CALIFORNIA COASTAL COMMISSION
South Coast District Office
301 Ocean Blvd., Suite 300
Long Beach, CA 90802
(562) 590-5071

F17a

CDP 5-21-0640 (City of Newport Beach)

October 14, 2022

EXHIBITS

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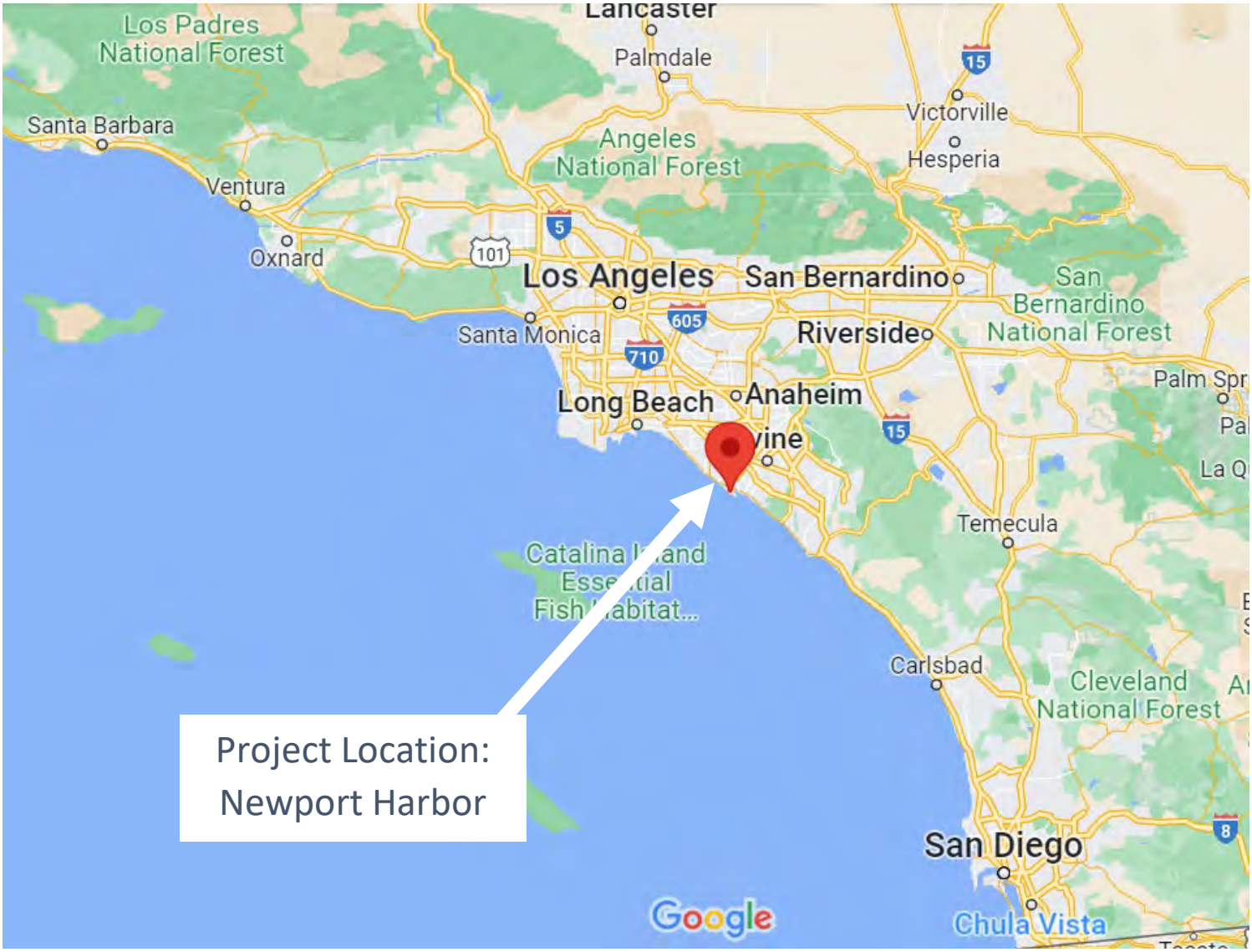

Project Location:
Newport Harbor
Los Padres National Forest
Santa Barbara
Ventura
Oxnard
Lancaster
Palmdale
Angeles National Forest
Victorville
Hesperia
Los Angeles
San Bernardino
San Bernardino National Forest
Santa Monica
Riverside
Long Beach
Anaheim
Temecula
Carlsbad
Cleveland National Forest
San Diego
Chula Vista
Google

SOURCE: Image from Bing maps.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83
VERTICAL DATUM: Mean Lower Low Water (MLLW)

Approximate Project Location:
33° 36.540', 117° 54.230'

