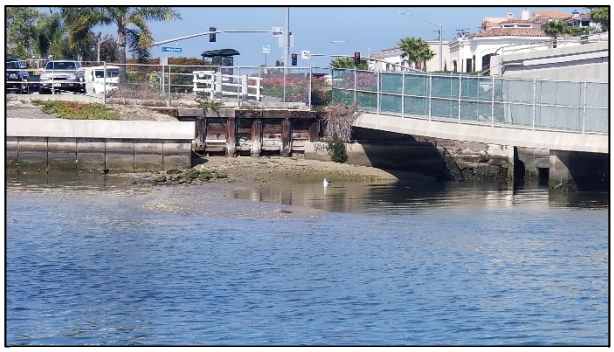

Figure 3. Shoaled Area at Project Area

The purpose of the resource assessment is to document the existing biological conditions within the Project Area; identify potential impacts to biological resources that could result from implementation of the proposed project; and recommend measures to avoid, minimize, and/or mitigate significant impacts consistent with federal, state, and local rules and regulations. This document is further intended to address the technical evaluation needs under the California Environmental Quality Act (CEQA), and to comply with regulatory requirements of the federal MBTA and California Fish and Game Codes §3503 and §3513, as well as the MMPA. As part of the resource assessment, Pi Environmental scientific support staff visually and acoustically inspected the proposed Project Area above and below the waterline using real-time surface viewable cameras and a Biosonics MX single beam scientific echosounder operating at 200 Kilohertz (KHz). The presence and abundance of eelgrass (or Kelp), invasive species, and existing water depth of the Project Area was determined. Acoustic data and visual observations of the Project Area were coupled with existing natural resources information to assess the potential for direct impacts to existing marine communities (e.g., physical impacts), examine the potential for indirect impacts to existing marine communities (e.g., turbidity and noise), and evaluate the potential for the effects of construction activities to impact the sensitive marine resources found in Upper and Lower Newport Bay which may transit through the Project Area or opportunistically use the Project Area as foraging grounds (marine mammals and birds). Existing eelgrass data and eelgrass coverage areas were provided by the City of Newport Beach and integrated into the analysis. The results of the acoustic survey are presented as Figure 4.

3.1 Birds

As described previously, the Newport Bay area is home to several types of marine birds and nesting colonies that are classified by state and federal regulatory agencies as sensitive and/or protected. Increased boat activity during construction may have indirect impacts from localized and temporary increases in turbidity, project-related lighting, and/or noise associated with construction, which may collectively or independently negatively impact avian species. However, potential impacts to bird foraging areas would largely be indirect and temporary in duration. Available information on avian species density in and around the project site suggests that while some sensitive and/or protected species may be present, areas adjacent to the PCH bridge and waters of the Project Area may only provide limited functional value to birds in the area, being less suitable than the ecologically rich waters of Upper Newport Bay. No sensitive avian species are known to nest within the Project Area boundary.

The use of construction Best Management Practices (BMPs) would minimize the extent of possible impacts to avian resources within and adjacent to the Project Area. Some possible BMPs would include that those aspects of the construction process which pose the greatest potential for impact be conducted during the non-breeding season, generally between September 1st and April 15th. If night operations are part of the final construction plan, it is recommended that work lights be shielded downward. Construction staging equipment should not be located under any possible nesting trees, and construction crews should avoid bringing pets onsite. Construction booms should be used around any in-water removal activities to reduce debris as well as minimize increases in turbidity outside of the direct Project Area. With the incorporation of BMPs during higher impact aspects of construction (e.g., turbidity curtains employed during debris removal activities), project impacts on avian foraging success would be considered minimal.

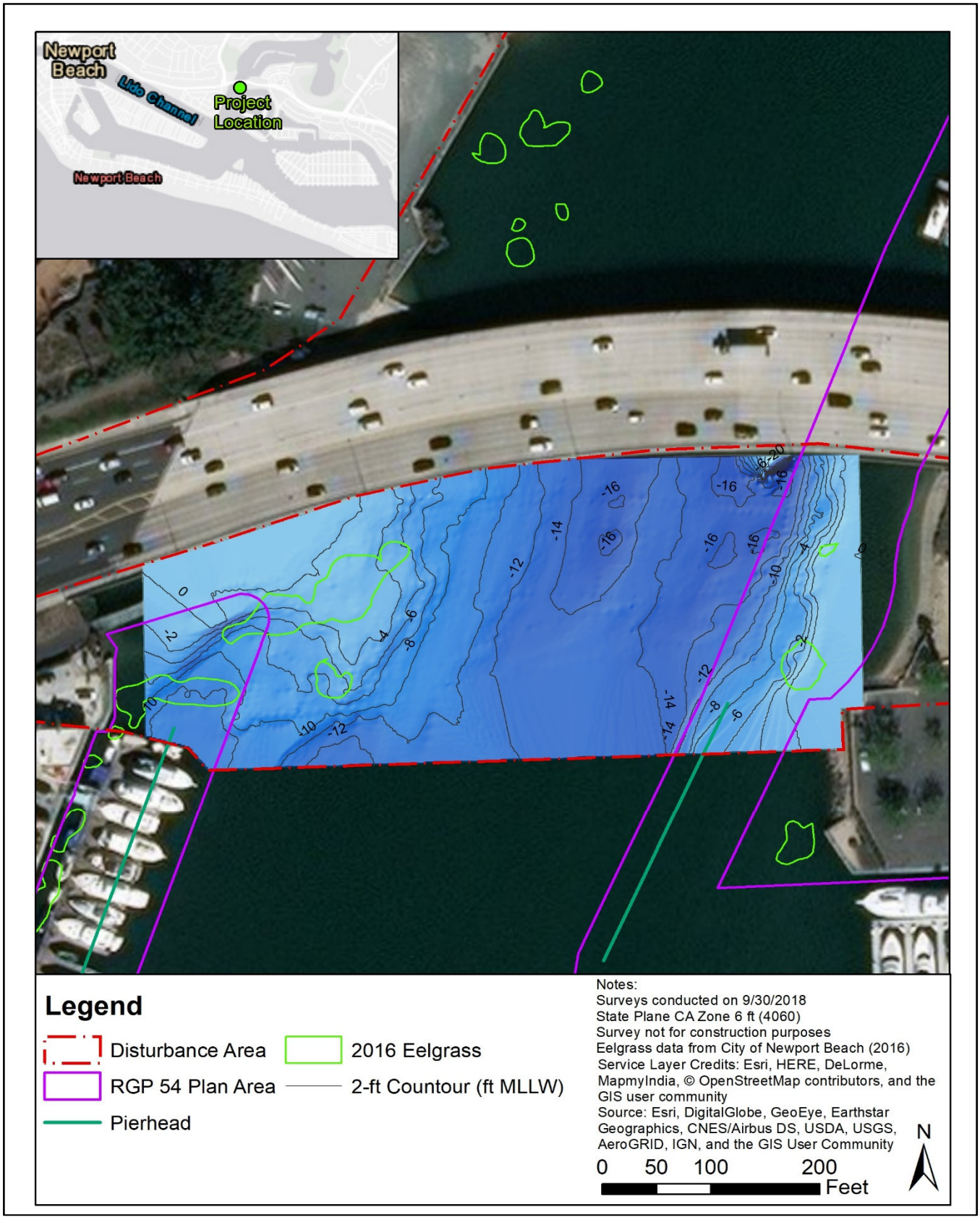

Figure 4. Bay Bridge Pump Station (BBPS) Survey Map

3.2 Marine Mammals

Harbor Seals (*Phoca vitulina*) and California Sea Lions (*Zalophus californianus*) are common around Newport Bay. Marine mammals can often be seen feeding or basking in the sun on buoys and docks and near the entrance jetty. Sea Lions and Harbor Seals are year-round residents, often following fishing boats in an effort to eat baitfish or fish thrown back into the water. The MMPA prohibits any *take* of marine mammals. The definition of *take* under the MMPA is a potentially significant impact to marine mammals, which could be physical or behavioral disturbance. Similar to birds, project-related increases in turbidity could temporarily impede the foraging activities of Harbor Seals and Sea Lions due to reduced water clarity, and similarly would benefit from in-water BMPs (e.g., silt curtains), if increased levels of turbidity are observed during active construction.

As part of the construction, the proposed project would reinforce and replace existing piping to ensure safe and reliable future operation. Marine mammals such as Sea Lions and Harbor Seals foraging around the area will likely exhibit some minor behavioral changes and avoid the area of construction due to the noise of the microtunneling and trenching machinery. Temporary disruption to their haul out areas may occur within the direct Project Area, however, it is expected that the mammals will simply swim to another haul out area around Newport Bay and avoid swimming around the Project Area during construction.

As a precautionary measure, if excessive noise generating activities are included as part of the final construction plan (e.g., sound levels greater than 140 decibels (dB)), the establishment of a marine mammal safety zone of the direct area surrounding construction should be monitored for pinnipeds and cetaceans by a qualified marine mammal observer. A 30 meter (m) radius safety zone should be established around the area of construction to ensure that Project activities are not negatively impacting marine mammals in the immediate area. The 30 m safety zone should move with construction accordingly. If marine mammals enter the safety zone while excessive noises are being generated, the biological monitor shall alert construction crews, who may adjust operations to reduce the potential for physical and/or behavioral impacts. The qualified observer shall monitor and record the species type and number of individuals observed, making note of their behavior patterns and length of time spent within the Project Area. Given the low availability of resources (e.g., fish, haul out sites, etc.), it is unlikely Harbor Seals and California Sea Lions would utilize the Project Area for more than the occasional opportunistic foraging grounds. With a qualified biological monitor and the establishment of a 30 m safety zone during excessive noise generating operations, impacts to marine mammals from noise and/or direct physical injury would be less than significant.

3.3 Essential Fish Habitat

EFH are those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. 1802(10)). Eelgrass beds (*Zostera marina*), and to a lesser extent in offshore areas Giant Kelp (*Macrocystis pyrifera*) and Bull Kelp (*Nereocystis* sp.), are often a primary EFH concern in southern California. Eelgrass beds serve as nursery grounds for juvenile and sub-adult fish species. Eelgrass is further managed under the California Eelgrass Mitigation Policy (CEMP) (NMFS 2014), which describes methods for estimating mitigation for impacts to eelgrass. The MSA developed a process designed to recognize, preserve, and improve EFH for those species regulated under a federal FMP. Potential impacts to EFH within the Project Area include physical disturbance, reduced light levels due to construction-derived turbidity, and temporarily increased sedimentation.

Existing information was compiled from historically available information and field surveys of the proposed Project Area to provide a comprehensive marine resource assessment, and to provide a basis for assessing impacts to EFH within the proposed Project Area. Impacts to overall water quality include increased turbidity from bottom disturbance, increased workboat traffic in and around the project site, dock shading, and the potential disruption of

foraging habitat for not only fish species but birds and marine mammals as well. The effects of shading can greatly affect the ability of photosynthesizing species (e.g., eelgrass, kelp, etc.) to colonize and sustain a healthy population in a particular area.

Benthic infaunal communities would also be susceptible to impacts from construction from physical disturbances during construction and debris removal. Benthic infauna are generally short-lived invertebrate species (e.g., amphipods, worms, etc.) who live in the soft bottom, propagate rapidly, and can recolonize disturbed areas within 17 to 24 months (US Navy 2009). For benthic dwelling infaunal communities, there is a high availability of similar soft bottom habitat throughout the Project Area. Construction activities will produce some level of disturbance (and therefore impact) at the immediate location of construction; however, construction activities would not limit infaunal re-colonization to adjacent areas during the activity. Hard substrate preferring invertebrates will not experience temporary loss of hard substrate habitat, as there are revetment rocks along the shoreline close to the Project Area.

The Project Area is suitable habitat for eelgrass (*Zostera marina* or the offshore variant *Zostera pacifica*), but not optimal for Giant Kelp (*Macrocystis pyrifera*), or Bull Kelp (*Nereocystis* sp.). Generally, hard substrate does exist within the site, which can provide an attachment surface for kelp and lead to kelp presence. Due to the lack of hard substrate within Newport Bay, as well as under PCH bridge, limits the presence of more stable kelp beds and suggest that if kelp is present, it is likely near the rip rap edges of the shoreline, and a temporary or seasonal condition within Newport Bay.

The larger grain size at the site is also not optimal benthic substrate or preferred habitat for eelgrass. Eelgrass secures itself to the substrate using rhizomes for attachment. Rhizomes are most effective in soft silts and clays. Increased sand fractions around the site make colonization by eelgrass more difficult, particularly within the Project Area, where a combination of substrate and hydrodynamics lower the potential for eelgrass colonization.

A pre-construction eelgrass (and kelp) survey should be conducted prior to in-water construction. Pre-construction eelgrass surveys should be consistent with current NMFS CEMP survey guidelines. If pre-construction eelgrass survey results indicate eelgrass (or kelp) presence, adequate avoidance and protection measures (e.g., silt curtains and/or areas of avoidance) should be implemented during construction activities that have the potential to cause turbidity. The project team should communicate the results of the pre-construction surveys to the appropriate agencies and identify the need to mitigate for damages to existing eelgrass and/or kelp habitats if they are present within the Project Area.

3.4 Fish

Some fish species known to occur in or around the project site are managed by NMFS under two separate FMPs, the Coastal Pelagics FMP and the Pacific Groundfish FMP (NMFS 1998 and 2008). Groundfish species generally prefer moderately rugose horizontal hard substrate and are typically found along the riprap jetty areas in Newport Bay more toward the entrance to the Bay. Potential impacts to fish from this project may include the loss of foraging habitat, reduced foraging success from increased turbidity, noise impacts, and reduction of shelter leading to increased predation.

Groundfish may potentially be onsite, but generally prefer hard substrate and shallow reef environments to the soft bottom habitat within the Project Area. The loss of habitat in the active areas of construction will be temporary, but localized increases in turbidity would be a direct result of physical in-water disturbance. Most fish species would likely relocate from the sound associated with construction and out of the turbidity plume. However, BMPs are

recommended, including the use of silt curtains around active operations to control the spread of turbidity to receiving waters.

It is difficult estimating sound impacts from construction due to the variety in auditory and physiological composition of fish species. Generally, those species that have swim bladders are at higher risk from physical impacts due to the sound pressure levels generated from construction activities and the internal pressures of the swim bladders. The proposed methods of construction (microtunneling, trenching, etc.) greatly reduce the risk of injury to marine fish species within the construction area, as well as turbidity, rather than implementing full dredging activities.

3.5 Turtles

The Project Area is twenty miles away from the Bolsa Chica Green Sea Turtle population. Activities proposed as part of the project largely focus on the portion of Newport Bay underneath the PCH bridge. Since eelgrass and kelp beds are not found within this portion of Newport Bay, this suggests potential project impacts to food availability would be less than significant or have no impact at all, and further, suggests a limited potential for Green Sea Turtles to be within the Project Area. Absent significant in-water construction activities such as dredging, water quality impacts from construction activities such as trenching and microtunneling would likely be localized and temporary in nature. With the inclusion of turbidity curtains to control suspended sediments during wet weather events and landside stormwater runoff, impacts to Green Sea Turtle habitat due to impaired water quality would be less than significant, so no impacts to foraging habitat would be expected from project activities.

4.0 CONCLUSION

As described, birds, marine mammals, EFH, managed fish species, and marine reptiles have some degree of potential to be impacted during construction. However, it is anticipated that sensitive species presence at the site will likely be a function of opportunity more than permanence during construction activities. There is ample available habitat adjacent to the Project Area and outside the influences of construction, which would likely be preferred by resident species that are able to relocate. For transient species like Green Sea Turtles, the implementation of BMPs to minimize and control turbidity will help minimize impacts to species and/or the reduction in foraging habitat. Further, efforts to minimize noise and light impacts during the nesting season of sensitive bird species will also help reduce possible impacts.

For this project, the potential for impacts can be avoided, minimized, or mitigated with proper BMP application. It is anticipated that a biological monitor may need to be present during portions of construction to verify that marine mammals are not present within the potential impact zone depending on time of year and/or machinery to be used during construction. A nesting bird survey should be conducted prior to the start of construction and any active nests identified and avoided; much of the work should be done after the end of the nesting season (March 1st to September 30th in southern California). In summary, it can be concluded that based on the proposed methods of construction, the existing marine resources in and adjacent to the Project Area, and the implementation of recommended BMPs, less than significant impacts from project related construction will be localized and temporary in duration.

5.0 ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Description
ASBS	Areas of Special Biological Significance
BBPS	Bay Bridge Pump Station
BMP	Best Management Practices
CDFW	California Department of Fish and Wildlife
CEMP	California Eelgrass Mitigation Policy
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
City	City of Newport Beach
County	County of Orange
CWA	Clean Water Act
dB	Decibels
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ft	Feet or Foot
FMP	Fishery Management Plan
HAPC	Habitat Areas of Particular Concern
HDD	Horizontal Directional Drilling
HDPE	High Density Polyethylene
in.	Inch
lbs	Pounds
LF	Linear Feet
MMPA	Marine Mammal Protection Act of 1972
MPA	Marine Protected Area
MSA	Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act)
m	Meter
MBTA	Migratory Bird Treaty Act of 1918
MLLW	Mean Lower Low Water
mi	Mile
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OCSD	Orange County Sanitation District
PCH	Pacific Coast Highway
PFMC	Pacific Fishery Management Council
SMCA	State Marine Conservation Area
SWRCB	State Water Resources Control Board
USFWS	United States Fish and Wildlife Service
VCP	Vitrified Clay Pipe

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Michael Baker
INTERNATIONAL

We Make a Difference

March 20, 2019 JN 168975

Mr. Kevin Hadden
Principal Staff Analyst
Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, California 92708-7018

SUBJECT: Biological Resources Assessment for the Bay Bridge Pump Station and Force Mains Replacement Project – Newport Beach, Orange County, California

Dear Mr. Hadden:

On behalf of Orange County Sanitation District (OCSD), Michael Baker International (Michael Baker) conducted a biological resources assessment and prepared this letter report to document the results for the proposed Bay Bridge Pump Station and Force Mains Replacement Project (project). The project site located in southwestern portion of the City of Newport Beach, within the County of Orange, California (Figure 1, *Regional Vicinity*). Specifically, the project site is depicted in Section 27 of Township 6 South, Range 10 West, of the U.S. Geological Survey (USGS) *Newport Beach, California* 7.5-minute topographic quadrangle map (Figure 2, *Site Vicinity* Surrounding land uses in proximity to the project site include residential, commercial, and commercial recreational marine uses (refer to Figure 3, *Survey Area*). The survey area for this project is defined as the project footprint, plus a 100-foot buffer. All figures and attachments are located at the end of this report.

In summary, impacts to biological resources as a result of the proposed project would be less than significant with implementation of the recommended mitigation measure (MM) described in the Conclusions and Recommendations section, below.

PROJECT DESCRIPTION

OCSD owns, operates, and maintains the existing pump station and associated force mains, which convey wastewater from Newport Beach to OCSD's Plant No. 2 wastewater treatment facility in Huntington Beach. The existing facility is critical to OCSD's operations and to ensure continuous service to the Newport Coast service area. OCSD proposes to upgrade the existing pump station/force main infrastructure.