0 1.5
Miles

Figure 2
Plan View of CAD Facility
Supplement

ANCHOR QEA

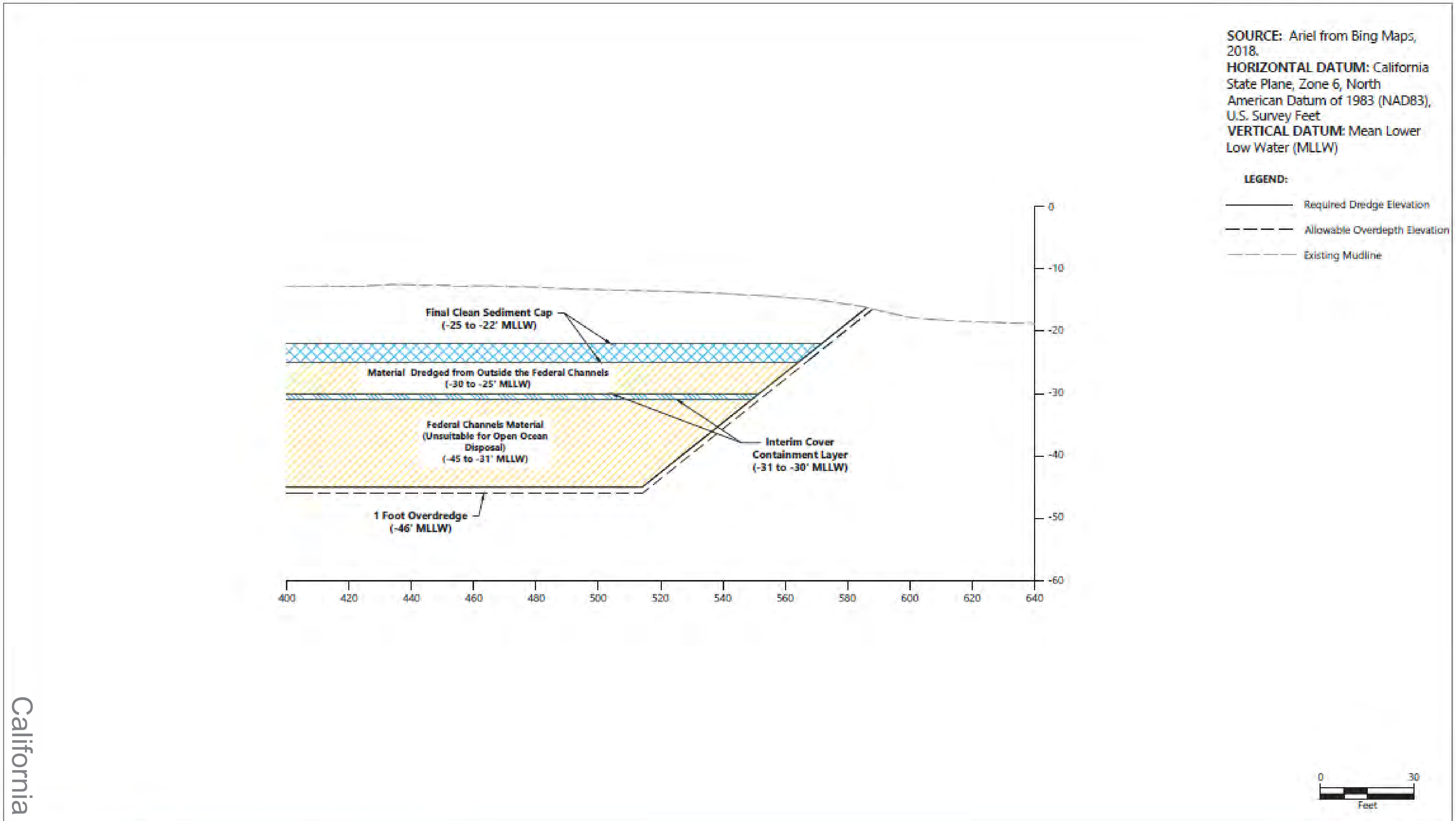


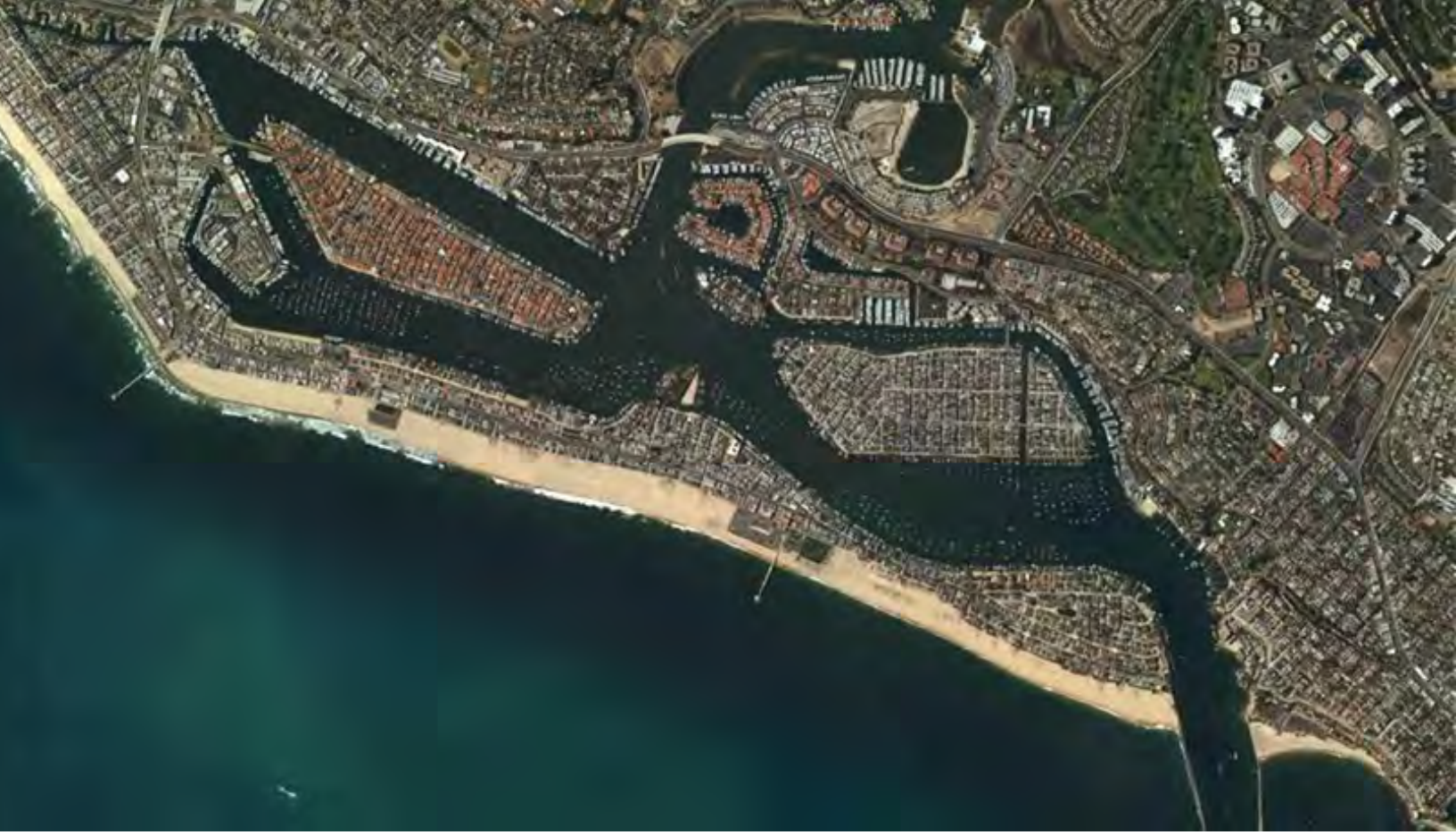
Figure 3
Cross Section of CAD Facility

Supplement

Lower Newport Bay Confined Aquatic Disposal (CAD) Construction Project

California Coastal Commission
CDP 5-21-0640
Exhibit 2 p. 1 of 2

CAD Construction Overview



August 10, 2022
Lower Newport Bay Confined Aquatic Disposal (CAD) Construction Project

ANCHOR QEA

Revised Permit Application Supplement

Prepared for the City of Newport Beach

August 10, 2022
Lower Newport Bay Confined Aquatic Disposal (CAD) Construction Project

Revised Permit Application Supplement

Prepared for
City of Newport Beach
Public Works Department
100 Civic Center Drive
Newport Beach, California 92660

Prepared by
Anchor QEA, LLC
9700 Research Drive
Irvine, California 92618

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APPENDICES

ABBREVIATIONS

µPa	micropascal
BMP	best management practice
BODR	Basis of Design Report
CAD	Confined Aquatic Disposal
CARB	California Air Resource Board
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEMP	California Eelgrass Mitigation Policy
CEQA	California Environmental Quality Act
CEQA	California Environmental Quality Act
City	City of Newport Beach
CNDDB	California Natural Diversity Database
cy	cubic yard
dB	decibel
DMMT	Dredged Material Management Team
EFH	Essential Fish Habitat
FE	federally endangered
FMP	Fishery Management Plan
FT	federally threatened
GHG	greenhouse gas
MMPA	Marine Mammal Protection Act
NTU	nephelometric turbidity unit
proposed project	Lower Newport Bay Confined Aquatic Disposal (CAD) Construction Project
RGP	Regional General Permit
RWQCB	Regional Water Quality Control Board
SC	California state species of special concern
SCAQMD	South Coast Air Quality Management District
SE	state endangered
SMP	sediment management plan
SP	state protected (California Department of Fish and Wildlife)
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency

1 Purpose and Nature of the Activity

The City of Newport Beach (City) is proposing the Lower Newport Bay Confined Aquatic Disposal (CAD) Construction Project (proposed project), located in Lower Newport Bay, Newport Beach, California (Figure 1).

The City previously submitted permit applications in August 2021– inclusive of a Permit Application Supplement, detailing project activities to be undertaken under the proposed project. Project activities previously described in the permit application and supplement included 1) maintenance dredging within the Federal Channels to re-establish safe navigation, including dredging of material that has been determined suitable for open ocean disposal and material that is unsuitable for open ocean disposal; and 2) construction of a CAD facility in the central portion of Lower Newport Bay between Bay Island, Lido Isle, and Harbor Island where dredged sediment unsuitable for open ocean disposal can be contained.

Based on coordination and collaboration with the U.S. Army Corps of Engineers (USACE), the City is submitting a revised project description that only entails construction of the CAD facility and placement of a final cap layer. Maintenance dredging of the Federal Channels is being permitted separately by the USACE. Clean material suitable for beach nourishment generated from constructing the CAD facility would be transported and disposed along the nearshore ocean beaches. The proposed CAD facility and nearshore disposal are shown in Figure 1. Typical CAD facility plan view and cross section are shown in Figures 2 and 3, respectively.

Please note that the appendices remain unchanged as previously provided and therefore not being included as part of this revised submittal.

2 Regulatory Approvals and Permits

The City prepared an Environmental Impact Report (EIR) in compliance with the California Environmental Quality Act (CEQA) and in accordance with 22 California Code of Regulations (CCR) Section 66265 et seq., and Public Resources Code Division 13, Section 21000 et seq., and the CEQA Guidelines (CCR 15000 et seq.). The City certified the Final EIR (FEIR), including CAD construction, on May 25, 2021. Copies of the CEQA Draft EIR (DEIR) and FEIR are provided in Appendix A.

A California Coastal Commission Coastal Development Permit, a Regional Water Quality Control Board (RWQCB) Section 401 Water Quality Certification, and a USACE Section 404 Individual Permit (Section 10 of the Rivers and Harbors Act of 1899, as amended) are required for this proposed project. A modified Permit Application Supplement is being submitted to each respective agency.

Additionally, in a letter dated May 24, 2021, the U.S. Environmental Protection Agency (USEPA) provided a statement on the draft Basis of Design Report (BODR) for the proposed project noting that "the draft BODR and its appendices analyze issues associated with CAD in an appropriate manner, consistent with USEPA and U.S. Army Corps of Engineers national technical design guidelines" (Appendix B).

Federal Channel Dredging (Not Included as Part of the City's Applications)

USACE will be responsible for ensuring National Environmental Policy Act compliance to support the separate Federal Channels maintenance dredging program and will be preparing an environmental assessment separately from this CAD construction permit application. As the lead federal agency—and as part of the Federal Channels maintenance dredging program—USACE will assume responsibility for coordinating with resource agencies such as National Marine Fisheries Service and California Department of Fish and Wildlife and for ensuring compliance with statutes such as the Endangered Species Act and the Magnuson-Stevens Fishery Conservation and Management Act. USACE has also assumed the lead role in addressing cultural and historic resource issues, including requirements of Section 106 of the National Historic Properties Act. In addition, USACE will obtain a federal Consistency Determination from the California Coastal Commission, which will satisfy requirements of the Coastal Zone Management Act, and a Clean Water Act Section 401 water quality certification from the Santa Ana RWQCB for the Federal Channels maintenance dredging program.

3 Detailed Description of the Activity

The proposed project will occur within the Lower Harbor, specifically in the central portion of Lower Newport Bay between Bay Island, Lido Isle, and Harbor Island, as well as nearshore waters (Figure 1). Lower Newport Bay requires periodic maintenance dredging to remove sediment that accumulates over time and impedes navigation and full use of the Harbor. While some of the sediment from the Federal Channels maintenance dredging program has been determined suitable for open ocean disposal, another portion of the sediment has been determined unsuitable for open ocean disposal and is proposed for placement into the CAD facility.

3.1 Sediment Suitability

On July 28, 2021, the Dredged Material Management Team (DMMT) provided a preliminary sediment suitability for underlying sediment within the footprint of the CAD facility for nearshore disposal (Appendix C). Additionally, in coordination with the DMMT, the City committed to developing a sediment management plan (SMP; Appendix D). The SMP is a planning document that builds on previous harbor-wide planning tools (e.g., the *Harbor Area Management Plan*; City 2010) to assist the City in managing sediment in Newport Harbor. Specifically, the SMP identifies sediment management options depending on sediment characteristics, including developing alternate disposal locations and permitting requirements.

3.2 Overview of Project Elements

To manage the unsuitable material that will be dredged as part of the Federal Channels maintenance dredging program, the City proposes constructing a CAD facility in the central portion of the Lower Harbor between Bay Island, Lido Isle, and Harbor Island where dredged sediment unsuitable for open ocean disposal can be contained (Figures 1, 2, and 3).

The CAD facility is being constructed to accommodate approximately 106,900 cubic yards (cy) of unsuitable dredged material anticipated to be generated by the Federal Channels maintenance dredging program and an additional 50,000 cy resulting from maintenance dredging primarily of unsuitable material from outside the Federal Channels (to be permitted separately at a later time). Clean material excavated during construction of the CAD facility will be transported to, and disposed along, the nearshore ocean beaches.

CAD facility construction will likely occur using mechanical equipment and bottom-dump barges (also called a dump scow) to excavate the depression and deposit the resulting material within the nearshore zone along the ocean beaches of Newport Beach.

Approximately 2 years following completion of construction of the CAD facility, there will be a second opportunity during a 6-month period for the City and its residents to place material

determined unsuitable for open ocean disposal in the CAD facility. The combined total allowance for the initial and second opportunity will be 50,000 cy of unsuitable material. If there is remaining capacity (within this 50,000-cy allowance) at the end of the 6-month period, the City and its residents will be able to place material from the Regional General Permit (RGP) 54[1] Plan Area determined suitable for open ocean disposal in the CAD facility. This opportunity will provide a more cost-effective and convenient disposal location within the Lower Harbor and will bolster the CAD facility's final cap layer. This activity will be permitted separately through either the City's RGP 54 or through an Individual Permit depending on the scope of work, and not included as part of this permit application.