The proposed project would replace the existing Bay Bridge pump station and associated force mains to bring the pump station facility and force mains to current design and reliability standards to ensure continuous service for the Newport Coast service area. OCSD has prepared three conceptual project alternatives including: Original Northeast Pump Station, Modified Northeast Pump Station, and South Pump Station. Although the Original Northeast Pump Station is not currently proposed, a description of this alternative has been provided for informative purposes.

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SUMMARY OF REGULATIONS

This report documents all biological resources identified within the survey area during a general biological resources survey and vegetation/land use mapping. Further, this report includes an analysis of the potential for survey area to support other special-status plant and animal species and special-status vegetation communities that are subject to provisions of the Federal Endangered Species Act of 1973 (FESA), Migratory Bird Treaty Act (MBTA), California Endangered Species Act (CESA), California Fish and Game Code (CFGC), Natural Community Conservation Planning Act, California Coastal Act (CCA), California Native Plant Protection Act, and other local policies and ordinances protecting biological resources.

METHODS

Prior to the site visit, Michael Baker conducted a records search of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) RareFind 5 and the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants within the U.S. Geologic Survey (USGS) *Newport Beach*, *Seal Beach*, *Tustin*, and *Laguna Beach, California* 7.5-minute topographic quadrangle maps. Other sources included the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) online system and Environmental Conservation Online System (ECOS) Critical Habitat online mapper, U.S. Department of Agriculture/Natural Resources Conservation Service (USDA/NRCS) Web Soil Survey, Federal Emergency Management Agency (FEMA) 100-Year Flood Zones, USFWS National Wetlands Inventory (NWI) maps online, U.S. Climate Data, topographic maps, historic and current aerial photography, and hydrology and watershed data.

On March 18, 2019, between the hours of 8:00 and 11:30 a.m., Michael Baker biologists Dan Rosie and Frances Yau conducted a general biological resources survey to document existing conditions within the project site and survey area. Weather conditions consisted of clear skies, a temperature ranging between approximately 59 and 70 degrees Fahrenheit, and winds approximately 0 to 2 miles per hour. The survey was conducted by traversing the project site on foot where safe and accessible and using binoculars, photographing existing site conditions (Attachment A, *Site Photographs*), documenting all plant and wildlife species observed (Attachment B, *Plant and Wildlife Species Observed List*), mapping vegetation communities and land uses (Figure 4, *Vegetation Communities and Land Uses*), and evaluating the site's potential to support special-status plant and wildlife species known to occur in the area (Figure 5, *Special-Status Biological Resources Documented within a 5-mile Radius*, and Attachment C, *Special-Status Species Table*).

The survey area is located within and is subject to the provisions of the County of Orange Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan (Orange County NCCP/HCP). Further, the survey area is located within the Coastal Zone, and therefore is subject to California Coastal Commission jurisdiction pursuant to the CCA.

RESULTS

The following is a discussion of existing biological resources within the project site, and its potential to support State-listed and/or Federally-listed as rare, threatened, or endangered species, and other special-status plants, wildlife, and natural communities. Refer to Attachment A, *Site Photographs* for representative photographs taken throughout the project site.

Environmental Setting

The survey area is located within the Southwestern California region of the California Floristic Province, in the vicinity of the Pacific Coast Highway (PCH) bridge, known as the Bay Bridge, over Newport Bay, within a fully developed and urbanized area of Newport Beach. The project site consists of entirely of developed and disturbed areas associated with residential, commercial, and commercial recreational marine uses and related accessibility to the bay. The project site is surrounded to the east by residential and commercial developments, including the PCH; commercial and residential properties, Newport Bay, and residences to the south; residences and the PCH to the west; and Castaways Park and Upper Newport Bay to the north and northeast, respectively. The project site is generally flat, with exception to Castaways Park and the Bay Bridge, with surface elevations ranging from sea level to approximately 50 feet above mean sea level in the northwest. The Newport Beach area is generally hot and dry through most of the year, with cooler and more moderate climate than surrounding inland areas due to its coastal proximity. Highs in the summer average approximately 69 degrees Fahrenheit (°F), with lows averaging approximately 51 °F in the winter. Average annual precipitation for the Irvine, California, area is approximately 11 inches.

Vegetation Communities and Land Uses

The CNDDB revealed that seven (7) special-status vegetation communities have been recorded within the vicinity of the project site: Southern Coast Live Oak Riparian Forest, Southern Coastal Salt Marsh, Southern Cottonwood Willow Riparian Forest, Southern Dune Scrub, Southern Foredunes, Southern Sycamore Alder Riparian Woodland, and Valley Needlegrass Grassland. However, none of these habitat types are present within the project site or survey area due to entire area being urbanized. The project site includes five (5) relatively distinct vegetation communities/land uses within the project site: developed areas, ornamental vegetation, disturbed habitat, bare ground, and open water. These previously human-modified areas and land uses for which impacts do not require mitigation are described in further detail below in order of prevalence within the project site (refer to Figure 4).

Developed

The project site primarily consists of developed areas, including paved, impervious surfaces associated with roadways and residential and commercial developments.

Open Water

Opens water consists of relatively permanent surface waters lacking rooted or canopied terrestrial vegetation. Within the project site, open water consists of Newport Bay.

Ornamental

Ornamental vegetation was mapped throughout the developed portions of the project site, including, but not limited to, king palm (*Archontophoenix alexandrae*), queen palm (*Syagrus romanzoffiana*), Mexican fan palm (*Washingtonia robusta*), eucalyptus (*Eucalyptus* spp.), carrotwood (*Cupaniopsis anacardioides*), bougainvillea (*Bougainvillea spectabilis*), acacia (*Acacia redolens*), Hottentot fig (*Carpobrotus edulis*), and English ivy (*Hedera helix*).

Bare Ground

Areas mapped as bare ground include unvegetated, compacted soils associated with Lower Castaways Park and along the bay shores.

Disturbed Habitat

Disturbed areas within project site includes previously disturbed areas that are now dominated by non-native, opportunistic species that limit the reestablishment of native vegetation. Dominant plant species present within the project site include, but are not limited to, brome grasses (*Bromus* spp.), filaree (*Erodium* spp.), iceplant (*Mesembryanthemum* spp. and *Aptenia cordifolia*), cheeseweed (*Malva parviflora*), Bermuda buttercup (*Oxalis pes-caprae*), castor bean (*Ricinus communis*), mustard (*Sisymbrium* spp. and *Brassica nigra*), sowthistle (*Sonchus* spp.), and dwarf nettle (*Urtica urens*).

Coastal Sage Scrub

A small area located in the northwestern portion of the project site contains coastal sage scrub vegetation associated with Castaways Park. Dominants include, but are not limited to, California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), big saltbush (*Atriplex lentiformis*), California sunflower (*Encelia californica*), and coastal goldenbush (*Isocoma menziesii*).

Table 1 below provides the approximate acreages of each vegetation community and land use mapped within the project site.

Table 1. Vegetation Communities/Land Uses within the Project Site (acres)

Vegetation Community	Total*
Developed	15.8
Open Water	8.1
Ornamental	3.3
Disturbed Habitat	0.7
Bare Ground	1.0
Coastal Sage Scrub	0.0
TOTAL*	**28.9**

* Totals may not equal to sum due to rounding.

Soils

Soil textures on-site were observed significantly altered from those mapped by the USDA/NRCS as Beaches (Map Unit Symbol: 115) throughout the majority of the project site, with Water mapped within the bay and a sliver of Calleguas clay loam, 50 to 75 percent slopes, eroded (134) in the northwest corner.

Special-Status Plant Species

A total of seventy-eight (78) plant species were identified during the site visit (refer to Attachment B). Based on the records search, a total of forty-six (46) special-status plant species have been recorded within the vicinity of the project by the CNDDB, CNPS, and USFWS. None of these species are not expected to occur on-site due to a lack of suitable habitat. No special-status plant species were observed during the survey, and none are expected to be affected by the project. Therefore, impacts to special-status plant species would be less than significant.

Special-Status Wildlife Species

A total of eighteen (18) wildlife species were detected during the site visit, including, but not limited to, those common to developed and disturbed areas such as American crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), northern mockingbird (*Mimus polyglottos*), and American coot (). See Attachment B for a complete list of wildlife species observed during the survey. No special-status wildlife species were observed on-site. Based on the records search, a total of fifty-two (52) special-status wildlife species have been recorded within the vicinity of the project by the CNDDB and USFWS. All but one (1) of these species either have a low potential or are not expected to occur on-site due to significant site disturbance and lack of suitable habitat, and being surrounded by development. There is a high potential for occurrence for osprey (*Pandion haliaetus*), a species on the CDFW Watch List, to occur within the project site. This species is found along ocean shores, bays, freshwater lakes, and larger streams, and is known to build large nests in tree-tops within 15 miles of a good fish-producing body of water. Suitable habitat is present within the survey area, and the nearest occurrence is approximately 0.5 mile to the east. Therefore, there is a potential for impacts to osprey if present during construction. However, with the implementation of MM BIO-1, impacts to osprey would be less than significant.

State- and Federally-Listed Species

Of the ninety-eight (98) special-status species known to occur within the vicinity of the project site, seven (7) plant species and seventeen (17) wildlife species are listed or are a candidate for listing under the Federal Endangered Species Act and/or the California Endangered Species Act, with four (4) of them designated as Fully Protected species, thereby warranting their protection from take. However, none of these species are expected to occur on-site due to a lack of suitable habitat. Therefore, no impacts to State- or Federally-listed species are expected as a result of the project. Refer to Attachment C, *Special-Status Species Table*.

Critical Habitat

The project site is not located within any USFWS-designated Critical Habitat. The nearest Critical Habitat is located approximately 1 mile to the south, designated for western snowy plover (*Charadrius nivosus nivosus*), and approximately 1.7 miles to the west-northwest for coastal California gnatcatcher (*Polioptila californica californica*). No impacts to Critical Habitat are expected as a result of the project.

Nesting Birds and Wildlife Movement

The project site contains habitat suitable to support a variety of nesting bird species, such as ornamental trees and shrubs, including the bare ground and disturbed areas. However, wildlife movement opportunities are severely limited by the surrounding developments and roadways. With implemented of the MM recommended below in the Conclusions and Recommendations section, impacts to nesting birds would be less than significant.

Coastal Zone

Portions of the City of Newport Beach, including the project site, are located within the Coastal Zone and as such is required to prepare a Local Coastal Program (LCP) by the California Coastal Commission (CCC). Within the project site, Newport Bay includes coastal wetlands that qualify as CCC jurisdiction pursuant to Section 30121 of the CCA; however, no environmentally sensitive habitat areas (ESHA) are present.

Local Policies and Ordinances

The project site is located within the Coastal Subregion of the Orange County NCCP/HCP. However, the project site is not located within the Reserve System or identified special linkage areas. The nearest designated portion of the NCCP/HCP Reserve System is located approximately 0.5 mile northeast of the project site at the Upper Newport Bay and associated wetlands. Although no special-status species were observed during the survey, implementation of the proposed project could affect a small area of coastal sage scrub adjacent to Dove Drive (0.004 acre or 13 x 13 foot area) marginally suitable to support some of the thirty-nine (39) NCCP/HCP "Target and Identified" Species, such as coastal California gnatcatcher and coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*). The recommended MM below would reduce impacts to special-status species to a less than significant level. As a result, implementation of the proposed project is expected to be in compliance with the Orange County NCCP/HCP.

There are no other natural resources-related local policies or ordinances, such as a regional Natural Community Conservation Plan or species-specific Habitat Conservation Plan, within the Newport Beach known to be applicable to the project site.

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, impacts to biological resources as a result of the proposed project would be less than significant with implementation of the following recommended MM BIO-1.

MM BIO-1 Proposed project activities should avoid the bird breeding season (typically January through July for raptors and February through August for other avian species), if feasible. If breeding season avoidance is not feasible, a qualified biologist shall conduct a pre-construction nesting bird survey to determine the presence/absence, location, and status of any active nests on or adjacent to the project site. The extent of the survey buffer area surrounding the nest site should be established by the qualified biologist to ensure that direct and indirect effects to nesting birds are avoided. To avoid the destruction of active nests and to protect the reproductive success of birds pursuant to the California Fish and Game Code, nesting bird surveys shall be performed twice per week during the three weeks prior to the scheduled project activities.

In the event that active nests are discovered, a suitable buffer (distance to be determined by the biologist or overriding agencies) shall be established around such active nests, and no construction within the buffer allowed until the biologist has determined that each nest is no longer active (i.e., the nestlings have fledged and are no longer reliant on the nest).

Please contact me at (949) 472-3407 or at dan.rosie@mbakerintl.com with any questions you may have regarding the results of this biological resources assessment.

Sincerely,

Dan Rosie
Ecologist
Natural Resources/Regulatory Permitting

Figures:
1. Regional Vicinity
2. Site Vicinity
3. Survey Area
4. Vegetation Communities and Land Uses
5. Special-Status Biological Resources Documented within a 5-mile Radius

Attachments:
A. Site Photographs
B. Plant and Wildlife Species Observed List
C. Special-Status Species Table

Figures

Figures 1 through 6

3/18/2019 JN M:\Mdata\143698\GIS\MXD\2019 Update\Bio\Fig 01 Regional Vicinity.mxd RP

Michael Baker INTERNATIONAL

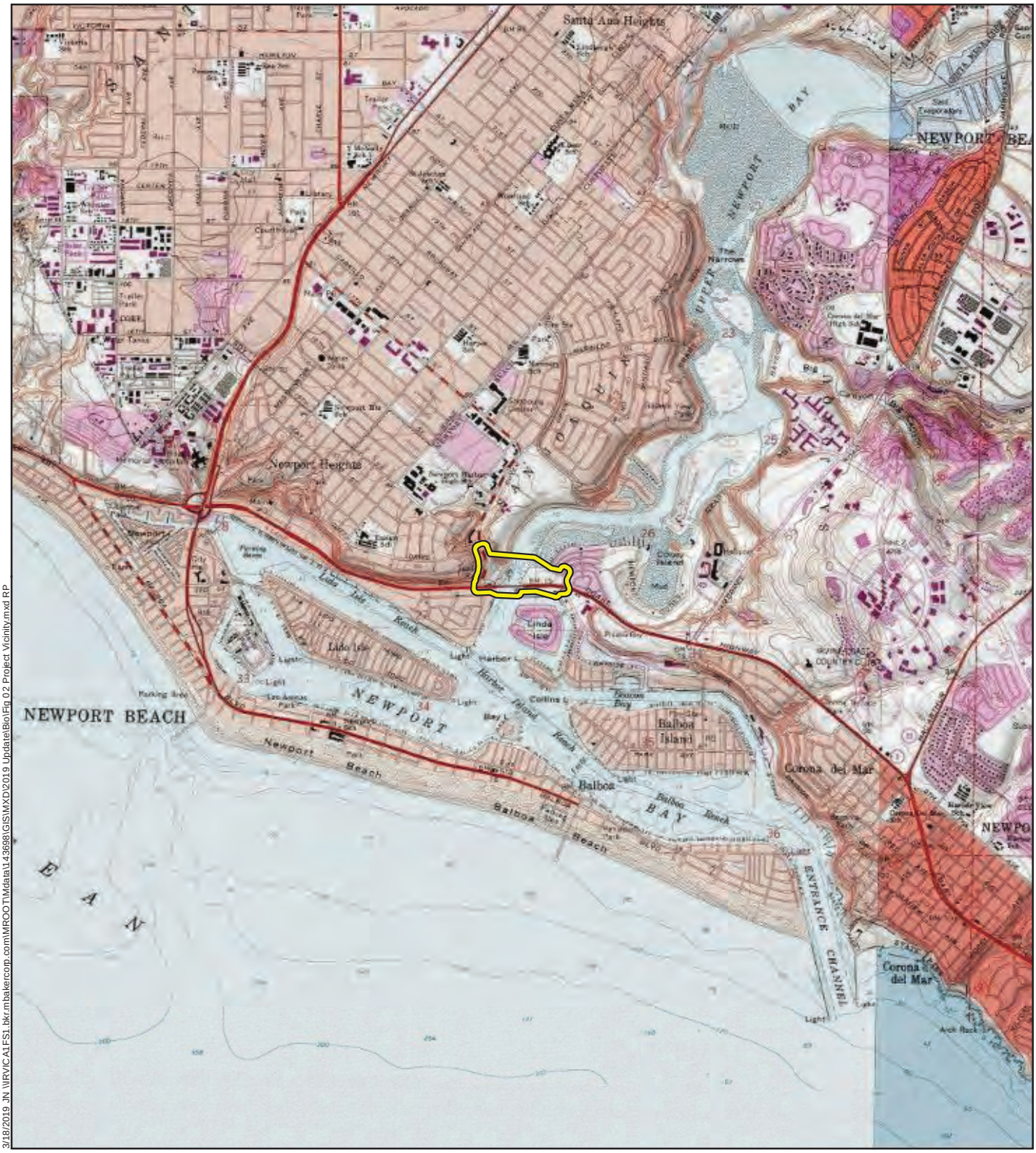
0 2.5 5 Miles

Source: ArcGIS Online

BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
BIOLOGICAL RESOURCES REPORT

Regional Vicinity

Figure 1



3/18/2019 JN \\RVIC\A1FS1.bkr.mbakercorp.com\MROOT\Mdata\143698\GIS\MXD\2019 Update\Bio\Fig 02 Project Vicinity.mxd RP

Legend

Survey Area

BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
BIOLOGICAL RESOURCES REPORT

Project Vicinity

Michael Baker INTERNATIONAL

0 0.25 0.5 Miles

Source: ArcGIS Online, USGS 7.5-Minute topographic quadrangle maps: *Newport Beach, California (2018)*, *Newport Beach OE S, California (2018)*

Figure 2

Legend

- Survey Area
- Project Site
- Photograph Point and Direction
- Reference Point

0 100 200 Feet

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BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
BIOLOGICAL RESOURCES REPORT

Survey Area

Figure 3

Michael Baker INTERNATIONAL

Source: Eagle Aerial, 2014

Legend

- Survey Area
- Project Site
- 115 Beaches
- 134 Calleguas clay loam, 50 to 75 percent slopes, eroded
- 177 Myford sandy loam, 9 to 30 percent slopes, eroded
- W Water
- Reference Point

0 100 200 Feet

3/19/2019 J:\N \IRVICA1FS1.hkr.mbakercorp.com\IRVROOT\Admin\142698\GIS\MXD\2019 Update\BioFig 04 USDA Soils.mxd RP

Source: Eagle Aerial, 2014

BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
BIOLOGICAL RESOURCES REPORT

USDA Soils

Figure 4

Newport Bay

33.619318
-117.900291

33.615051
-117.907765

KINGS
DOVE DRIVE
BAYFRONT
SARATOGA
YORKTOWN
LIBERTY
BAYSIDE
BAYSHORE
CRESTVIEW
WAVERLY
1

Legend

- Survey Area
- Project Site
- Coastal Sage Scrub
- Open Water
- Ornamental
- Disturbed
- Bare Ground
- Developed
- Photograph Point and Direction
- Reference Point