At the end of the second 6-month placement period opportunity for the public and the City, the final cap layer will be placed in the CAD facility by the City to chemically isolate the underlying sediments from burrowing organisms and biota residing in the overlying water column. This clean sediment final cap layer has been designed to a thickness of 3 feet (or 33,600 cy) of additional sediment sourced by the City. This layer will likely consist of sediment dredged under the City's RGP 54 program, maintenance dredging at the Santa Ana River as a contingency, or other sources available at the time. As the City identifies sources for the final cap layer, material will require testing and confirmation that the sourced material meets the performance criteria of sediment tested and modelled as part of the BODR (Anchor QEA, 2020). Additionally, the City will request final review and approval prior to placement of the final cap layer.

The final elevation of the CAD facility infill will be restricted to an elevation that is at or below the water depths necessary for navigation within the Lower Harbor.

3.2.1 Construction Volumes

To accommodate the required volumes of expected unsuitable material and sediment capping material, the estimated size of the CAD facility is approximately 590 feet by 590 feet at the assumed top of the CAD facility footprint and will require dredging of approximately 282,400 cy of sediment from the existing mudline to the 1-foot overdredge limit (-46 feet Mean Lower Low Water); the underlying sediment within the footprint of the CAD facility would be disposed along nearshore beaches, as presented in Figure 1.

The CAD facility has been designed to accommodate 199,500 cy, in addition to a 10% contingency volume. Please note that the sum represented by the different layers of the CAD facility – as noted in the bullet points below – represent a slight change as compared to what was presented in the updated permit application package from November 2021. The reasoning is based on direction from

[1] RGP 54 authorizes small-scale maintenance dredging in Newport Harbor and covers the following regulated activities in eligible areas of Newport Harbor: 1) maintenance dredging under and adjacent to private, public, and commercial docks, floats, and piers; and 2) discharge of dredged material at adjacent in-bay beach sites for beach nourishment, at LA-3, or at approved upland disposal sites.

the EPA to modify the delineation of the unsuitable material to allow for easier access and constructability (more box-shaped than round). The difference in volumes was approximately 5,600 cy – 106,900 as presented in the November 2021 CDP application compared to 112,500 cy based on updates from the USACE. These updated volumes were negotiated between EPA and the Corps (with City input) as part of the EPA final sediment suitability concurrence in spring 2022. The USACE further acknowledged that the volumes may further slightly change to reflect the 2022 annual harbor-wide bathymetry surveys being conducted by the USACE. As mentioned, the CAD has been designed with a 10% contingency, so the slight variation in volumes – with buffer – can be accommodated.

- 112,500 cy of sediment generated during dredging of the Federal Channels (USACE Federal Channels maintenance dredging program, permitted separately)
- 50,000 cy of sediment generated from the RGP 54 Plan Area and/or other areas outside the Federal Channels (USACE Federal Channels maintenance dredging program, permitted separately)
- 9,000 cy of sediment that will be dredged from the Federal Channels, likely Newport Channel 3, to provide for an interim cover containment layer designed to a thickness of 1 foot (USACE Federal Channels maintenance dredging program, permitted separately)
- 33,600 cy of sediment that will be sourced by the City to provide for the final cap layer designed to a thickness of 3 feet (permitted herein)

The CAD facility's size and volume incorporates side slopes, final CAD facility elevation, and other engineering design considerations to safely accommodate the material and ensure the CAD facility's stability. Incorporation of these elements into the design results in a greater volume of material required to excavate the CAD facility (282,400 cy) as compared to the volume of material placed in the CAD facility (199,500 cy).

3.2.2 Construction Schedule

The proposed CAD facility construction is anticipated to take place over an approximately 6-month duration and begin in late 2022. Placement of dredged material for final containment layer cap is anticipated to take 3 to 4 weeks and begin in late 2024. This conceptual schedule and construction sequence were developed based on current design knowledge, professional judgment, and experience from similar projects and may be modified.

3.2.3 Long-Term Monitoring

An Operations, Management, and Monitoring Plan (OMMP) for the CAD facility has been developed for implementation by the City. The OMMP describes the management and monitoring objectives for the CAD facility, a communications plan covering the entire CAD facility construction and sediment disposal process, construction monitoring and post-disposal monitoring plans, contingency plans,

annual monitoring plans, and long-term management plans for the CAD facility once it has been capped. The OMMP, prepared as an appendix to the draft BODR (Anchor QEA 2020), is provided as Appendix E to this Permit Application Supplement.

4 Essential Fish Habitat and Special-Status Species

This section details the environmental setting and potential impacts to Essential Fish Habitat (EFH) and special-status species.

4.1 Essential Fish Habitat

In accordance with the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act, an assessment of the EFH has been conducted for the proposed project. The proposed project is located within an area designated as EFH for two Fishery Management Plans (FMPs)—the Coastal Pelagic Species Management Plan and the Pacific Groundfish Fishery Management Plan. Many of the more than 90 federally managed species under these FMPs are known to occur in the area and could be affected by the proposed project. Four coastal pelagic species potentially occur in the waters offshore of Newport Beach, and three Pacific Coast groundfish species potentially occur within Newport Bay (Table 1). Although several other coastal pelagic and groundfish FMP species have been observed in Newport Bay, temporal data indicate that their presence in the proposed CAD facility or dredge areas is likely sporadic, and their numbers would be extremely low (CRM 2009).

Table 1
Fish Species with Essential Fish Habitat Present in Newport Bay

Scientific Name	Common Name	Occurrence
Coastal Pelagic Species		
Engraulis mordax	Northern anchovy	Present in Lower Newport Bay
Sardinops sagax	Pacific sardine	Rare in Lower Newport Bay
Trachurus symmetricus	Jack mackerel	None observed
Scomber japonicus	Pacific mackerel	Rare in Lower Newport Bay
Pacific Coast Groundfish		
Parophrys vetulus	English sole	Rare in Lower Newport Bay
Sebastes serranoides	Olive rockfish	Rare in Lower Newport Bay
Scorpaena guttata	California scorpionfish	Rare in Lower Newport Bay

Of these species, only the northern anchovy comprises a significant portion of fish that contribute moderate to heavy abundance to the nearshore fish community, with no recorded levels of abundance within Newport Bay. Although several other coastal pelagic and groundfish FMP species have been observed in Newport Bay, temporal data indicate that their presence in the CAD facility site is likely sporadic, and their numbers would be extremely low (CRM 2009). Construction of the CAD facility may result in short-term, temporary, and minor increases in turbidity; underwater noise; benthic community disturbance; and water quality impacts in the immediate area.

4.1.1 Eelgrass and Caulerpa

The proposed project is also located within the Pacific Coast Groundfish Habitat Areas of Particular Concern: Estuarine and Eelgrass Habitat. Estuaries tend to be shallow, protected, nutrient-rich, and biologically productive, providing important habitat for marine organisms, including groundfish (Pacific Fishery Management Council 2019). Eelgrass grows in quiet bays and harbors as well as open coast regions. It provides many biological and ecosystem services, including shelter for juvenile fishes, important foraging habitat for multiple species, shoreline stabilization, and water quality improvements.

The City conducts shallow-water eelgrass surveys every 2 years in Lower Newport Bay, and harbor-wide surveys—including the deepwater habitat—are conducted every 4 years. The most recent harbor-wide survey was conducted in summer 2020, and the results of the survey (MTS 2020) are included as Appendix F. As described in this appendix, eelgrass is not present in or adjacent to the area proposed for the CAD facility. While there are no known areas of eelgrass beds in or adjacent to the project site, consistent with the California Eelgrass Mitigation Policy (CEMP; NOAA 2014) a pre-construction eelgrass survey will be performed by the City in the proposed project area 30 to 60 days prior to commencement of CAD construction activities. If eelgrass is located during the pre-construction survey, a post-construction survey will also be performed by the City within 30 days following completion of construction to evaluate any immediate effects to eelgrass habitat. If the post-construction survey indicates loss of eelgrass habitat within the proposed project area, any impacts to eelgrass that have not previously been mitigated for will be mitigated in accordance with the CEMP (NOAA 2014).

A substantial threat to the productive marine ecosystems in California is *Caulerpa*, a highly invasive green alga. This tropical species, which was introduced to natural systems through the aquarium trade, can be extremely harmful to marine ecosystems because it invades, out-competes, and eliminates native algae, seagrasses, kelp forests, and reef systems by forming a dense blanket of growth on mud, sand, or rock surfaces. It can grow in shallow coastal lagoons as well as in deeper waters and has a wide range of environmental tolerance. In order to detect existing infestations and avoid the spread of *Caulerpa* within other systems, the National Oceanic and Atmospheric Administration (NOAA) has developed a survey and reporting protocol for California nearshore coastal and enclosed bays, estuaries, and harbors (NOAA 2008). In March 2021, *Caulerpa prolifera* was discovered in small area of Newport Bay at China Cove. California Department of Fish and Wildlife scientists and divers are currently being deployed to map and identify the location of the species (CDFW 2021a). While there is no known *Caulerpa* in or adjacent to the project area, consistent with the *Caulerpa Control Protocol* (NOAA 2008, or as amended), a pre-construction *Caulerpa* survey will be performed by the City in the proposed project area 30 to 60 days prior to

commencement of project activities. If *Caulerpa* is found, the City will notify NOAA and will assist with coordinating a response.

4.2 Special-Status Species

The California Natural Diversity Database (CNDDB) was searched to identify recorded special-status species occurrences within the U.S. Geological Survey Laguna Beach 7.5-minute quadrangle and surrounding quadrangles (Tustin and Laguna Beach; CDFW 2021b).

CNDDB identifies 69 special-status (threatened or endangered under the federal Endangered Species Act or California Endangered Species Act, state species of special concern, or CDFW fully protected species) wildlife species within the study area, as identified through a search of the Newport Beach, Laguna Beach, and Tustin quadrangles. Potential species occurrence was determined based on habitat requirements and on-site conditions. The proposed project site's highly developed condition precludes the presence of most special-status species, although several special-status bird and fish species may have a very low to low potential for occurrence in or around the proposed project site. Table 2 presents special-status species with the potential to occur in or adjacent to the project area.