0 100 200 Feet

3/19/2019 JN:\\IRVCA1FS1.tkr.mbakercorp.com\VROOT\Vdata\143898\GIS\MXD\2019 Update\BioFig 05 Vegetation Communities and Land Uses.mxd RP

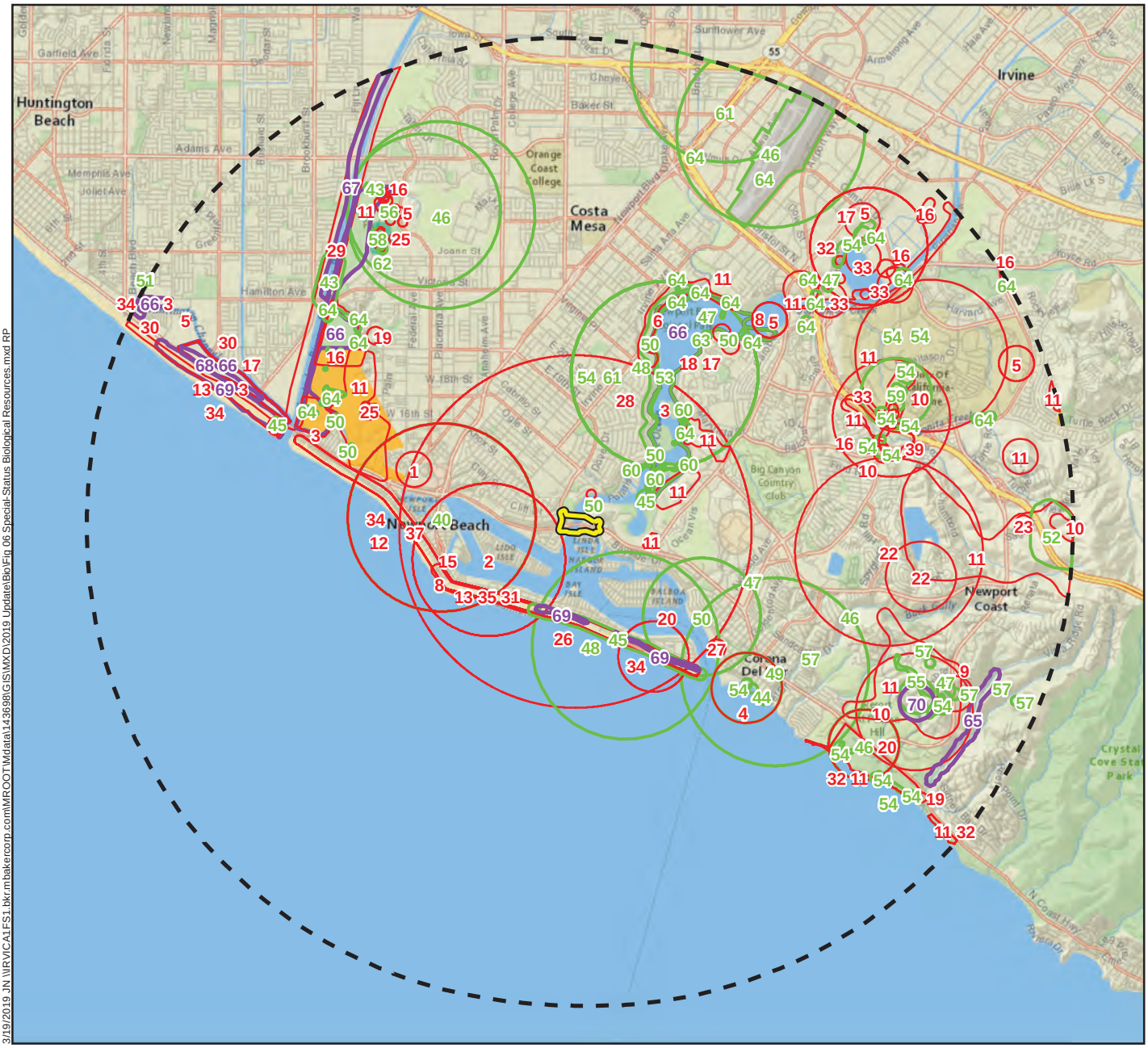
Michael Baker INTERNATIONAL

Source: Eagle Aerial, 2014

BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
BIOLOGICAL RESOURCES REPORT

Vegetation Communities and Land Uses

Figure 5



3/19/2019 JN \\RVICA1FS1.bkr.mbakercorp.com\MROOT\Mdata\143698\GIS\MXD\2019 Update\BioFig 06 Special-Status Biological Resources.mxd RP

Legend

- Survey Area
- 5-mile Radius Buffer

Special Status Resources

- Animal
- Plant
- Vegetation Community

Critical Habitat

- Coastal California gnatcatcher
- San Diego fairy shrimp
- Western snowy plover

ID	Animal	ID	Animal	ID	Animal	ID	Plant	ID	Plant	ID	Vegetation Community
1	American badger	14	grasshopper sparrow	27	southern California legless lizard	40	aphanisma	53	Los Angeles sunflower	65	Southern Coast Live Oak Riparian Forest
2	bank swallow	15	hoary bat	28	southern California saltmarsh shrew	41	California Orcutt grass	54	many-stemmed dudleya	66	Southern Coastal Salt Marsh
3	Belding's savannah sparrow	16	least Bell's vireo	29	steelhead - southern California DPS	42	chaparral ragwort	55	mesa horkelia	67	Southern Cottonwood Willow Riparian Forest
4	big free-tailed bat	17	light-footed Ridgway's rail	30	wandering (=saltmarsh) skipper	43	chaparral sand-verbena	56	mud nama	68	Southern Dune Scrub
5	burrowing owl	18	mimic tryonia	31	western beach tiger beetle	44	cliff spurge	57	Nuttall's scrub oak	69	Southern Foredunes
6	California black rail	19	monarch	32	western mastiff bat	45	coast woolly-heads	58	prostrate vernal pool navarretia	70	Valley Needlegrass Grassland
7	California horned lark	20	orange-throated whiptail	33	western pond turtle	46	Coulter's goldfields	59	Robinson's pepper-grass		
8	California least tern	21	osprey	34	western snowy plover	47	Coulter's saltbush	60	salt marsh bird's-beak		
9	coast horned lizard	22	Pacific pocket mouse	35	western tidal-flat tiger beetle	48	Davidson's saltscale	61	San Bernardino aster		
10	coastal cactus wren	23	red-diamond rattlesnake	36	white-tailed kite	49	decumbent goldenbush	62	San Diego button-celery		
11	coastal California gnatcatcher	24	Riverside fairy shrimp	37	yellow rail	50	estuary seablite	63	south coast saltscale		
12	Crotch bumble bee	25	San Diego fairy shrimp	38	yellow warbler	51	Gambel's water cress	64	southern tarplant		
13	globose dune beetle	26	sandy beach tiger beetle	39	yellow-breasted chat	52	intermediate mariposa-lily				

BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
BIOLOGICAL RESOURCES REPORT

Special-Status Biological Resources Documented within a 5-mile Radius

Michael Baker INTERNATIONAL

0 1 2 Miles

Source: Esri, USFWS, 2019

Figure 6

Attachment A

Site Photographs

Photograph 1 – View of the intersection at Bayside Drive and the PCH, facing northwest.

Photograph 2 – View of Bayside Drive north of the PCH within the project site, facing north.

Photograph 3 – View of the project site, an parking lot and storage facility at the site of the existing and proposed pump stations, facing west.

Photograph 4 – View of the Bay Bridge (PCH) and Newport Bay north of the PCH, facing southwest.

Photograph 5 – View of the Bay Bridge (PCH) and disturbed areas adjacent to Newport Bay, facing northwest.

Photograph 6 – View of ornamental vegetation and bare ground associated with the Lower Castaways Park facility, facing northeast.

Photograph 7 – Developed and ornamental land uses within Lower Castaways Park, showing the disturbed slope and coastal sage scrub atop Castaways Park in the background, facing northwest.

Photograph 8 – View developed area and Newport Bay south of the Bay Bridge (PCH), facing northeast.

Attachment B

Plant and Wildlife Species Observed List

Scientific Name*	Common Name	Cal-IPC Rating**
Plants		
*Acacia redolens**	acacia	
Acmispon glaber	deerweed	
*Aptenia cordifolia**	baby sun rose	
*Archontophoenix alexandrae**	king palm	
Artemisia californica	California sagebrush	
*Arundo donax**	giant reed	High
Atriplex lentiformis	big saltbush	
*Avena barbata**	slender wild oat	Moderate
*Avena fatua**	wild oat	Moderate
Baccharis salicifolia	mule fat	
Baccharis pilularis	coyote brush	
*Bougainvillea spectabilis**	bougainvillea	
*Brassica nigra**	black mustard	Moderate
*Bromus diandrus**	common ripgut grass	Moderate
*Bromus rubens**	red brome	High
*Callistemon citrinus**	crimson bottlebrush	
Camissoniopsis bistorta	California sun cup	
*Carpobrotus edulis**	Hottentot fig	High
*Centaurea melitensis**	tocalote	Moderate
*Chenopodium murale**	nettle leaf goosefoot	
*Cortaderia selloana**	pampas grass	High
*Cupaniopsis anacardioides**	carrotwood	
Descurainia pinnata	yellow tansy mustard	
Distichlis spicata	saltgrass	
*Ehrharta erecta**	panic veldtgrass	Moderate
*Emex spinosa**	Devil's thorn	Moderate
Encelia californica	California sunflower	
Erigeron canadensis	Canada horseweed	
Eriogonum fasciculatum	California buckwheat	
*Erodium botrys**	longbeak filaree	
*Erodium cicutarium**	redstem filaree	Limited
*Erodium moschatum**	whitestem filaree	
*Eucalyptus camaldulensis**	red gum	Limited
*Eucalyptus citriodora**	lemon scented gum	
*Euphorbia peplus**	petty spurge	
*Foeniculum vulgare**	fennel	High
Galium aparine	common bedstraw	
*Hedera helix**	English ivy	High
Heteromeles arbutifolia	toyon	

Scientific Name*	**Common Name**	**Cal-IPC Rating****
Heterotheca grandiflora	telegraph weed	
*Hordeum murinum**	hare barley	Moderate
Isocoma menziesii	coastal goldenbush	
*Lactuca serriola**	prickly lettuce	
Lupinus succulentus	arroyo lupine	
*Lysimachia arvensis**	scarlet pimpernel	
*Malva parviflora**	cheeseweed	
Marah macrocarpa	wild cucumber	
*Marrubium vulgare**	horehound	Limited
*Medicago polymorpha**	bur clover	Limited
*Melilotus albus**	white sweetclover	
*Mesembryanthemum crystallinum**	crystalline ice plant	Moderate
*Mesembryanthemum nodiflorum**	small-flowered iceplant	Limited
Mirabilis laevis	wishbone bush	
*Myoporum laetum**	lollypop tree	Moderate
*Myoporum parvifolium**	slender myoporum	
*Nicotiana glauca**	tree tobacco	Moderate
*Olea europaea**	olive	Limited
Opuntia littoralis	prickly pear cactus	
*Oxalis pes-caprae**	Bermuda buttercup	Moderate
*Phoenix canariensis**	Canary Island date palm	Limited
Pinus spp.*	Ornamental pine trees	
Platanus racemosa	western sycamore (ornamental)	
Quercus agrifolia	coast live oak	
Rhus integrifolia	lemonade berry	
*Ricinus communis**	castor bean	Limited
*Salsola tragus**	Russian thistle	Limited
Salvia mellifera	black sage	
*Schinus molle**	Peruvian pepper tree	Limited
*Sisymbrium altissimum**	tall tumblemustard	
*Sisymbrium irio**	London rocket	Moderate
Solanum americanum	common nightshade	
*Sonchus asper**	prickly sowthistle	
*Sonchus oleraceus**	common sowthistle	
Stipa pulchra	purple needle grass	
*Syagrus romanzoffiana**	queen palm	
*Urtica urens**	dwarf nettle	
*Vinca major**	bigleaf periwinkle	Moderate
*Washingtonia robusta**	Mexican fan palm	Moderate

Scientific Name*	Common Name	Cal-IPC Rating**
Invertebrates		
Vanessa cardui	painted lady	
Birds		
Anas platyrhynchos	mallard	
Bombycilla cedrorum	cedar waxwing	
Columba livia	rock dove	
Corvus brachyrhynchos	American crow	
Fulica americana	American coot	
Haemorhous mexicanus	house finch	
Lonchura punctulata	scaly-breasted munia	
Mimus polyglottos	northern mockingbird	
Phalacrocorax auritus	double-crested cormorant	
Pipilo maculatus	spotted towhee	
Psaltriparus minimus	bushtit	
Sayornis nigricans	black phoebe	
Selasphorus sasin	Allen's hummingbird	
Spinus psaltria	lesser goldfinch	
*Sturnus vulgaris**	European starling	
Zenaida macroura	mourning dove	
Zonotrichia leucophrys	white-crowned sparrow	

* Non-native species

** **California Invasive Plant Council (Cal-IPC) Ratings**

High — These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

Moderate — These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

Limited — These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

Attachment C

Special-Status Species Table

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Plants			
Abronia maritima **red sand-verbena**	-- / -- 4.2	Perennial herb. Blooms February through December. Generally associated with coastal dunes. Known elevations range from 0 to 300 feet above mean sea level (amsl).	**Not Expected.** Suitable habitat (coastal dunes) is not present within the survey area. Further, the nearest occurrence is less than a mile to the southeast, but from 1942.
Abronia villosa var**.** *aurita* **chaparral sand-verbena**	-- / -- 1B.1	Annual herb. Blooms January through September. Occurs in sandy areas in chaparral, coastal scrub, and desert dunes. Known elevations range from 50 to 4,985 feet amsl.	**Low.** Suitable habitat (sandy areas, coastal scrub) is marginally present within the survey area. However, the nearest occurrence is over 3 miles to the northwest.
Aphanisma blitoides **aphanisma**	-- / -- 1B.2	Annual herb. Blooms March through June. Found in coastal scrub and dunes along bluffs and slopes near the ocean in sandy or clay soils. Known elevations range from 0 to 560 feet amsl.	**Low.** Suitable habitat (sandy or clay soils) is marginally present within the survey area. However, the nearest occurrence is from 1934 and over 1 mile to the west.
Astragalus pycnostachyus var. *lanosissimus* **Ventura Marsh milk-vetch**	FE / SE 1B.1	Perennial herb. Blooms June through October. Occurs in marshes and swamps, coastal dunes, and coastal scrub within reach of high tide or protected by barrier beaches; more rarely near seeps on sandy bluffs. Known elevations range from 0 to 115 feet amsl.	**Not Expected.** Suitable habitat (marshes and swamps, coastal dunes, coastal scrub within reach of high tide) is not present within the survey area. Further, the nearest occurrence is from 1882 and over 9 miles to the northwest.
Atriplex coulteri **Coulter's saltbush**	-- / -- 1B.2	Perennial herb. Blooms March through October. Generally associated with alkaline or clay soils that occur in grasslands and coastal bluff habitats. Known elevations range from 30 to 1,440 feet amsl.	**Low.** Suitable habitat (alkaline or clay soils, coastal bluff habitats) is marginally present within the survey area. Further, the nearest recent occurrence is from 1998 and nearly 2 miles to the east.
Atriplex pacifica **south coast saltscale**	-- / -- 1B.2	Annual herb. Blooms March through October. Occurs on alkaline soils in coastal scrub, coastal bluff, and playas. Known elevations range from 3 to 1,640 feet amsl.	**Not Expected.** Suitable habitat (alkaline soils) is not present within the survey area. Further, the nearest recent occurrence is nearly 4 miles to the southeast.

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Atriplex parishii **Parish's brittlescale**	-- / --- 1B.1	Annual herb. Blooms April through October. Found in alkaline soils within coastal bluff scrub and coastal scrub. Known elevations range from 100 to 1,540 feet amsl.	**Not Expected.** Suitable habitat (alkaline soils) is not present within the survey area. Further, the nearest occurrence is from 1881 and approximately 3 miles to the southeast.
Atriplex serenana var. *davidsonii* **Davidson's saltscale**	-- / -- 1B.2	Annual herb. Blooms April through October. Occurs in coastal bluff scrub and coastal scrub on alkaline soils. Known elevations range from 30 to 660 feet amsl.	**Not Expected.** Suitable habitat (alkaline soils) is not present within the survey area. Further, the nearest occurrence is less than 1 mile to the southeast.
Calochortus catalinae **Catalina mariposa lily**	-- / -- 4.2	Perennial herb (bulb). Blooms March through June (sometimes as early as February). Found in heavy soils, open slopes, and openings in valley and foothill grassland, chaparral, coastal scrub, and cismontane woodland. Known elevations range from 45 to 4,725 feet amsl.	**Low.** Suitable habitat (coastal scrub) is marginally present within the survey area. However, the nearest occurrence is over 5 miles to the east.
Calochortus weedii var. *intermedius* **intermediate mariposa-lily**	-- / -- 1B.2	Perennial herb (bulb). Blooms May through July. Found in chaparral, coastal sage scrub, and valley and foothill grasslands, as well as rocky outcrops. Known elevations range from 55 to 4,135 feet amsl.	**Low.** Suitable habitat (coastal sage scrub) is marginally present within the survey area. However, the nearest occurrence is from 1998 and over 4 miles to the southeast.
Camissoniopsis lewisii **Lewis' evening-primrose**	-- / -- 3	Annual herb. Blooms March through June. Occurs on sandy or clay soils in valley and foothill grassland, coastal bluff scrub, cismontane woodland, coastal dunes, and coastal scrub. Known elevations range from 0 to 1,740 feet amsl.	**Low.** Suitable habitat (sandy or clay soils) is marginally present within the survey area. However, the nearest occurrence is over 2 miles to the northwest.

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Centromadia parryi ssp. *australis* **southern tarplant**	-- / -- 1B.1	Annual herb. Blooms March through October. Often found in disturbed sites near the coast at marsh edges; also, in alkaline soils, sometimes with saltgrass (*Distichlis spicata*). Sometimes in grasslands and on vernal pool margins. Known elevations range from 0 to 3,200 feet amsl.	**Low.** Suitable habitat (disturbed sites near the coast) is marginally present within the survey area. However, the nearest recent occurrence is over 1 mile to the north in wetlands associated with Upper Newport Bay.
Chaenactis glabriuscula var. *orcuttiana* **Orcutt's pincushion**	-- / -- 1B.1	Annual herb. Blooms January through August. Occurs on sandy sites within coastal bluff scrub and coastal dunes. Known elevations range from 0 to 460 feet amsl.	**Not Expected.** Suitable habitat (sandy sites within coastal bluff scrub and coastal dunes) is not present within the survey area. Further, the nearest occurrence is approximately 11 miles to the southeast.
Chloropyron maritimum ssp**.** *maritimum* **salt marsh bird's-beak**	FE / SE 1B.2	Annual herb. Blooms May through October. Limited to the higher zones of marshes and swamps, along with coastal dunes. Known elevations range from 0 to 35 feet amsl.	**Not Expected.** Although the nearest occurrence is less than 1 mile to the north, suitable habitat (marshes, swamps, and coastal dunes) is not present within the survey area.
Cistanthe maritima **seaside cistanthe**	-- / -- 4.2	Annual herb. Blooms March through June. Occurs in sandy sites within coastal bluff scrub, coastal scrub, and valley and foothill grassland. Known elevations range from 50 to 590 feet amsl.	**Not Expected.** Suitable habitat (coastal scrub) is marginally present within the survey area. However, the nearest occurrence is from 1926 and over 9 miles to the southeast.
Comarostaphylis diversifolia ssp. *diversifolia* **summer holly**	-- / -- 1B.2	Shrub. Blooms April through June. Often in mixed chaparral and cismontane woodland, sometimes in post-burn areas. Known elevations range from 130 to 1,835 feet amsl.	**Not Expected.** Suitable habitat (mixed chaparral and cismontane woodland) is not present within the survey area. Further, the nearest occurrence is over 10 miles to the southeast.
Convolvulus simulans **small-flowered morning-glory**	-- / -- 4.2	Annual herb. Blooms March through July. Occurs on wet clay, serpentine ridges in chaparral, coastal scrub, and valley and foothill grassland. Known elevations range from 30 to 2,760 feet amsl.	**Not Expected.** Suitable habitat (wet clay, serpentine ridges) is not present within the survey area. Further, the nearest occurrence is nearly 3 miles to the southeast.

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Deinandra paniculata **paniculate tarplant**	-- / -- 4.2	Annual herb. Blooms March through November. Found on vernally mesic sites, sometimes vernal pools or surrounding mima mounds, in coastal scrub and valley and foothill grassland. Known elevations range from 55 to 4,070 feet amsl.	**Not Expected.** Suitable habitat (vernally mesic sites) is not present within the survey area. Further, the nearest occurrence is nearly 8 miles to the east.
Dichondra occidentalis **western dichondra**	-- / -- 4.2	Perennial herb. Blooms March through July. Found on sandy loam, clay, and rocky soils in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. Known elevations range from 130 to 1,510 feet amsl.	**Low.** Suitable habitat (coastal scrub) is marginally present within the survey area. However, the nearest occurrence is nearly 4 miles to the east.
Dudleya multicaulis **many-stemmed dudleya**	-- / -- 1B.2	Perennial herb. Blooms April through July. Occurs on heavy, often clayey soils or grassy slopes in chaparral, coastal scrub, and valley and foothill grassland habitats. Known elevations range from 45 to 3,280 feet amsl.	**Low.** Although the nearest occurrence is 0.5 mile to the north, it is from 1932 and suitable habitat (grassy slopes in coastal scrub and valley and foothill grassland) is not present within the survey area.
Dudleya stolonifera **Laguna Beach dudleya**	FT / ST 1B.1	Perennial herb (stoloniferous). Blooms May through July. Found on thin soils of north-facing sandstone cliffs in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland. Known elevations range from 15 to 855 feet amsl.	**Not Expected.** Suitable habitat (sandstone cliffs) is not present within the survey area. Further, the nearest occurrence is over 7 miles to the east.
Eryngium aristulatum var**.** *parishii* **San Diego button-celery**	FE / SE 1B.1	Annual, perennial herb. Blooms April through June. Found in San Diego mesa hardpan and claypan vernal pools, southern interior basalt flow vernal pools in coastal scrub and valley and foothill grassland. Known elevations range from 115 to 2,495 feet amsl.	**Not Expected.** Suitable habitat (vernal pools) is not present within the survey area. Further, the nearest occurrence is over 3 miles to the northwest.

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Euphorbia misera **cliff spurge**	-- / -- 2B.2	Shrub. Blooms December through August. Found on rocky sites in coastal bluff scrub, coastal scrub, and Mojavean desert scrub. Known elevations range from 0 to 920 feet amsl.	**Not Expected.** Suitable habitat (rocky sites) is not present within the survey area. Further, the nearest recent occurrence is over 2 miles to the southeast.
Helianthus nuttallii ssp. *parishii* **Los Angeles sunflower**	-- / -- 1A	Perennial herb (rhizomatous). Blooms August through October. Occurs in marshes, swamps, and on damp river banks. Believed to be extirpated. Known elevations range from 15 to 5,495 feet amsl.	**Not Expected.** Suitable habitat (marshes, swamps, damp river banks) is not present within the survey area. Further, the nearest occurrence is from 1933 and approximately 1.5 miles to the northeast.
Hordeum intercedens **vernal barley**	-- / -- 3.2	Annual herb. Blooms March through June. Occurs in vernal pools, dry, saline streambeds, and alkaline flats of valley and foothill grassland, coastal dunes, and coastal scrub habitats. Known elevations range from 15 to 3,280 feet amsl.	**Not Expected.** Suitable habitat (vernal pools, dry, saline streambeds, and alkaline flats) is not present within the survey area. Further, the nearest occurrence is nearly 2 miles to the east.
Horkelia cuneata var. *puberula* **mesa horkelia**	-- / -- 1B.1	Perennial herb. Blooms February through July. Found on sandy or gravelly areas within chaparral, cismontane woodland, and coastal scrub. Known elevations range from 460 to 2820 feet amsl.	**Not Expected.** Suitable habitat (sandy or gravelly areas in coastal scrub) is not present within the survey area. Further, the nearest occurrence is from 1981 and nearly 4 miles to the east.
Isocoma menziesii var. decumbens **decumbent goldenbush**	-- / -- 1B.2	Shrub. Blooms April through November. Found on sandy soils within coastal scrub and chaparral, as well as disturbed sites. Known elevations range from 65 to 1640 feet amsl.	**Low.** Suitable habitat (sandy soils in coastal scrub and disturbed sites) is marginally present within the survey area. However, the nearest occurrence is from 1946 and nearly 2 miles to the southeast.
Juncus acutus ssp. *leopoldii* **southwestern spiny rush**	-- / -- 4.2	Perennial grass. Blooms May through June. Found in most saline places in salt marshes, alkaline seeps, and coastal dunes (mesic sites). Known elevations range from 0 to 1,310 feet amsl.	**Not Expected.** Although the nearest recent occurrence is less than 1 mile to the northeast, suitable habitat (salt marshes, alkaline seeps, and coastal dunes) is not present within the survey area.

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Lasthenia glabrata ssp. *coulteri* **Coulter's goldfields**	-- / -- 1B.1	Annual herb. Blooms February through June. Usually found in alkaline soils in marshes, playas, vernal pools, and valley and foothill grasslands. Known elevations range from 3 to 4,595 feet amsl.	**Not Expected.** Suitable habitat (alkaline soils) is not present within the survey area. Further, the nearest occurrence is nearly 4 miles to the southeast.
Lepidium virginicum var. *robinsonii* **Robinson's pepper-grass**	-- / -- 4.3	Annual herb. Blooms January through July. Found in chaparral and coastal sage scrub. Occurs in dry soils and shrubland between 0 and 4,400 feet amsl.	**Low.** Suitable habitat (dry soils in coastal sage scrub) is marginally present within the survey area. However, the nearest occurrence is over 3 miles to the northeast.
Lycium californicum **California box-thorn**	-- / -- 4.2	Shrub. Blooms March through August. Found within coastal bluff scrub and coastal scrub. Known elevations range from 0 to 525 feet amsl.	**Not Expected.** Although the nearest occurrence is approximately 0.5 mile to the east and suitable habitat (coastal scrub) is marginally present within the survey area, this perennial shrub species was not observed during the survey.
Malacothrix saxatilis var. *saxatilis* **cliff aster**	-- / -- 4.2	Perennial herb. Blooms March through September. Found within coastal bluff scrub and coastal scrub. Known elevations range from 15 to 100 feet amsl.	**Low.** Suitable habitat (coastal scrub) is marginally present within the survey area. However, the nearest occurrence is over 6 miles to the southeast.
Nama stenocarpa **mud nama**	-- / -- 2B.2	Annual herb. Blooms March through May. Grows on the muddy embankments of ponds and lakes. Also reported to utilize river embankments. Known elevations range from 15 to 1,640 feet amsl.	**Not Expected.** Suitable habitat (muddy embankments of ponds, lakes, and rivers) is not present within the survey area. Further, the nearest occurrence is over 3 miles to the northeast.
Nasturtium gambelii **Gambel's water cress**	FE / ST 1B.1	Perennial herb (rhizomatous). Blooms April through October. Found in freshwater and brackish marshes at the margins of lakes and along streams, in or just above the water level. Known elevations range from 15 to 2,560 feet amsl.	**Not Expected.** Suitable habitat (freshwater and brackish marshes) is not present within the survey area. Further, the nearest occurrence is over 6 miles to the northwest.

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Navarretia prostrata **prostrate vernal pool navarretia**	-- / -- 1B.1	Annual herb. Blooms April through July. Found in alkaline soils in grassland and vernal pools, along with coastal scrub, meadows, seeps, and mesic, alkaline site. Known elevations range from 65 to 490 feet amsl.	**Not Expected.** Suitable habitat (alkaline soils) is not present within the survey area. Further, the nearest occurrence is over 3 miles to the northwest.
Nemacaulis denudata var**.** *denudata* **coast woolly-heads**	-- / -- 1B.2	Annual herb. Blooms April through September. Found in coastal dunes. Known elevations range from 0 to 35 feet amsl.	**Not Expected.** Suitable habitat (coastal dunes) is not present within the survey area. Further, the nearest occurrence is from 1975 and approximately 1 mile to the southwest.
Orcuttia californica **California Orcutt grass**	FE / SE 1B.1	Annual grass. Blooms April through August. Found in vernal pools. Known elevations range from 460 to 2,200 feet amsl.	**Not Expected.** Suitable habitat (vernal pools) is not present within the survey area. Further, the nearest occurrence is over 3 miles to the northwest.
Pentachaeta aurea ssp. *allenii* **Allen's pentachaeta**	-- / -- 1B.1	Annual herb. Blooms March through June. Occurs in coastal scrub openings and valley and foothill grasslands. Known elevations range from 225 to 1,560 feet amsl.	**Low.** Suitable habitat (coastal scrub openings) is marginally present within the survey area. However, the nearest occurrence is over 7 miles to the east.
Phacelia ramosissima var. *austrolitoralis* **south coast branching phacelia**	-- / -- 3.2	Perennial herb. Blooms March through August. Found in sandy, sometimes rocky sites within chaparral, coastal scrub, coastal dunes, and coastal salt marsh. Known elevations range from 15 to 720 feet amsl.	**Not Expected.** Although the nearest occurrence is less than 1 mile to the east and suitable habitat (coastal scrub) is marginally present within the survey area, this species has not been documented in the area since 1932.
Quercus dumosa **Nuttall's scrub oak**	-- / -- 1B.1	Shrub. Blooms February through March. Found on sandy soils near the coast and sometimes on clay loam within closed-cone coniferous forest, chaparral, and coastal scrub. Known elevations range from 50 to 4,035 feet amsl.	**Not Expected.** Suitable habitat (coastal scrub) is marginally present within the survey area. However, this perennial shrub species was not observed during the survey and the nearest occurrence is nearly 3 miles to the southeast.

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Sagittaria sanfordii **Sandford's arrowhead**	-- / -- 1B.2	Perennial herb (rhizomatous). Blooms May through October. Found in standing or slow-moving freshwater ponds, marshes, and ditches. Known elevations range from 0 to 1,180 feet amsl.	**Not Expected.** Suitable habitat (freshwater ponds, marshes, and ditches) is not present within the survey area. Further, there are no documented occurrences in the vicinity of the project.
Senecio aphanactis **chaparral ragwort**	-- / -- 2B.2	Annual herb. Blooms January through April. Occurs on drying alkaline flats in chaparral, cismontane woodland, and coastal scrub. Known elevations range from 45 to 2,625 feet amsl.	**Not Expected.** Suitable habitat (drying alkaline flats) is not present within the survey area. The nearest occurrence is over 3 miles to the east.
Sidalcea neomexicana **salt spring checkerbloom**	-- / -- 2B.2	Perennial herb. Blooms March through June. Occurs in alkali springs, marshes, and playas in chaparral, coastal scrub, lower montane coniferous forest, and Mojavean desert scrub. Known elevations range from 0 to 7,810 feet amsl.	**Not Expected.** Suitable habitat (alkaline springs, marshes, and playas) is not present within the survey area. Further, the nearest occurrence is from 1908 and over 4 miles to the north.
Suaeda esteroa **estuary seablite**	-- / -- 1B.2	Perennial herb. Blooms June through October (sometimes May through January). Found on clay, silt, and sand substrates in coastal salt marshes and swamps. Known elevations range from 0 to 395 feet amsl.	**Not Expected.** Although the nearest occurrence is approximately 0.5 mile to the east, suitable habitat (coastal salt marshes and swamps) is not present within the survey area.
Symphyotrichum defoliatum **San Bernardino aster**	-- / -- 1B.2	Perennial herb (rhizomatous). Blooms July through November. Grows in vernally mesic sites and disturbed areas or near ditches, streams, and springs in meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, and valley and foothill grassland. Known elevations range from 5 to 6,695 feet in elevation amsl.	**Not Expected.** Although the nearest occurrence is less than 2 miles to the north, suitable habitat (vernally mesic sites) is not present within the survey area and this species has not been documented in the area since 1933.

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Verbesina dissita **big-leaved crownbeard**	FT / ST 1B.1	Perennial herb. Blooms April through July (sometimes as early as March). Found on gravelly soils of steep, rocky, primarily north-facing slopes in coastal scrub and maritime chaparral less than 1.5 miles from the ocean. Known elevations range from 145 to 955 feet amsl.	**Not Expected.** Suitable habitat (gravelly soils on north-facing slopes) is not present within the survey area. Further, the nearest occurrence is over 8 miles to the southeast.
Invertebrates			
Bombus crotchii **Crotch bumble bee**	-- / -- G3G4 / S1S2	Found from coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*.	**Low.** Although the nearest occurrence is just over 1 mile to the west, and a host plant (*Eriogonum*) is marginally present within the survey area, this species has not been documented in the area since 1941.
Branchinecta sandiegonensis **San Diego fairy shrimp**	FE / --	Endemic to San Diego and Orange County mesas. Found within small, shallow vernal pools which range in depth from 2 to 12 inches and in water temperature from 50 to 68 °F.	**Not Expected.** Suitable habitat (vernal pools) is not present within the survey area. Further, the nearest occurrence is approximately 2 miles to the northwest.
Cicindela gabbii **western tidal-flat tiger beetle**	-- / -- G2G4 / S1	Inhabits estuaries and mudflats along the coast of Southern California. Generally found on dark-colored mud in the lower zone; occasionally found on dry saline flats of estuaries.	**Low.** Although the nearest occurrence is just over 1 mile to the southwest and suitable habitat (estuaries and mudflats) is marginally present within the survey area, this species has not been documented in the area since 1949.
Cicindela hirticollis gravida **sandy beach tiger beetle**	-- / -- G5T2 / S2	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico. Found in clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.	**Low.** Although the nearest occurrence is less than 1 mile to the south, suitable habitat (areas adjacent to non-brackish water along the coast) is not present within the survey area and this species has not been documented in the area since 1955.

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Cicindela latesignata latesignata **western beach tiger beetle**	-- / -- G2G4T1T2 / S1	Found in mudflats and beaches in coastal Southern California.	**Low.** Although the nearest occurrence is just over 1 mile to the southwest and suitable habitat (mudflats) is marginally present within the survey area, this species has not been documented in the area since 1980.
Cicindela senilis frosti **senile tiger beetle**	-- / -- G2G3T1T3 / S1	Inhabits dark-colored mud in the lower zone and dried salt pans in the upper zone. Inhabits marine shoreline, from Central California coast south to salt marshes of San Diego. Also found at Lake Elsinore.	**Low.** Although suitable habitat (marine shoreline) is marginally present within the survey area, the nearest occurrence is from 1979 and over 14 miles to the northwest.
Coelus globosus **globose dune beetle**	-- / -- G1G2 / S1S2	Inhabits foredunes and sand hummocks of coastal sand dune habitat. It burrows beneath the sand surface and is most common beneath dune vegetation. Erratically distributed from Ten Mile Creek in Mendocino County south to Ensenada, Mexico.	**Low.** Although the nearest occurrence is just over 1 mile to the southwest, suitable habitat (foredunes and sand hummocks) is not present within the survey area.
Danaus plexippus pop. 1 **monarch - California overwintering population**	-- / -- G4T2T3 / S2S3	Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico.	**Low.** Suitable habitat (wind-protected tree groves) is marginally present within the survey area. Further, the nearest occurrence is over 2 miles to the northwest.
Panoquina errans **wandering skipper**	-- / -- G4G5 / S2	Found in Southern California coastal salt marshes, ocean bluffs, and other open areas near the ocean. Requires moist saltgrass for larval development.	**Not Expected.** Suitable habitat (coastal salt marshes and ocean bluffs) is not present within the survey area. Further, the nearest occurrence is nearly 4 miles to the west.

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Streptocephalus woottoni **Riverside fairy shrimp**	FE / -- G1G2 / S1S2	Inhabits seasonally astatic pools filled by winter/spring rains. Hatches in warm water later in the season. Endemic to Western Riverside, Orange, and San Diego counties in areas of tectonic swales/earth slump basins in grassland, and coastal sage scrub.	**Not Expected.** Suitable habitat (seasonally astatic pools) is not present within the survey area. Further, the nearest occurrence is approximately 3.5 miles to the northwest.
Trigonoscuta dorothea dorothea **Dorothy's El Segundo Dune weevil**	-- / -- G1T1 / S1	Inhabits coastal sand dunes in Los Angeles County.	**Not Expected.** Suitable habitat (coastal dunes) is not present within the survey area. Further, the nearest occurrence is over 9 miles to the northwest.
Tryonia imitator **mimic tryonia (California brackishwater snail)**	-- / -- G2 / S2	Inhabits coastal lagoons, estuaries, salt marshes, and where creek mouths that join tidal marshes from Sonoma County south to San Diego County. Found only in permanently submerged areas in a variety of sediment types; able to withstand a wide range of salinities.	**Low.** Although the nearest occurrence is approximately 1.5 miles to the north, suitable habitat (coastal lagoons and estuaries) is marginally present within the survey area.
Fish			
Eucyclogobius newberryi **tidewater goby**	FE / SSC G3 / S3	Found in brackish water within shallow lagoons and lower stream reaches and need fairly still but not stagnant water and high oxygen levels. Distributed along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River.	**Not Expected.** Suitable habitat (brackish water) is not present within the survey area. Further, the nearest occurrence is over 11 miles to the southeast.
Oncorhynchus mykiss irideus pop. 10 **steelhead – southern California DPS**	FE / -- G5T1Q / S1	Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County). Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions. Occurs in south coast flowing waters.	**Low.** Suitable habitat (south coast flowing waters) is present within the survey area. However, the nearest occurrence is from 1972 and over 10 miles to the southeast.