Table 2
Special-Status Species with the Potential to Occur In or Adjacent to the Project Area

Scientific Name	Common Name	Special Status
Sterna antillarum browni	California least tern	FE, SE
Charadrius alexandrinus nivosus	Western snowy plover	FT, SC
Eucyclogobius newberryi	Tidewater goby	FE, SC
Leuresthes tenuis	California grunion	SP
Phoca vitulina	Harbor seal	MMPA
Zalophus californianus	California sea lion	MMPA
Chelonia mydas	Green sea turtle	FT
Eretmochelys imbricate	Hawksbill turtle	FE

The proposed project would be constructed within an active marine harbor supporting recreational activities that has previously been subject to dredging activities. The proposed project area, nearshore disposal sites, do not support unique or rare habitats whose alteration would significantly impact sensitive species in the area.

Dredging and CAD facility construction have the potential to directly impact benthic flora and fauna, as well as lead to sediment plumes. Noise from construction activities also has the potential to indirectly affect water column species.

Nearshore placement has the potential to affect benthic and water column species. Waves and wave-related currents in the nearshore environment suspend and transport sediment along the shore as a natural process, creating an unstable environment of shifting sands. Because the nearshore is a dynamic and unstable environment, nearshore placement is not anticipated to significantly alter the environmental conditions for flora or fauna in the vicinity of the nearshore disposal. In order to assess the potential for the project to impact the nearshore environment, a nearshore survey is currently being commissioned by the City.

The effects of construction activities related to construction of the CAD facility on specific special-status species directly or indirectly are described below.

4.2.1 California Least Tern and Western Snowy Plover

California least terns have historically nested and are presumed to still nest in colonies at several areas on the beaches adjacent to Newport Bay, and within Upper Bay. They use open sandy or gravelly shores with light-colored substrates, little vegetation, and nearby fishing waters for nesting. Least terns have nested at several locations around Newport Bay, including 18 breeding pairs observed in 2016 at Least Tern Island in the Upper Bay Ecological Reserve (Frost 2017). Migration from wintering areas to southern California coastal areas occurs in late spring and summer. They are present in small numbers from mid-April to mid-September. California least terns feed on small fishes directly under the water surface in coastal waters, primarily foraging within Upper Bay but occasionally entering Lower Newport Bay. Eelgrass beds are critical foraging habitat for California least terns. Preferred nesting habitat includes open beaches free of vegetation such as lagoon entrances and sandy strips on the coast away from human encroachment.

Individuals in the Pacific Coast population of western snowy plovers are known to utilize habitat in the vicinity of Newport Bay for nesting. Critical habitat for the western snowy plover occurs along approximately 25 acres of beach along space the Balboa Peninsula. The site historically supported nesting, but the current potential for nesting is low. Successful nesting has not occurred since 2009, though there have been sightings of western snowy plover in the vicinity (Glenn Lukos Associates 2020). The critical habitat extends from the mean tide line to the boardwalk, between B Street and G Street on East Balboa Boulevard (approximately 2,000 feet). Western snowy plovers usually forage in intertidal zones, feeding on invertebrates, marine worms, and insects. The nesting season is between March 1 and September 30, with most activity occurring in May. Plovers require barren to sparsely vegetated sand beaches for nesting.

The CAD facility construction and nearshore placement activities would not occur within or adjacent to known California least tern or western snowy plover critical habitat or known nesting locations. While the proposed project would not directly support California least tern and western snowy plover nesting, foraging birds may be present in the study area. The California least tern and western

snowy plover are present from mid-April to mid-September and early March to late September, respectively. Foraging birds feed on small fish directly under the water surface in coastal waters, primarily foraging within the Upper Bay but occasionally entering Lower Newport Bay.

CAD facility construction activities would cause increases in suspended sediments and turbidity, which would affect foraging species' ability to see food normally visible in the water. Noise and equipment operation could cause birds to avoid using the beach as a resting area. However, no direct mortality of California least tern nor western snowy plover is reasonably foreseeable because of the lack of nesting habitat in the areas to be affected by the project. During construction of the CAD facility, there would be a loss of benthic and water column habitat, which could reduce the number of small fishes in the immediate area of construction. This loss would be temporary, as the CAD facility would eventually be filled and capped. Impacts to benthic communities and increased turbidity due to dredging activities are also temporary in nature. Because the areas to be dredged for construction of the CAD facility are a small portion of local habitat (approximately 8 acres), the loss of food for bird populations is judged adverse, but not significant.

Effects from sediment suspension and turbidity as a result of sediment placed within the nearshore marine environment would be temporary and minimal. Additionally, it is anticipated that only a small number of organisms would be affected, and those effects would be limited to minor impacts on foraging behavior for individuals.

4.2.2 Tidewater Gobies

Tidewater gobies require coastal brackish waters in lagoons or bays where there is access to freshwater flow. Tidewater gobies may have historically occurred in the Upper Newport Bay but have been extirpated from much of their native southern California range due to habitat degradation and loss.