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Amphibians			
Spea hammondii **western spadefoot**	-- / SSC G3 / S3	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washed lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rain pools, which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	**Not Expected.** Suitable breeding habitat (rain pools) is not present within the survey area. Further, the nearest occurrence is over 6 miles to the southeast.
Reptiles			
Anniella stebbinsi **southern California legless lizard**	-- / SSC G3 / S3	Occurs in sandy or loose loamy soils under sparse vegetation, in a variety of habitats; prefers soils with a high moisture content. Generally found south of the Transverse Range, extending to northwestern Baja California. Disjunct populations in the Tehachapi and Piute Mountains in Kern County.	**Not Expected.** Suitable habitat (loose soils with high moisture content) is not present within the survey area. Further, the nearest occurrence is from 1949 and nearly 2 miles to the southeast.
Aspidoscelis hyperythra **orange-throated whiptail**	-- / WL G5 / S2S3	Inhabits low-elevation coastal scrub, chaparral, and cismontane woodlands. Prefers washes and other sandy areas with patches of brush and rocks. Often found on the edge of intact vegetation and disturbed areas. Perennial plants necessary for its primary food, termites.	**Low.** Suitable habitat (edge of intact vegetation and disturbed areas, perennial plants) is marginally present within the survey area. The nearest occurrence is less than 1.5 miles to the southeast.
Chelonia mydas **green turtle**	FT / -- G3 / S1	Inhabits marine environments. Completely herbivorous; needs adequate supply of sea grasses and algae.	**Low.** Suitable habitat (sea grasses and algae) is marginally present within the survey area. However, the nearest occurrence is over 15 miles to the northwest.

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Crotalus ruber **red-diamond rattlesnake**	-- / SSC G4 / S3	Found in chaparral, woodland, grassland, and desert scrub habitats from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky areas and dense vegetation. Needs rodent burrows, and cracks in rocks or surface cover objects.	**Not Expected.** Suitable habitat (rocky, densely vegetated areas) is not present within the survey area. Further, the nearest occurrence is over 4 miles to the east.
Emys marmorata **western pond turtle**	-- / SSC G3G4 / S3	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually found with aquatic vegetation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometer from water for egg-laying. Found between 0 and 6,000 feet amsl in elevation.	**Not Expected.** Suitable habitat (ponding, open freshwaters) is not present within the survey area. Further, the nearest occurrence is over 3 miles to the northeast.
Phrynosoma blainvillii **coast horned lizard**	-- / SSC G3G4 / S3S4	Frequents a wide variety of habitats, including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland, and coniferous forest, along sandy washes with scattered low bushes. Prefers open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants and other insects.	**Low.** Suitable habitat (coastal sage scrub and annual grassland) is marginally present within the survey area. However, the nearest occurrence is over 4 miles to the southeast.
Birds			
Accipiter cooperii (Nesting) **Cooper's hawk**	-- / WL G5 / S4	Generally found in forested areas up to 3,000 feet amsl, especially near edges and rivers. Prefers hardwood stands and mature forests but can be found in urban and suburban areas where there are tall trees for nesting. Common in open areas during nesting season.	**Low.** Suitable nesting habitat (tall trees) is marginally present within the survey area. This species may forage in the area. However, the nearest occurrences are over 8 miles to the northeast and southeast.

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Agelaius tricolor (Nesting colony) **tricolored blackbird**	-- / SCE, SSC G2G3 / S1S2	Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony. Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California.	**Not Expected.** Suitable nesting habitat (open water, protected nesting substrate) is not present within the survey area. Further, the nearest occurrence is over 7 miles to the northeast.
Aimophila ruficeps canescens **southern California rufous-crowned sparrow**	-- / WL G5T3 / S3	Frequents relatively steep, often rocky hillsides with grass and forb patches in coastal sage scrub and sparse mixed chaparral habitats.	**Not Expected.** Suitable habitat (rocky hillsides in coastal sage scrub) is not present within the survey area. Further, the nearest occurrence is over 5 miles to the southeast.
Ammodramus savannarum (Nesting) **grasshopper sparrow**	-- / SSC G5 / S3	Favors native grasslands with a mix of grasses, forbs, and scattered shrubs. Loosely colonial when nesting. Occurs in dense grasslands on rolling hills, lowland plains, in valleys, and on hillsides on lower mountain slopes.	**Not Expected.** Suitable nesting habitat (native grasses, scattered shrubs) is not present within the survey area. Further, the nearest occurrence is nearly 4 miles to the northeast.
Athene cunicularia (Burrow sites and some wintering sites) **burrowing owl**	-- / SSC G4 / S3	Primarily found in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation, but it persists and even thrives in some landscapes highly altered by human activity, such as earthen canals, berms, rock piles, and pipes. Subterranean nester, most often dependent upon burrowing mammals, most notably, the California ground squirrel (*Otospermophilus beecheyi*).	**Not Expected.** Suitable nesting and wintering habitat (annual grasslands, low-growing vegetation) is not present within the survey area. Further, no suitable burrows or ground squirrels were observed during the survey and the nearest occurrence is nearly 3 miles to the northeast.
Campylorhynchus brunneicapillus sandiegensis (San Diego and Orange Counties only) **coastal cactus wren**	-- / SSC G5T3Q / S3	From southern Ventura County and southwestern San Bernardino County to northwestern Baja California, occupies coastal sage scrub largely consisting of tall stands of coastal prickly pear (*Opuntia littoralis*) or cholla (*Cylindropuntia* spp.) cacti for nesting and roosting.	**Low.** Suitable habitat (tall stands of cacti) is marginally present within the survey area. However, the nearest occurrence is over 3 miles to the east.

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Charadrius alexandrinus nivosus (Nesting) **western snowy plover**	FT / SSC G3T3 / S2S3	Occurs on sandy beaches, salt pond levees, and shores of large alkali lakes. Needs sandy, gravelly, or friable soils for nesting.	**Not Expected.** Although the nearest occurrence is just over 1 mile to the west, suitable nesting habitat (beaches, levees, and shores) is not present within the survey area.
Coccyzus americanus occidentalis (Nesting) **western yellow-billed cuckoo**	FT / SE G5T2T3 / S1	Obligate willow-cottonwood riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow (*Salix* spp.), often mixed with cottonwoods (*Populus* spp.), with the lower story dominated by blackberry (*Rubus* spp.), nettles (*Urtica* spp.), and/or wild grape (*Vitis* spp.).	**Not Expected.** Suitable nesting habitat (broad riparian forests) is not present within the survey area. Further, the nearest occurrence is near Santa Ana from 1918.
Coturnicops noveboracensis **yellow rail**	-- / SSC G4 / S1S2	Occurs in freshwater marshlands. Summer resident in eastern Sierra Nevada in Mono County.	**Not Expected.** Although the nearest occurrence is within the survey area, it is from 1896 and suitable habitat (freshwater marshlands) is not present within the survey area.
Elanus leucurus (Nesting) **white-tailed kite**	-- / FP G5 / S3S4	Often found in rolling foothills and valley margins with scattered oaks, riparian bottomlands, or marshes next to deciduous woodlands. Prefers isolated, dense-topped trees for nesting and perching near open valley and foothill grasslands, meadows, or marshes for foraging.	**Low.** Suitable nesting habitat (dense-topped trees) is marginally present within the survey area, and this species may forage in the area. However, the nearest occurrence is over 2 miles to the northeast.
Eremophila alpestris actia **California horned lark**	-- / WL G5T4Q / S4	Found in open areas dominated by sparse low herbaceous vegetation or widely scattered low shrubs. Nests in hollow on ground often next to grass tufts or clods of earth or manure. Known from coastal regions, chiefly from Sonoma County to San Diego County, including main part of San Joaquin Valley and east to the foothills.	**Low.** Suitable habitat (low herbaceous vegetation with widely scattered low shrubs) is marginally present within the survey area. However, the nearest occurrence is over 3 miles to the northeast.

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Icteria virens (Nesting) **yellow-breasted chat**	-- / SSC G5 / S3	Summer resident that inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, and wild grape. Breeding habitat must be dense to provide shade and concealment. Forages and nests within 10 feet of ground.	**Not Expected.** Suitable nesting habitat (dense riparian thickets) is not present within the survey area. Further, the nearest occurrence is over 3 miles to the east.
Laterallus jamaicensis coturniculus **California black rail**	-- / ST, FP G3G4T1 / S1	Inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays. Needs water depths of approximately 1 inch that do not fluctuate during the year, and dense upland buffer and marsh vegetation for nesting habitat.	**Not Expected.** Suitable habitat (marshes and wet meadows) is not present within the survey area. Further, the nearest occurrence is from 1983 and approximately 1.5 miles to the north.
Pandion haliaetus **osprey**	-- / WL G5 / S4	Found along ocean shores, bays, freshwater lakes, and larger streams. Builds large nests in tree-tops within 15 miles of a good fish-producing body of water.	**High.** Suitable habitat (ocean shores, bays, freshwater lakes, and larger streams) is present within the survey area. Further, the nearest occurrence is approximately 0.5 mile to the east.
Passerculus sandwichensis beldingi **Belding's savannah sparrow**	-- / SE G5T3 / S3	Inhabits coastal salt marshes, from Santa Barbara south through San Diego County. Nests in pickleweed (*Salicornia* spp.) on and around margins of tidal flats.	**Not Expected.** Suitable habitat (coastal salt marshes) is not present within the survey area. Further, the nearest occurrence is approximately 1.5 miles to the north.
Polioptila californica californica **coastal California gnatcatcher**	FT / SSC G4G5T2Q / S2	Obligate, permanent resident of coastal sage scrub below 2,500 feet amsl in Southern California. Occurs in low, coastal sage scrub in arid washes, and on mesas, bowls, and slopes lacking tall perching vegetation. Not all areas classified as coastal sage scrub are occupied.	**Low.** Suitable habitat (coastal sage scrub) is marginally present within the survey area. The nearest occurrence is approximately 0.5 mile to the north.

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Rallus obsoletus levipes **light-footed Ridgway's rail**	FE / SE, FP G5T1T2 / S1	Found in salt marshes traversed by tidal sloughs, where dense growths of cordgrass (*Spartina foliosa*) and pickleweed dominate for nesting. Requires shallow water and mudflats for foraging on mollusks and crustaceans, with adjacent higher vegetation for cover during high water.	**Not Expected.** Although the nearest occurrence is approximately 1.5 miles to the north, suitable habitat (salt marshes) is not present within the survey area.
Riparia riparia **bank swallow**	-- / ST G5 / S2	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, and oceans to dig nesting holes.	**Not Expected.** Although the nearest occurrence is less than 1 mile to the west, suitable habitat (vertical banks/cliffs in riparian areas) is not present within the survey area.
Rynchops niger (Nesting colony) **black skimmer**	-- / SSC G5 / S2	Nests on gravel bars, low islets, and sandy beaches in unvegetated sites. Habitats include alkali playas and sand shores. Nesting colonies are usually of less than 200 pairs.	**Not Expected.** Suitable habitat (alkali playas and sand shores) is not present within the survey area. However, the nearest occurrence is over 9 miles to the northwest.
Setophaga petechia **yellow warbler**	-- / SSC G5 / S3S4	Found in riparian plant associations near water. Also nests in montane shrubbery in open conifer forests in the Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores (*Platanus racemosa*), ash (*Fraxinus* spp.), and alder (*Alnus* spp.*)*.	**Not Expected.** Suitable habitat (riparian areas near water) is not present within the survey area. Further, the nearest occurrence is nearly 4 miles to the northwest.

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Sternula antillarum browni (Nesting colony) **California least tern**	FE / SE, FP G4T2T3Q / S2	Colonial breeder on bare or sparsely vegetated, flat substrates, including sand beaches, alkali flats, landfills, or paved areas. Prefers broad, level expanses of open sandy or gravelly beach, dredge spoil, and other open shoreline areas, and broad river valley sandbars. Nests along the coast from San Francisco Bay south to northern Baja California.	**Not Expected.** Although the nearest occurrence is approximately 1 mile to the southwest, suitable nesting habitat (sandy or gravelly beaches) is not present within the survey area.
Vireo bellii pusillus (Nesting) **least Bell's vireo**	FE / SE G5T2 / S2	Primarily occupies riverine riparian habitats that typically feature a dense, stratified canopy and herbaceous wetland understory. Nests within 1 to 2 meters of the ground. Summer resident of Southern California below 2,000 feet amsl.	**Not Expected.** Suitable nesting habitat (riverine riparian habitats) is not present within the survey area. Further, the nearest occurrence is nearly 3 miles to the northwest.
Mammals			
Choeronycteris mexicana **Mexican long-tongued bat**	-- / SSC G4 / S1	Occasionally found in San Diego County, which is on the periphery of their range. Feeds on nectar and pollen of night-blooming succulents. Roosts in relatively well-lit caves, and in and around buildings.	**Low.** Suitable roosting habitat (buildings) is marginally present within the survey area; however, foraging habitat (night-blooming succulents) is not. Further, the nearest occurrence is approximately 10 miles to the northeast.
Eumops perotis californicus **western mastiff bat**	-- / SSC G5T4 / S3S4	Primarily a cliff-dwelling species, occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts on cliff faces, high buildings, trees, and tunnels.	**Low.** Suitable roosting habitat (tall trees) is marginally present within the survey area; however, this species is likely to forage in the area. Further, the nearest occurrence is over 8 miles to the northwest.

Scientific Name **Common Name**	**Status*** Federal / State CRPR *or* G-Rank / S-Rank	**Habitat Preferences and Distribution Affinities**	**Potential for Occurrence**
Lasiurus cinereus **hoary bat**	-- / -- G5 / S4	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	**Low.** Although the nearest occurrence is from 1990 and less than 1 mile to the west, suitable roosting habitat (medium to large trees) is marginally present within the survey area.
Microtus californicus stephensi **south coast marsh vole**	-- / SSC G5T1T2 / S1S2	Found in tidal marshes in Los Angeles, Orange and southern Ventura counties.	**Not Expected.** Suitable roosting habitat (tidal marshes) is not present within the survey area. Further, the nearest occurrence is nearly 12 miles to the northwest.
Nyctinomops macrotis **big free-tailed bat**	-- / -- G5 / S3	Found in low-lying arid areas in Southern California. Needs high cliffs on rocky outcrops for roosting sites. Feeds principally on large moths.	**Not Expected.** Suitable roosting habitat (high cliffs on rocky outcrops) is not present within the survey area. Further, the nearest occurrence is over 2 miles to the southeast.
Perognathus longimembris pacificus **Pacific pocket mouse**	FE / SSC G5T1 / S1	Seems to prefer soils of fine alluvial sands and sandy slopes of coastal scrub near the ocean, but much remains to be learned. Historically, known to inhabit the narrow coastal mesas from the Mexican border north to El Segundo, Los Angeles County.	**Not Expected.** Suitable habitat (sandy slopes of coastal scrub) is marginally present within the survey area. However, the nearest occurrence is over 3 miles to the east and this species is only known extant from eight locales.
Sorex ornatus salicornicus **southern California saltmarsh shrew**	-- / SSC G5T1? / S1	Inhabits coastal salt marshes of Los Angeles, Orange, and Ventura Counties. Requires dense vegetation and woody debris for cover.	**Not Expected.** Suitable habitat (salt marshes) is not present within the survey area. Further, the nearest occurrence is nearly 2 miles to the north.
Taxidea taxus **American badger**	-- / SSC G5 / S3	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents. Digs burrow.	**Not Expected.** Suitable habitat (open, uncultivated ground) is not present within the survey area. Further, the nearest occurrence is nearly 2 miles to the west.

* **California Rare Plant Rank (CRPR)**

1A Plants presumed extirpated in California and either rare or extinct elsewhere
1B Plants rare, threatened, or endangered in California and elsewhere

2A Plants presumed extirpated in California, but common elsewhere
2B Plants rare, threatened, or endangered in California, but more common elsewhere
3 Plants approximately which more information is needed - a Review List
4 Plants of limited distribution - a Watch List

Threat Ranks

.1 Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
.2 Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat)
.3 Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

Federal Classifications

FE Federally Endangered
FT Federally Threatened
FP Fully Protected

State Classifications

SE State Endangered
ST State Threatened
SCE State Candidate for Endangered
SSC California Species of Special Concern
WL Watch List

G-Rank / S-Rank

Global Rank and State Rank as per NatureServe and CDFW CNDDB RareFind 5, ranging from critically imperiled (G1/S1) to demonstrably secure (G5/S5)

Infraspecific Taxon Conservation Status Ranks

Infraspecific taxa refer to subspecies, varieties, and other designations below the level of the species. Infraspecific taxon status (T-ranks) apply to plants and animals only; these T-ranks do not apply to ecological communities. The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. Rules for assigning T-ranks follow the same principles outlined above for global conservation status ranks.

BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT

Newport Beach, California

DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

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March 2019
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BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT

NEWPORT BEACH, CALIFORNIA

Delineation of State and Federal Jurisdictional Waters

The undersigned certify that this report is a complete and accurate account of the findings and conclusions of a jurisdictional "waters of the U.S." (including wetlands) and "waters of the State" determination for the above-referenced project.

Tim Tidwell
Regulatory Specialist
Natural Resources/Regulatory Permitting

Josephine Lim
Regulatory Specialist
Natural Resources/Regulatory Permitting

March 2019

Executive Summary

At the request of the Orange County Sanitation District (OCSD), Michael Baker International (Michael Baker), has prepared this Jurisdictional Delineation Report for the Bay Bridge Pump Station and Force Mains Replacement Project, located in the City of Newport Beach, County of Orange, California.

This delineation report was prepared to document the regulatory authority of the U.S. Army Corps of Engineers Los Angeles District (Corps) pursuant to Section 404 of the Federal Clean Water Act (CWA), Santa Ana Regional Water Quality Control Board (Regional Board) pursuant to Section 401 of the CWA and/or Section 13263 of the California Porter-Cologne Water Quality Control Act, California Department of Fish and Wildlife (CDFW) South Coast Region pursuant to Sections 1600 *et seq.* of the California Fish and Game Code (CFGC), and the California Coastal Commission (CCC), pursuant to the California Coastal Act. The field work for this delineation was conducted on October 11, 2018.

State and federal jurisdictional areas (Newport Bay) were identified within the boundaries of the project site. Table ES-1 identifies the total jurisdiction within the project site for each regulatory agency.

Table ES-1: Jurisdictional Areas Summary

Jurisdictional Feature	Corps/Regional Board Non-Wetland WoUS (acres)	California Coastal Commission Wetland (acres)
Newport Bay	3.07	3.07

Within the boundaries of the project site, dredging or placement of fill material within Newport Bay is subject to Corps, Regional Board, and CCC regulatory authority and would require authorization prior to the commencement of construction. The project site is located south of the Upper Newport Bay Ecological Reserve and State Marine Conservation Area (MCA), which is managed in part by the CDFW. Therefore project-related activities to the south of Bay Bridge would not require regulatory approval from the CDFW. Refer to Section 7, *Conclusions and Recommendations*, for a summary of the required regulatory approvals associated with each project alternative.

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LIST OF ACRONYMS

BMP	Best Management Practice
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CWA	Clean Water Act
CDP	Coastal Development Permit
CZMA	Coastal Zone Management Act
EPA	Environmental Protection Agency
ESHA	Environmentally Sensitive Habitat Area
FAC	Facultative Vegetation
FACU	Facultative Upland Vegetation
FACW	Facultative Wetland Vegetation
FEMA	Federal Emergency Management Agency
GPS	Ground Positioning System
HDD	Horizontal Directional Drilling
HTL	High Tide Line
IP	Individual Permit
LCP	Local Coastal Program
LF	Linear Feet
MHW	Mean High Water
MHHW	Mean Higher High Water
MCA	Marine Conservation Area
MGD	Million Gallons Per Day
MPA	Marine Protection Area
Michael Baker	Michael Baker International Company
MSL	Mean Sea Level
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
NWP	Nationwide Permit
OBL	Obligate Wetland Vegetation
OCSD	Orange County Sanitation District
OHWM	Ordinary High Water Mark
RPW	Relatively Permanent Waters
RV	Recreational Vehicle
SAA	Streambed Alteration Agreement
SWANCC	Solid Waste Agency of Northern Cook County
SWRCB	State Water Resources Control Board
TNW	Traditional Navigable Water
UPL	Obligate Upland Vegetation
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WoUS	Waters of the United States

Section 1 Introduction

Michael Baker International (Michael Baker) has prepared this Jurisdictional Delineation Report for the Orange County Sanitation District (OCSD) in order to describe, map, and quantify aquatic and other hydrological features located within the boundaries of the Bay Bridge Pump Station and Force Mains Replacement Project (project or project site). This report presents our best effort at determining the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies. However, only the regulatory agencies can make a final determination of jurisdictional boundaries.

1.1 PROJECT LOCATION

Regionally, the project site is located within the southwestern portion of the City of Newport Beach, within the County of Orange, California (Figure 1, *Regional Vicinity Map*). Locally, the project site is located within the vicinity of the Pacific Coast Highway (PCH) bridge, known as the Bay Bridge, over Newport Bay within a fully developed and urbanized area of Newport Beach. The project site includes the Newport Bay, PCH as well as developed land to the east and west of Newport Bay. The project site is depicted within Section 27 of Township 6 South, Range 10 West of the the U.S. Geological Survey (USGS) *Newport Beach, California* 7.5-minute topographic quadrangle map (Figure 2, *Site Vicinity*). Surrounding land uses in proximity to the project site include residential, commercial, and commercial recreational marine uses (Refer to Figure 3, *Project Site*).

1.2 PROJECT SITE BACKGROUND

OCSD owns, operates, and maintains the existing pump station and associated force mains, which convey wastewater from Newport Beach to OCSD's Plant No. 2 wastewater treatment facility in Huntington Beach. The existing facility is critical to OCSD's operations and to ensure continuous service to the Newport Coast service area. OCSD proposes to upgrade the existing pump station/force main infrastructure. The Bay Bridge Pump Station is surrounded by a recreational vehicle (RV) storage area and mobile home park planned for development as part of the Back Bay Landing Project, a mixed-use waterfront village comprised of recreational and marine-related uses. A project proposing an upgrade to the existing pump station/force main infrastructure was previously analyzed in the Bay Bridge Pump Station and Force Mains Replacement Project Draft EIR (2017 Bay Bridge EIR; Michael Baker International June 2017). However, the Final EIR was not certified due to conflicts with the planned development of the adjacent the Back Bay Landing Project. Since then, OCSD, in consultation with the City of Newport Beach and adjacent property owner (Bayside Village Marina, LLC), has identified three conceptual project designs to move forward with, one being the original design analyzed in the 2017 Bay Bridge EIR.

3/15/2019 JN \\IRVICA1FS1.bkr.mbakercorp.com\MROOT\Mdata\143698\GIS\MXD\2019 Update\Fig 01 Regional Vicinity.mxd RP

Michael Baker INTERNATIONAL

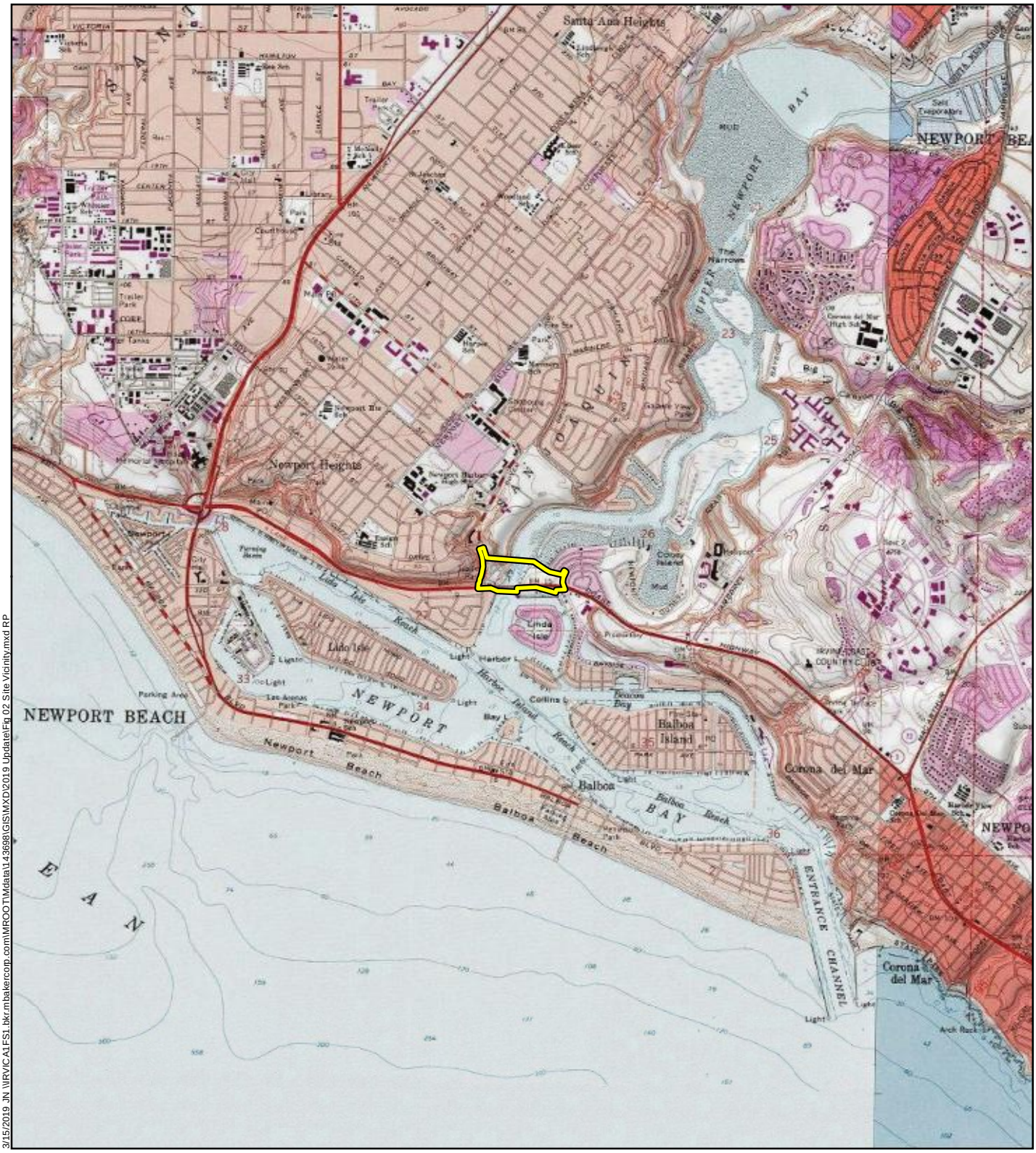
0 2.5 5 Miles

Source: ArcGIS Online

BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Regional Vicinity

Figure 1



3/15/2019 JN \\RVIC\A1FS1.bkr.mbakercorp.com\MROOT\Mdata\143698\GIS\MXD\2019 Update\Fig 02 Site Vicinity.mxd RP

Legend

Project Site

BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Site Vicinity

Michael Baker INTERNATIONAL

0 0.25 0.5 Miles

Source: ArcGIS Online, USGS 7.5-Minute topographic quadrangle maps: *Newport Beach, California (2018)*, *Newport Beach OE S, California (2018)*

Figure 2

Michael Baker INTERNATIONAL

Source: Eagle Aerial, 2014

BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Project Site

Figure 3

1.3 PROJECT DESCRIPTION

The proposed project would replace the existing Bay Bridge pump station and associated force mains to bring the pump station facility and force mains to current design and reliability standards to ensure continuous service for the Newport Coast service area. OCSD has prepared three conceptual project alternatives including: Original Northeast Pump Station, Modified Northeast Pump Station, and South Pump Station. Only dredging activities associated with Modified Northeast Pump Station and South Pump Station would impact on-site jurisdictional areas.

The current proposed project contains two alternative pump station site locations and four alternative force main alignments which are described below. This delineation report focuses on the two alternatives which could impact State and Federal waters resulting from dredging activities across Newport Bay: Modified Northeast Pump Station and South Pump Station.

Original Northeast Pump Station

- **Pump Station Improvements –** The proposed alternative would involve constructing new pump station facilities including a pump station, generator, and odor control facilities in the northeast corner of the existing Bayside Village RV storage facility. The new pump station facility would be approximately 10,000 square feet, as opposed to approximately 4,800 square feet under existing conditions (an increase of 5,200 square feet). The capacity of the station will increase from 16 million gallons per day (MGD) to 18.5 MGD. The existing pump station facility would remain in service until the new facilities have been constructed and commissioned.

- **Force Main Improvements –** Development of the Original Northeast Pump Station would involve installing 3,985 linear feet (LF) of dual 32-inch force mains to connect the proposed new pump station to the existing OCSD force main system west of the Newport Bay Channel by crossing north of Bay Bridge. The force mains would travel west underneath the Newport Bay Channel and enter a disturbed area of Castaways Park, then tunnel beneath West Coast Highway to connect to the existing force main system. Horizontal Directional Drilling (HDD) would be utilized to install the dual force mains underneath the Newport Bay Channel.

Modified Northeast Pump Station

- **Pump Station Improvements** – Pump station improvements for the Modified Northeast Pump Station would be similar to the Original Northeast Pump Station.

- **Force Main Improvements (Microtunneling)** – This construction method would utilize microtunneling to install the force mains in a 72-inch reinforced concrete pipe

casing at a depth of 20 feet across approximately 1,050 LF. Construction is anticipated to require 1,100 cubic yards of cut.

- **Force Main Improvements (Dredging)** – This construction method would require trenching approximately 580 LF and 10 feet wide across the Newport Bay Channel with a depth of 18 feet. Shoring of the walls may be required to lay down the dual 24-inch force mains. Dredging would require approximately 3,870 cubic yards of cut and 3,730 cubic yards of fill.

South Pump Station

- **Pump Station Improvements –** Development of the South Pump Station would involve shifting and expanding the existing pump station facility site approximately 200 feet to the west. Pump station improvements would be the same as those proposed under the Original Northeast Pump Station and Modified Northeast Pump Station.

- **Force Main Improvements (Microtunneling)** – This construction method would utilize microtunneling to install the force mains in a 72-inch reinforced concrete pipe casing for approximately 1,230 LF at a depth of 20 feet. Construction is anticipated to require 1,290 cubic yards of cut. The two proposed shafts would be located on the eastern and western side of the Newport Bay Channel.

- **Force Main Improvements (Dredging)** – Dredging activities for the South Pump Station would be similar to dredging for the Modified Northeast Pump Station. Refer above for proposed dredging details.

Section 2 Summary of Regulations

Four agencies regulate activities within inland streams, bays, wetlands, and riparian areas in California. The U.S. Army Corps of Engineers (Corps) Regulatory Division regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the California Department of Fish and Wildlife (CDFW) regulates activities under the California Fish and Game Code (CFGC) Sections 1600 *et seq.*, the Regional Water Quality Control Board (Regional Board) regulates activities pursuant to CWA Section 401 and/or Section 13263 of the California Porter-Cologne Water Quality Control Act (Porter-Cologne), and the California Coastal Commission (CCC) regulates activities under the California Coastal Act.

2.1 U.S. ARMY CORPS OF ENGINEERS

Since 1972, the Corps and U.S. Environmental Protection Agency jointly regulate discharges of dredged or fill material into "waters of the U.S." (WoUS), including wetland and non-wetland aquatic features, pursuant to Section 404 of the CWA. Section 404 is founded on the findings of a significant nexus (or connection) between the aquatic or other hydrological feature in question and interstate commerce via Relatively Permanent Waters (RPW), and ultimately Traditional Navigable Waters (TNW), through direct or indirect connection as defined by Corps regulations. However, the limits to which this is applied have changed over time.

SWANCC and Rapanos

In 1984, the Migratory Bird Rule enabled the Corps to expand jurisdiction over isolated waters, and in 1985, the U.S. Supreme Court upheld the inclusion of adjacent wetlands in the regulatory definition of WoUS. However, in 2001, the Corps' jurisdiction was narrowly limited following the *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC) in which the U.S. Supreme Court held that the use of "isolated" non-navigable intrastate ponds by migratory birds was not, by itself, sufficient basis for the exercise of Federal regulatory authority under the CWA. In 2006, a majority of the U.S. Supreme Court overturned two Sixth Circuit Court of Appeals decisions in the consolidated cases of *Rapanos v. United States* and *Carabell v. United States* (collectively referred to as Rapanos), concluding that wetlands isolated by surface connection are WoUS nonetheless if they significantly affect the chemical, physical, and biological integrity of other covered waters.

Clean Water Rule

In 2015, the Corps and EPA published the "Clean Water Rule" clarifying the scope of coverage of the CWA. Upon issuance however, numerous lawsuits were filed and consolidated in the Sixth Circuit, immediately putting a "stay" on its implementation. In January 2018, the U.S. Supreme Court ruled that the Sixth Circuit did not have jurisdiction over the case, and in

February 2018, dismissed it and dissolved the stay. Also, in February 2018, the Corps and EPA suspended the rule for two years. However, in August 2018, a Federal judge found that the suspension failed to give an adequate public notice and therefore violated the Administrative Procedure Act. Pursuant to the court's order, the 2015 Clean Water rule is now in effect in 22 states, including California, the District of Columbia, and the U.S. territories. This delineation was prepared using the 2015 Clean Water Rule regulations.

Waters of the U.S.

Currently, in the State of California, jurisdictional WoUS are defined by the Clean Water Rule in eight (8) categories:

(1) TNWs;

(2) interstate waters and wetlands;

(3) territorial seas (up to 14 miles from coast);

(4) impoundments of jurisdictional waters;

(5) tributaries to types 1 through 3 (i.e., bed, bank, and ordinary high-water mark [OHWM]);

(6) all waters, including wetlands, adjacent to a water identified in types 1 through 5 including neighboring waters defined as:

   a. waters located within 100 feet of the OHWM of types 1 through 5;

   b. waters located in whole or in part in the 100-year floodplain and that are within 1,500 feet of the OHWM of types 1 through 5; and

   c. waters located within 1,500 feet of the high tide line of type 1 or 3 and waters located within 1,500 feet of the OHWM of the Great Lakes;

(7) five subcategories of isolated waters considered critical resources for the surrounding communities, such as vernal pools in California, for example; and

(8) all waters located within the 100-year floodplain of types 1 through 3 and all waters located within 4,000 feet of the high tide line or OHWM of types 1 through 5 where there is a significant nexus (determined on a case-specific basis) to types 1 through 3.

Not Regulated

Excluded waters consist of, but are not limited to the following;

A. Artificially irrigated areas that would revert to dry land should application of water to that area cease;

B. Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;

C. Artificial reflecting pools or swimming pools created in dry land;

D. Small ornamental waters created in dry land;

E. Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;

F. Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways; and

G. Puddles.

H. Groundwater, including groundwater drained through subsurface drainage systems.

I. Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

J. Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

K. Ditches:

    I. Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.

    II. Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.

    III. Ditches that do not flow, either directly or through another water, into waters.

While the litigation continues, the agencies are complying with the District Court's order and implementation issues that arise are being handled on a case-by-case basis.

Section 10 of the Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act requires all structures and work occurring below the OHWM in fresh water be approved by the Corps. In tidal waters the construction or placement of structures and related work (e.g. levee, dock, etc.) occurring below mean high water (MHW) that may affect navigable waters (e.g. obstruction, excavation, or filling) requires a Section 10 permit. A permit would be required for all structures including riprap and activities such as dredging in navigable WoUS. The Navigable waters are defined as those subject to the ebb and flow of the tide and susceptible to use in their natural condition or by reasonable improvements as means to transport interstate or foreign commerce. The Corps grants or denies permits based on the effects to navigation. Most activities covered under Section 10 of the River and Harbors Act are also covered under Section 404 of the CWA. Further, Title 33 of the United State Code[1]states the following concerning the obstruction of navigable waters:

"The creation of any obstruction not affirmatively authorized by Congress, to the navigable capacity of any of the waters of the United States is prohibited; and it shall not be lawful to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States, outside established harbor lines, or where no harbor lines have been established, except on plans recommended by the Chief of Engineers and authorized by the Secretary of the Army; and it shall not be lawful to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor or refuge, or inclosure within the limits of any breakwater, or of the channel of any navigable water of the United States, unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army prior to beginning the same."

2.2 REGIONAL WATER QUALITY CONTROL BOARD

Applicants for a Federal license or permit for activities that may discharge to WoUS must seek a Water Quality Certification (Certification) from the State or Indian tribe with jurisdiction[1]. In California, there are nine Regional Boards that issue or deny Certification for discharges within their geographical jurisdiction. Such Certification is based on a finding that the discharge will meet water quality standards, which are defined as numeric and narrative objectives in each Regional Board's Basin Plan, and other applicable requirements. The State Water Resources Control Board (SWRCB) has this responsibility for projects affecting waters within multiple Regional Boards. The Regional Board's jurisdiction extends to all WoUS, including wetlands, and to waters of the State, described below.

Porter-Cologne gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. Porter-Cologne has

[1] Title 33, United States Code, Chapter 9/Sub-Chapter 1, Section 403.
[1] Title 33, United States Code, Chapter 26/Sub-Chapter 5, Section 1341.

become an important tool for the regulatory environment following the SWANCC and Rapanos court cases, with respect to the State's authority over isolated and otherwise insignificant waters. Generally, in the event that there is no nexus to a RPW or TNW, any person proposing to discharge waste into waters of the State that could affect its water quality must file a Report of Waste Discharge. Although "waste" is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include fill discharged into water bodies.

2.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

CFGC Sections 1600 *et seq.* establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely affect fish and wildlife resources, or when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

CFGC Section 1602[2] requires any person, State, or local governmental agency or public utility to notify CDFW before beginning any activity that will do one or more of the following:

(1) substantially obstruct or divert the natural flow of a river, stream, or lake;

(2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or

(3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

This applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State, including the maintenance of existing drain culverts, outfalls, and other structures. To avoid the need for a Streambed Alteration Agreement (SAA) from CDFW, all proposed impacts should remain outside of the top of active banks and the canopy/drip line of any associated riparian vegetation, whichever is greater.

Marine Protected Areas

As the lead managing agency for the California Marine Protected Area (MPA) Network the CDFW implements and enforces the regulations set by the Fish and Game Commission pursuant to Title 14, Section 632 of the California Code of Regulations. The Upper Newport Bay (i.e., areas north of the existing Bay Bridge) is designated as a State Marine Conservation Area (SMCA) by the CDFW. This area is intended to set aside marine or estuarine waters primarily to protect or conserve marine life and associated habitats. The SMCA aims to protect resources by allowing for only specific types of recreational and/or commercial take to

[2] Fish and Game Code Sections 1600-1616

occur. The Upper Newport Bay SMCA is 1.24 square miles in size, with 5.68 miles of tidal flats, 8.09 miles of coastal marsh, 0.73 square miles of marsh, and 1.21 square miles of estuary. The SMCA limits recreational takes to hook-and-line fishing from shore for finfish only. Swimming is only allowed in certain areas, boats are limited to less than five miles per hour, and shoreline access is limited to established trails, paths and other designated areas.

2.4 CALIFORNIA COASTAL COMMISSION

The CCC was established by voter initiative in 1972 (Proposition 20) and later made permanent by the Legislature through adoption of the California Coastal Act of 1976. The CCC, in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone. The Coastal Act (PRC 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 addition, the Coastal Act (PRC Section 30107.5) defines environmentally sensitive areas in a manner that would include rivers, streams or other aquatic habitat.

Section 30107.5[3] of the Coastal Act defines "environmentally sensitive habitat area" (ESHA) as "any areas in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments." The Coastal Act criteria for determining whether an area qualifies as an ESHA are based upon ecological importance, including the rarity or function of the habitat, and the habitat's sensitivity.

The CCC plans and regulates the use of land and water in the Coastal Zone. The Coastal Zone extends three miles into the ocean and on land varies in width from several hundred feet up to five miles inland from the coast of California. In California, 15 counties and 61 cities are located in whole or in part in the Coastal Zone.

City of Newport Beach Local Coastal Program

Portions of the City of Newport Beach, including the project site, are located within the Coastal Zone and as such is required to prepare a Local Coastal Program (LCP) by the CCC. The City's LCP was originally adopted and certified by the Coastal Commission on January 30, 2017. The LCP consists of the City's Land Use Element of the General Plan, Public Access and Recreation, and Coastal Resource Protection. The CCC reserves permit issuance authority in tidelands, submerged lands, and public trust lands.

[3] Public Resource Code, Division 20, California Coastal Act, Chapter 2, 30107.5

Section 3 Methodology

Review of relevant literature and materials often aids in preliminary identification of areas that potentially fall under an agency's jurisdiction, including topographic, National Wetland Inventory (NWI), Federal Emergency Management Agency (FEMA), and United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soils maps. In addition, a timeline of aerial photography (Google Earth Pro 2018) was reviewed to identify changing conditions. Refer to Section 8 for a complete list of references used during this delineation.

The analysis presented in this document is supported by field surveys and verification of current conditions within the project site conducted on October 11, 2018. While in the field, jurisdictional areas were recorded onto a base map at a scale of approximately 1" = 100' using the topographic contours and visible landmarks as guidelines. Data points were obtained with a Garmin 62 Global Positioning System (GPS) Map62 for recording the current jurisdictional limits of hydrological features within the survey area. These data were then transferred as shapefiles, added to the jurisdictional maps, and measurements of jurisdictional areas per agency were calculated using Geographic Information System (GIS) software.

3.1 WATERS OF THE U.S.

3.1.1 Non-Wetland Waters of the U.S.

In the absence of wetlands (i.e., non-wetland WoUS), the limits of Corps jurisdiction in tidal waters typically extend to the High Tide Line (HTL) or the Mean Higher High Water line (MHHW). Under Section 404, the Corps regulates tidal WoUS of which the limits of jurisdiction are extended to the HTL (33 CFR 328.4[4]). Under Section 10, the Corps jurisdiction extends to the MHW line. The HTL (33 CFR 328.4), is defined as "the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The HTL may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm."

Comparative field characteristics between low and high tides, such as sediment marks, and drift along the shore deposited during the HTL tide event were used to identify the location of

[4] Title 33, United States Code, Chapter 2/Part 328, Section 328.4.

the upper extent of tidal waters in Newport Bay. According to the National Oceanic and Atmospheric Administration (NOAA), MHHW and HTL is located at an elevation of 5.41 feet above Mean Lower Low Water (MLLW) and MHW is located at an elevation of 4.68 feet above MLLW at the Newport Bay Entrance.

3.1.2 Wetland Waters of the U.S.

Corps and Regional Board jurisdictional wetland WoUS are delineated following the methods outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (Regional Supplement; Corps 2008b). The Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Arid West Region, one of a series of Regional Supplements to the 1987 Corps Wetland Delineation Manual (1987 Manual; Environmental Laboratory 1987). According to the 1987 Manual and Regional Supplement, identification of wetlands is based on a three-parameter approach involving the predominance or prevalence of hydrophytic vegetation, and indicators of hydric soil and wetland hydrology, as follows:

- Hydrophytic vegetation is based on designations provided in *The National Wetland Plant List: 2016 wetland ratings.* (Lichvar *et al.* 2016). Designations are as follows (note: OBL, FACW, and FAC are considered hydrophytic):
    - OBL – Obligate (almost always found in wetlands)
    - FACW – Facultative Wetland (usually found in wetlands)
    - FAC – Facultative (found in wetlands as often as found in uplands)
    - FACU – Facultative Upland (usually found in uplands)
    - UPL – Upland (almost always found in uplands)
- Hydric soils on-site, identified by examining soil profile characteristics using *Munsell Soil Color Charts* (Munsell Color 2009), are those that meet hydric soil indicators as defined in the Regional Supplement. Hydric soils are those permanently or seasonally saturated by water resulting in anaerobic conditions. Hydric soils mapped by the USDA/NRCS, which are used for reference only, are listed on the *National Hydric Soils List* (2015).
- Wetland hydrology is based on the presence of at least one primary or two secondary indicators, including, but not limited to, surface water to soil saturation, soil cracks, water-stained leaves, water marks, drift and sediment deposits, and drainage patterns, as provided in the Regional Supplement.

To be considered a wetland, an area must exhibit at least minimal characteristics of these three parameters. Where wetlands are suspect (i.e., primarily areas where wetland vegetation is prevalent and evidence of current or past hydrology exists), soil samples are examined by excavating soil pits. Vegetation, soils, and hydrology data are then documented on the Corps *Wetland Determination Data Form – Arid West Region*. When wetlands are confirmed, and

conditions are consistent, areas with similar vegetation and hydrological consistency are extrapolated, and are often tied to topographic conditions. Where there are changes in vegetation and/or hydrology, additional pits are examined to identify the boundaries between wetland and upland.

3.2 WATERS OF THE STATE

3.2.1 Regional Water Quality Control Board

Hydrological features lacking a nexus to (i.e., isolated from) adjacent or downstream waters are potentially considered waters of the State. Currently for this region (Santa Ana Regional Board), Regional Board jurisdiction coincides with Corps jurisdiction identified by the HTL.

3.2.2 California Department of Fish and Wildlife

CDFW jurisdiction applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State of California. CDFW regulatory authority extends to include riparian habitat (including adjacent wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils or saturated soil conditions. Generally, CDFW jurisdiction is mapped to the top of the active bank of the stream or to the outer drip line of the associated riparian vegetation, whichever is greater. For SAA notification purposes, vegetated and non-vegetated streambed are distinguished when riparian vegetation is present. CDFW jurisdiction typically does not include aquatic resources influenced by marine systems.

3.2.3 California Coastal Commission

The CCC's regulations (California Code of Regulations Title 14 (14CCR)) establish a "one parameter definition" that only requires evidence of a single parameter to establish wetland conditions. The upland limit of a wetland is defined as the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover; the boundary between soil that is predominantly hydric and soil that is predominantly non-hydric; or in the case of wetlands without vegetation or soils, the boundary between land that is flooded or saturated at some time during years of normal precipitation, and land that is not. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominately hydrophytes; (2) the substrate is predominately undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year."

Section 4 Literature Review

Review of relevant literature and materials often aids in preliminarily identifying areas that may fall under an agency's jurisdiction. A summary of Michael Baker's literature review is provided below (refer to Section 8.0 for a complete list of references used during the course of this delineation). In addition, refer to Appendices A, B, and C for further documentation.

4.1 WATERSHED REVIEW

The project site is located within the Newport Bay Watershed (HUC 18070204). The watershed includes portions of the foothills of the Santa Ana Mountains and much of the floodplain that drains into Upper Newport Bay. The total area of the watershed is approximately 154 square miles (98,500 acres). The Newport Bay Watershed is bound by the Santa Ana Mountains to the north/northeast, the San Joaquin Hills to the west/southwest, Aliso Creek to the east, and the Pacific Ocean to the south. The Newport Bay Watershed contains five sub-watersheds within its boundaries at the HUC 12 scale, including Peters Canyon Wash, Upper San Diego Creek, Lower San Diego Creek, Newport Bay, and Buck Gully-Frontal Pacific Ocean.

4.2 LOCAL CLIMATE

Orange County experiences a Mediterranean climate, or semi-arid climate, with warm, sunny, dry summers and cool, rainy, mild winters. Newport Beach experiences, on average, a slightly cooler climate than surrounding inland areas due to its coastal proximity. Climatological data obtained from nearby weather stations indicates that the annual precipitation in Newport Beach averages 11.00 inches per year. The majority of precipitation occurs between the months of October and April. The wettest month is February, with a monthly average total precipitation of 2.30 inches. The average maximum and minimum temperatures for Newport Beach are 67.8- and 54.6-degrees Fahrenheit (F) respectively with August and September being the warmest months and January being the coolest. Temperatures during the site visit were in the mid to high-70s (degrees F) with calm wind conditions.

4.3 USGS TOPOGRAPHIC QUADRANGLE

The project site is depicted within Section 27 of Township 6 South, Range 10 West of the the USGS *Newport Beach, California* 7.5-minute topographic quadrangle map. Onsite topography ranges from approximately 0 to 20 feet above mean sea level (MSL). According to the topographic map, the majority of the project site consists of vacant, undeveloped land. The Pacific Coast Highway bridge bisects the eastern portion of project site and indicates the boundary between Lower Newport Bay and Upper Newport Bay, both of which are tidally influenced salt marsh systems that receive freshwater inflows from San Diego Creek and Bonita Creek. The topographic map depicts the northeast and southeast portions of the project

site as undeveloped, and the southwest portion of the project site as residential/commercial devolopment. The entrance channel to the Pacific Ocean is located approximately 2.8 miles to the southeast of the project site.

4.4 AERIAL PHOTOGRAPH

Prior to the field delineation, Michael Baker reviewed a current aerial photograph dated April 2, 2018 from Google Earth for the project site. Aerial photographs can be useful during the delineation process, as the photographs often depict drainages and vegetation (i.e., riparian vegetation) present within the boundaries of the project site (if any). According to the aerial photograph, the project site appears to consist of a mixture of coastal vegetation, ornamental plants associated with surrounding development, open water, intertidal wetland habitat, seawalls, and fully developed parcels. Newport Bay is a tidally influenced saltwater bay that ebbs and flows in a north to south direction within the project site. The northeast portion of the project site is currently utilized as a parking lot and RV storage area, with the existing OCSD pump station set back approximately 570 feet from the mean high tide line. The southeast portion of the project site is a parking lot and partially utilized as kayak storage. The southwest portion of the project site contains an asphalt pedestrain path, a sidewalk, roadway facilities, and ornamental landscaping.

4.5 SOIL SURVEY

On-site and adjoining soils were researched prior to the field visits using the USDA/NRCS, *Custom Soil Resource Report for Orange County and Part of Riverside County, California*. The presence of hydric soils is initally investigated by comparing the mapped soil series for the site to the County list of hydric soils. Soil surveys furnish soil maps and interpretations originally needed in providing technical assistance to farmers and ranchers; in guiding other decisions about soil selection, use, and management; and in planning, research and disseminating the results of research. In addition, soil surveys are now heavily used in order to obtain soil information with respect to potential wetland environments and jurisdictional areas (i.e., soil chracteristics, drainage, and color). The following soil series have been reported near the areas of proposed improvements within jurisdictional limits (refer to Figure 4, *Soils Map and* Appendix A, *USDA NRCS Custom Soil Resources Report*):

Beaches (115)

The Beaches series is classified as poorly drained coarse sand, sand, and fine sand. Depth of water table is approximately 0 to 72 inches and the available water storage profile is moderate. This soil series is found at an elevation of 0 to 10 feet and is frequently flooded.

Legend

- Project Site
- 115 Beaches
- 134 Calleguas clay loam, 50 to 75 percent slopes, eroded
- 177 Myford sandy loam, 9 to 30 percent slopes, eroded
- W Water
- Reference Point

0 100 200 Feet

3/15/2019 JN \\IRVICA1FS1.bkr.mbakercorp.com\MBROOT\Mdata\143698\GIS\MXD\2019 Update\Fig 04 USDA Soils.mxd RP

Michael Baker INTERNATIONAL

Source: Eagle Aerial, 2014

BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

USDA Soils

Figure 4

4.6 HYDRIC SOILS LIST OF CALIFORNIA

Michael Baker reviewed the Hydric Soils List of California, provided by NRCS, in an effort to verify whether or not on-site soils are considered to be hydric. Lists of hydric soils along with soil survey maps are good off-site ancillary tools to assist in wetland determinations, but they are not a substitute for on-site investigations. According to the Hydric Soils List, the on-site soil series Beaches (115) is listed as hydric.

4.7 NATIONAL WETLANDS INVENTORY

Michael Baker reviewed the U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) maps. Two (2) wetland classifications were noted within the boundaries of the project site and are described in further detail below. In addition, refer to Appendix B, *USFWS National Wetlands Inventory Map*, for a depiction of on-site wetland classifications.

In the vicinity of the project site Newport Bay is classified as an Estuarine and Marine Deepwater Wetland (E1UBLx). This wetland classification is described as deep-water tidal habitats and adjacent tidal wetlands that are influenced by water runoff from surrounding land. The substrate in these habitats is subtidal and continuously covered with tidal water (i.e., located below extreme low water), and consists of an unconsolidated bottom. Vegetative cover is less than 30%. The Newport Bay shoreline areas are classified as Estuarine Marine Wetland (E2USN). This wetland classification is described as deep-water tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The substrate in these habitats is flooded and exposed by tides and consists of unconsolidated shore. The water regime is regularly flooded.

4.8 FLOOD ZONE

Michael Baker searched the FEMA website for flood data for the project site. Based on the Flood Insurance Rate Maps 06059C0382J and 06059C0381J, the area within the main channel is designated as Zone AE and is subject to inundation by the 100-year flood (refer to Appendix C, *FEMA 100-Year Flood Zone Map*). Areas east and west of the main channel are outside of all designated floodways and are designated as Zone X (area of minimal flood hazard).

Section 5 Site Conditions

Michael Baker regulatory specialists Tim Tidwell and Josephine Lim visited the project site from approximately 9:30 a.m. to 1:00 p.m. on October 11, 2018 to verify existing conditions and document potential jurisdictional areas. Temperatures during the site visit were in the mid to high 70's (degrees F) with clear skies and calm wind conditions. Refer to Figures 5A and 5B, *Site Photographs,* for representative photographs taken throughout the project site.

5.1 NEWPORT BAY

Newport Bay is a tidally influenced coastal estuary with a direct connection to the Pacific Ocean. The most significant source of freshwater inflow to Newport Bay is received from San Diego Creek and Bonita Creek, approximately 3.9 miles upstream, and reaches the Pacific Ocean approximately 2.8 miles downstream. In the vicinity of the project site, the eastern and western shores are subject to periodic tidal inundation and are primarily bound by artificial seawalls. Sediment within Newport Bay consists of loose, coarse, and fine sand. The channel exhibited characteristics of a HTL line, including the accumulation of rack and debris, staining, and a break in the bank slope. The sea wall, when present, was used to delineate HTL.

No vegetation was present below the mean high tide line. Vegetation above the mean high tide line consisted of small patches of sea fig (*Carpobrotus chilensis*, FACU), coastal wattle (*Acacia cyclops*, NI), Brazilian pepper tree (*Schinus terebinthifolia*, FACU), Mexican fan palm (*Washingtonia robusta*, FACW), and mulefat (*Baccharis salicifolia,* FAC) as well as various ornamental plantings within developed areas on-site.

Photo 1. View looking northwest across Newport Bay Channel toward the Bay Bridge in the central portion of the project site.

Photo 2. View looking south toward the beach from the eastern shore of Newport Bay Channel in the central portion of the project site.

Photo 3. View looking south toward Newport Bay Channel, erosion along the eastern shore, and a seawall at the southern boundary of the project site.

Photo 4. View looking north toward the beach from the eastern shore of Newport Bay Channel in the central portion of the project site.

DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS
BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT

Site Photographs

Figure 5a

Michael Baker INTERNATIONAL

02/19 JN 168975

Photo 5. View looking northwest toward the beach from the eastern shore of Newport Bay Channel in the central portion of the project site.

Photo 6. View looking southwest across Newport Bay Channel towrad the existing vault in the western portion of the project site.

Photo 7. View looking northeast from the pedestrian pathway looking toward Newport Bay Channel from the western portion of the project site.

Photo 8. View looking east acrpss Newport Bay Channel toward the Bay Bridge from the western portion of the project site.

DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS
BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT

Site Photographs

Figure 5b

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Section 6 Findings

This delineation has been prepared for the OCSD in order to document the jurisdictional authority of the Corps, Regional Board, CDFW, and CCC within the boundaries of the project site. This report presents Michael Baker's best effort at determining the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies.

6.1 U.S. ARMY CORPS OF ENGINEERS DETERMINATION

6.1.1 Waters of the United States Determination

Evidence of a HTL line was observed within the project site. Within the area of proposed improvements within jurisdictional limits, Corps jurisdictional area totaled 3.07 acres. The onsite aquatic feature, Newport Bay, is a navigable waterway with a direct connection to the Pacific Ocean. Therefore, the Newport Bay is considered "Waters of the United States," which falls within Corps' jurisdiction. Refer to Table 1, *Jurisdictional Areas Summary,* for a summary of the Corps jurisdictional areas on-site, and Figures 6a and 6b, that delineate the Corps on-site jurisdictional areas.

6.1.2 Wetland Determination

As previously noted, an area must exhibit all three wetland parameters described in the Corps Regional Supplement to be considered a jurisdictional wetland. Based on the results of the site visit, it was determined that no on-site locations exhibited all three wetland parameters within the project site.

Table 1: Jurisdictional Areas Summary

Jurisdictional Feature	Corps/Regional Board Non-Wetland WoUS (acres)	California Coastal Commission Wetland (acres)
Newport Bay	3.07	3.07

3/25/2019 JN \\IRVICA1FS1.bkr.mbakercorp.com\MROOT\Mdata\143698\GIS\MXD\2019 Update\Fig 06A Corps Regional Board Jurisdictional Map - Mod NE Dredging.mxd RP

Michael Baker INTERNATIONAL

Source: Eagle Aerial, 2014

BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Corps/Regional Board Jurisdictional Map - Modified Northeast Pump Station (Dredging)

Figure 6A

Legend

- Project Site
- Corps/Regional Board Non-Wetland WoUS (3.07 acres)
- Existing Pump Station
- Proposed Pump Station
- Force Mains Alignment
- Force Mains Alignment Dredging Across Channel (0.15 acre)
- Photograph Point and Direction
- Reference Point

0 100 200 Feet

3/25/2019 JN \\IRVFCA1FS1.bkr.mbakercorp.com\IROOT\Mdata\1436698\GIS\MXD\2019 Update\Fig 06B Corps Regional Board Jurisdictional Map - South Pump Station Dredging.mxd RP

Michael Baker INTERNATIONAL

Source: Eagle Aerial, 2014

BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Corps/Regional Board Jurisdictional Map - South Pump Station (Dredging)

Figure 6B

6.2 REGIONAL WATER QUALITY CONTROL BOARD DETERMINATION

No isolated or Rapanos conditions were observed within the boundaries of the project site; therefore, the Regional Board follows that of Corps jurisdiction (refer to Section 6.1 above).

6.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE DETERMINATION

As described in Section 2.3, Upper Newport Bay (i.e., areas north of the existing Bay Bridge) is designated as a SMCA by the CDFW. As such, no CDFW jurisdictional areas are located within the boundaries of the project site.

6.4 CALIFORNIA COASTAL COMMISSION DETERMINATION

Within the project site Newport Bay included approximately 3.07 acres of coastal wetlands which qualifies as CCC jurisdiction pursuant to Section 30121 of the California Coastal Act. No ESHA exists on-site. Refer to Table 1. *Jurisdictional Areas Summary,* for a summary of the CCC jurisdictional areas on-site, and Figures 7a and 7b, for an illustration of CCC jurisdictional areas.


Newport Bay
33.619002
-117.900764
33.615201
-117.907447
DOVE DRIVE
BAYSHORE
BAYFRONT
SARATOGA
YORKTOWN
LIBERTY
BAYSIDE
1
P1
P2
P3
P4
P5
P6
P7
P8
Proposed Improvements within Jurisdictional Limits
Legend
Project Site
CCC Wetland (3.07 acres)
Existing Pump Station
Proposed Pump Station
Force Mains Alignment
Force Mains Alignment Dredging Across Channel (0.15 acre)
Photograph Point and Direction
Reference Point
0
100
200
Feet

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BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

California Coastal Commission Jurisdictional Map - Modified Northeast Pump Station (Dredging)

Source: Eagle Aerial, 2014

Figure 7A

Newport Bay

33.619002
-117.900764

DOVE DRIVE

BAYFRONT

SARATOGA

YORKTOWN

LIBERTY

BAYSIDE

BAYSHORE

W

1

P1

P2

P3

P4

P5

P6

P7

P8

Proposed Improvements within Jurisdictional Limits

33.615201
-117.907447

Legend

- Project Site
- CCC Wetland (3.07 acres)
- Existing Pump Station
- Proposed Pump Station
- Force Mains Alignment
- Force Mains Alignment Dredging Across Channel (0.15 acre)
- Photograph Point and Direction
- Reference Point

0 100 200 Feet

3/25/2019 JN \\IRVCA1FS1.bkr.mbakercorp.com\MROOT\Admin\14398\GIS\MXD\2019 Update\Fig 07B CCC Jurisdictional Map - South Pump Station Dredging.mxd RP

BAY BRIDGE PUMP STATION AND FORCE MAINS REPLACEMENT PROJECT
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

California Coastal Commission Jurisdictional Map - South Pump Station (Dredging)

Michael Baker INTERNATIONAL

Source: Eagle Aerial, 2014

Figure 7B

Section 7 Conclusions and Recommendations

The following is a summary of the various permits, agreements, and certifications required before construction activities take place within the jurisdictional areas. As mentioned in Section 1.3, *Project Description*, the Modified Northeast Pump Station and South Pump Station alternatives could impact on-site jurisdictional areas due to dredging activities. The Original Northeast Pump Station alternative proposed HDD and would not impact jurisdictional areas. Therefore, an impact summary associated with the Original Northeast Pump Station alternative is not provided.

The Modified Northeast Pump Station and the South Pump Station alternatives propose dredging as a potential method of construction to install the force mains across Newport Bay. Although dredging activities would result in temporary impacts to Newport Bay, the dredged area would be restored to preconstruction grades after pipeline installation and no permanent impacts would occur. Table 2, *Impacts to Jurisdictional Areas*, provides the total area and linear feet of impact to jurisdictional areas for each regulatory agency within the project site.

Table 2: Impacts to Jurisdictional Areas

Feature	Temporary Impacts from Dredging Activities			
	Corps/Regional Board Non-Wetland WoUS		CCC Wetlands	
	Acres	Linear Feet	Acres	Linear Feet
Newport Bay	0.15	647	0.15	647
TOTAL	**0.15**	**647**	**0.15**	**647**

7.1 U.S. ARMY CORPS OF ENGINEERS

The Corps regulates discharges of dredged or fill materials into WoUS and wetlands pursuant to Section 404 of the CWA, and navigable waters pursuant to Section 10 of the Rivers and Harbors Act.

Modified Northeast Pump Station (Dredging): Dredging activities located below HTL associated with the Modified Northeast Pump Station would result in temporary impacts to approximately 0.15 acre of Corps non-wetland WoUS. Therefore, it would be necessary for the project applicant to acquire Section 404 and Section 10 Permit authorization from the Corps prior to impacts occurring within Corps delineated jurisdictional areas.

Modified Northeast Pump Station (Microtunneling): Microtunneling activities associated with the Modified Northeast Pump Station would be sited outside of the HTL and avoid impacts

to Corps jurisdictional resources. Therefore, no Section 404 permit or Section 10 permit authorization would be required from the Corps.

South Pump Station (Dredging): Dredging activities associated with the South Pump Station would result in temporary impacts to approximately 0.15 acre of Corps non-wetland WoUS. Therefore, it would be necessary for the project applicant to acquire Section 404 and Section 10 Permit authorization from the Corps prior to impacts occurring within Corps delineated jurisdictional areas.

South Pump Station (Microtunneling): Microtunneling activities associated with the South Pump Station would be sited outside of the HTL and avoid impacts to Corps jurisdictional resources. Therefore, no Section 404 permit or Section 10 permit authorization would be required from the Corps. The following paragraph summarizes the Corps permitting process.

Nationwide Permit Process: Since project improvements would not permanently impact greater than a ½-acre of Corps jurisdiction, it is anticipated the project would qualify for authorization via Nationwide Permit (NWP) 12, Utility Line Activities. NWP processing time generally takes 8 – 12 months and involves a Pre-Application Field Meeting and submittal of a formal application. The use of a NWP is contingent on the project satisfying the required general conditions. The application submittal typically includes environmental documentation (e.g., jurisdictional delineation, site plans, project purpose, location, duration, etc.), a Pre-Construction Notification (PCN); and consultations with other agencies (as needed). Prior to issuance of the Corps permit, a CWA Section 401 Water Quality Certification from the Regional Board must be obtained (described in Section 7.2, below). If the construction associated with dredging activities exceed the ½-acre impact threshold or does not qualify for a NWP authorization, an Individual Permit (IP) would be required. The IP approval process includes a public comment period, a formal alternatives analysis pursuant to Section 404(b)1 of the CWA, and typically takes 6-24 months to process.

7.2 REGIONAL WATER QUALITY CONTROL BOARD

The Regional Board regulates discharges to surface waters with a nexus to a TNW under the CWA Section 401, and the Porter-Cologne Section 13263 for those that do not.

Modified Northeast Pump Station (Dredging): Dredging activities associated with the Modified Northeast Pump Station would result in temporary impacts to approximately 0.15 acre of Corps non-wetland WoUS. Therefore, it would be necessary for the project applicant to acquire a Section 401 Water Quality Certification from the Regional Board prior to impacts occurring within jurisdictional areas.

Modified Northeast Pump Station (Microtunneling): Microtunneling activities associated with the Modified Northeast Pump Station would be sited outside of the HTL and avoid impacts

to Corps jurisdictional resources. Therefore, no Section 401 Water Quality Certification from the Regional Board would be required.

South Pump Station (Dredging): Dredging activities associated with the South Pump Station would result in temporary impacts to approximately 0.15 acre of Corps non-wetland WoUS. Therefore, it would be necessary for the project applicant to acquire Section 401 Water Quality Certification from the Regional Board prior to impacts occurring within Corps delineated jurisdictional areas.

South Pump Station (Microtunneling): Microtunneling activities associated with the South Pump Station would be sited outside of the HTL and avoid impacts to Corps jurisdictional resources. Therefore, no Section 401 Water Quality Certification from the Regional Board would be required. The paragraph summarizes the Section 401 certification process.

Section 401 Certification Process: Once an application has been deemed complete, the Regional Board has between 60 days and 1 year in which to make a decision. The State has 60 days from the date of receipt of a valid request for water quality standards certification. The Corps district engineer may specify a longer (up to one year) or shorter time, if he or she determines that a longer or shorter time is reasonable. If processing and review of the 401 application will take more than 60 days, the Regional Board must request additional time from the Corps.

The Regional Board is required to have a minimum 21-day public comment period before any action is taken on a 401 application. The period closes when the Regional Board acts on the 401 application. The public comment period starts as soon as an application has been received. Additionally, the Regional Board requires that water quality concerns related to urban storm water runoff be addressed. Any 401 Certification application submitted to the Regional Board should incorporate the use of Best Management Practices (BMPs) for the treatment of pollutants carried by storm water runoff in order to be considered a complete application. The Regional Board also requires a 401 Certification Application Fee, which is dependent on temporary and permanent impacts.

7.3 CALIFORNIA COASTAL COMMISSION

For those projects in or affecting the coastal zone, the federal Coastal Zone Management Act (CZMA) requires the applicant to obtain concurrence from the CCC that the project is consistent with the State's CZMA prior to issuing the Corps authorization for the project. The CCC requires permittees to either receive a concurrence or waiver of consistency certification before the Corps permit is validated. All alternatives would occur within the Coastal Zone. Therefore, it would be necessary for the project applicant to obtain a Coastal Development Permit (CDP) from the CCC prior to construction activities occurring within the Coastal Zone.

CDP Process: Coastal development procedures are established to ensure that all public and private development in the City of Newport Beach is consistent with the City's certified LCP which gives the authority of the City of Newport Beach to issue CDP's throughout most of the areas of the city within the Coastal Zone. However, as the project is located in submerged lands and tidelands, it is anticipated that the project will be evaluated by the CCC. CDP's are required for any development on tidelands or submerged lands, or public trust lands which require a permit from the Coastal Commission. The issuance of a CDP requires a public hearing.

7.4 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

As stated in Section 2.3, the Upper Newport Bay is designated as a SMCA by the CDFW. Therefore, the CDFW must be notified of any activities which alter jurisdictional areas north of the Bay Bridge, including tunneling underneath jurisdictional areas. Only the Original Northeast Pump Station alternative proposes HDD to the north of Bay Bridge.

Original Northeast Pump Station (HDD): HDD activities to install the force mains associated with the Original Northeast Pump Station involves tunneling underneath Newport Bay north of Bay Bridge. Therefore, it would be necessary for the project applicant to acquire a Section 1602 SAA and the submittal of a Frac-out Contingency Plan to the CDFW.

CDFW SAA Process: Upon a formal notification, the CDFW will determine whether the notification package (application) is complete. The CDFW will make this determination within 30 calendar days of receiving the notification package if the application is for a regular agreement (i.e., an agreement for a term of five years or less); however, the 30-day time period does not apply to notifications for long-term agreements (i.e., agreements for a term greater than five years). Once the notification package is deemed complete, CDFW will process a Draft SAA as described below.

If a SAA is required, the CDFW may require an on-site inspection and a draft agreement. The draft agreement will include measures to protect fish and wildlife resources while conducting the project. For regular agreements, the CDFW will submit a draft agreement to the applicant within 60 calendar days after the notification is deemed complete. The 60-day time period does not apply to notifications for long-term agreements, since these are often large or complex projects.

The applicant then has 30 calendar days to notify CDFW whether the measures in the draft agreement are acceptable. CDFW will finalize the agreement once it receives the signed draft. The CDFW application fee associated with the notification package varies depending on the total cost of the project and type of agreement (i.e., Regular or Long-Term).

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Appendix A USDA NRCS Custom Soil Resources Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Orange County and Part of Riverside County, California

Bay Bridge Pump Station and Force Mains Replacement Project

March 26, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:3,570 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Orange County and Part of Riverside County, California
Survey Area Data: Version 12, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 3, 2015—Jan 17, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
115	Beaches	20.4	70.3%
134	Calleguas clay loam, 50 to 75 percent slopes, eroded	0.0	0.1%
177	Myford sandy loam, 9 to 30 percent slopes, eroded	0.0	0.0%
W	Water	8.6	29.6%
Totals for Area of Interest		**29.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Orange County and Part of Riverside County, California

115—Beaches

Map Unit Setting

National map unit symbol: hclq
Elevation: 0 to 10 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 190 to 210 days
Farmland classification: Not prime farmland

Map Unit Composition

Beaches: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Beaches

Setting

Landform: Beaches

Typical profile

H1 - 0 to 6 inches: sand
H2 - 6 to 60 inches: coarse sand, sand, fine sand
H2 - 6 to 60 inches:
H2 - 6 to 60 inches:

Properties and qualities

Slope: 0 to 5 percent
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 to 72 inches
Frequency of flooding: Frequent
Salinity, maximum in profile: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Available water storage in profile: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydric soil rating: Yes

134—Calleguas clay loam, 50 to 75 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2xm62
Elevation: 220 to 2,110 feet
Mean annual precipitation: 13 to 18 inches
Mean annual air temperature: 64 to 65 degrees F
Frost-free period: 353 to 365 days

Farmland classification: Not prime farmland

Map Unit Composition

Calleguas and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Calleguas

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale

Typical profile

A1 - 0 to 7 inches: clay loam
A2 - 7 to 11 inches: clay loam
A3 - 11 to 15 inches: very channery clay loam
Cr - 15 to 59 inches: bedrock

Properties and qualities

Slope: 50 to 75 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: SHALLOW CLAYEY (1975) (R019XD071CA)
Hydric soil rating: No

Minor Components

Cieneba

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Balcom

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Anaheim

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

177—Myford sandy loam, 9 to 30 percent slopes, eroded

Map Unit Setting

National map unit symbol: hcnq
Elevation: 0 to 2,100 feet
Mean annual precipitation: 11 to 18 inches
Mean annual air temperature: 62 to 65 degrees F
Frost-free period: 290 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Myford and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Myford

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone

Typical profile

A - 0 to 7 inches: sandy loam
Bt - 7 to 11 inches: sandy clay
Btk - 11 to 21 inches: sandy clay loam
B't - 21 to 64 inches: sandy clay loam
C - 64 to 79 inches: sandy loam

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: 4 to 10 inches to abrupt textural change
Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: CLAYPAN (1975) (R019XD061CA)
Hydric soil rating: No

Minor Components

Myford, sandy loam

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: CLAYPAN (1975) (R019XD061CA)
Hydric soil rating: No

Cieneba, sandy loam

Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: SHALLOW LOAMY (1975) (R019XD060CA)
Hydric soil rating: No

Yorba, cobbly sandy loam

Percent of map unit: 2 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: CLAYPAN (1975) (R019XD061CA)
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

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Appendix B USFWS National Wetlands Inventory Map

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands

March 4, 2019

Wetlands

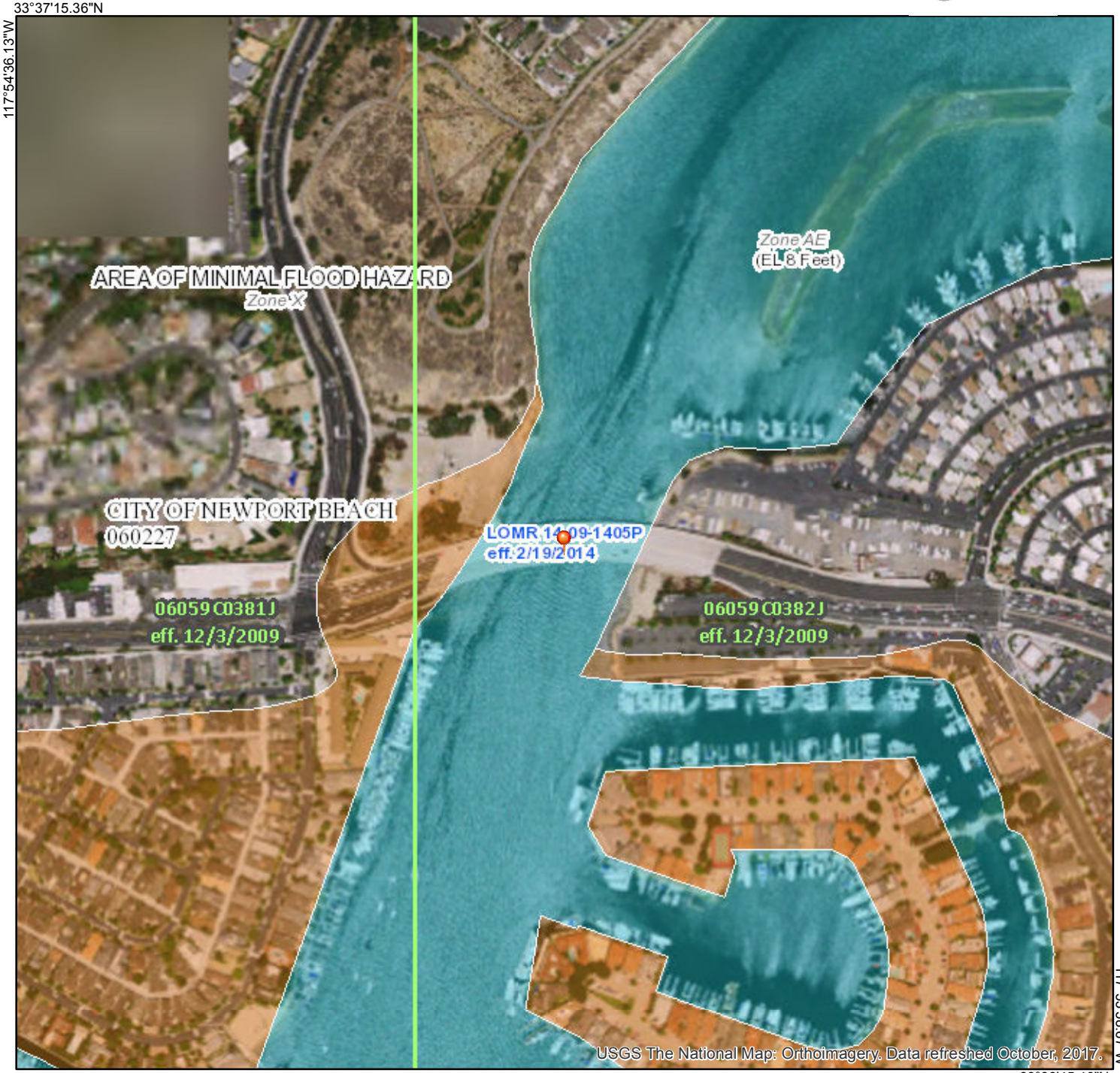
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Appendix C FEMA 100-Year Flood Zone Map

National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/4/2019 at 1:27:10 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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