4.2.3 California Grunion

California grunion are found only in southern California and northern Mexico. California grunion are known to spawn on sandy beaches along the Pacific Coast from southern California to northern Baja California, including Newport Municipal Beach from Balboa Pier Beach to West Newport Park (CDFW 2021c). California grunion inhabit nearshore waters from the surf down to approximately 60 feet. Little is known about grunion foraging habits, but they are presumed to feed on very small organisms. Spawning generally occurs from March through August, with peak spawning in late March to early June. Limited wave action within the Lower Harbor does not facilitate beach access for grunion spawning or returning to the water after hatching. However, grunion use nearshore ocean beaches to spawn.

California grunion leave the water at night to spawn on nearshore beaches at predicted times during the spring and summer months (March through August). Spawning occurs for four consecutive

nights after the highest tide associated with each full or new moon (CDFW 2021c). These spawning events are protected, and any beach activity during spawning must be monitored.

Nearshore placement would occur over a 2-month period during the day hours. As noted above, spawning only occurs during night at a specific period and it is unlikely that nearshore placement would overlap with spawning. In addition, nearshore placement works by depositing sediment at a distance from the beach to allow the normal active sand movement process deliver material to the beach gradually. Nearshore placement would allow material to mix with other sediment in the littoral zone prior to being carried naturally onto the beach or downcoast, with little or no observable change onshore. Therefore, spawning is not anticipated to be affected by nearshore placement even if grunion are present at a beach adjacent to the nearshore disposal activities. Based on guidance provided from the City for the Marina Park Project, and consistent with other projects of similar magnitude and geography, nearshore ocean beach disposal locations do not require grunion monitoring prior to placement activities (CCC 2011; Love 2011; USACE 2012; CDFW 2021c).

4.2.4 Sea Turtles and Marine Mammals

Sea turtles are large, long-lived marine animals that play an important role in the shaping and regulation of coastal marine communities. As large herbivores, sea turtles feed on seagrass and algae, and nesting populations can be found along the Pacific Coast of Mexico. The green sea turtle and hawksbill turtle occasionally visit the nearshore environment of Orange County, but they generally do not utilize the local marine waters as a permanent breeding or foraging habitat. According to *The Orange County Register*, "sea turtles are now being found in the Port of Los Angeles, in the harbor at Marina Del Rey, in Alamitos Bay," and the warm discharge waters of the nearby power-generating facilities in "the San Gabriel River in Long Beach, and off of Carlsbad in San Diego County" (Ritchie 2019). While their occurrence within Newport Bay is expected to be rare, a few green sea turtles were spotted in Newport Harbor in 2017, where they may have utilized the eelgrass beds in Newport Bay as a source of nutrition (Ritchie 2019).

The only marine mammals expected in proposed CAD facility or dredging areas would be California sea lions and harbor seals. Sea lions and seals are expected to forage in the Lower Harbor and rest on the breakwater jetties and navigational buoys. Various dolphin species are known to enter Lower Newport Bay but are not expected to be present at the proposed CAD facility, as general activity and noise during dredging activities typically act as a deterrent for dolphins. There are a variety of marine mammals that are likely to occur in the shallow waters at the nearshore disposal site. While some are year-round residents, others are transients or are observed during seasonal migrations through the area. California sea lions and harbor seals often come into the nearshore zone, while common dolphins (*Delphinus delphis*), Pacific white-sided dolphins (*Lagenorhynchus obliquidens*), and gray whales (*Eshrichtius robustus*) occasionally visit the nearshore zone.

Green sea turtles, hawksbill turtles, California sea lions, and harbor seals in the vicinity of the proposed project site during the CAD facility construction period could be affected by the noise of the dredging operation and by contact with the dredging and disposal equipment during construction. Green sea turtles, hawksbill turtles, California sea lions, harbor seals, common dolphins, Pacific white-sided dolphins, and gray whales in the vicinity of the nearshore placement area during disposal operations would potentially be disturbed by the noise and activity of the disposal tugboat and split-hull barge and by the turbidity plume from disposed sediments.

The proposed project site is currently an active recreational and commercial harbor subject to noise from ongoing operations, including the use of large vessels. Underwater noise levels will temporarily increase due to operation of dredging equipment within the CAD facility and transport of the material to the nearshore disposal site. Clamshell dredges generate a repetitive sequence of sounds from winches, bucket impact with the substrate, closing and opening the bucket, and dumping the dredged material into the barge. However, noise attenuates with increasing distance from the source. As referenced in the Marina Park Draft EIR (City 2009), underwater noise from the clamshell dredging in Los Angeles Harbor averaged 150 to 162 decibels (dB) relative to 1 micropascal of pressure (re 1 µPa), which is less than the designated Level A Harassment threshold of 190 dB root mean square (re 1 µPa) for pinnipeds. Construction of the CAD facility would likely use a clamshell dredge and is anticipated to produce similar underwater noise (150 to 162 dB re 1 µPa). This is comparable to underwater noise levels of 160 to 180 dB produced by small boats and ships (MALSF 2009).

There is limited data on the effects of intense sounds on marine turtles, and thus it is difficult to predict the level of damage to hearing structures. However, the U.S. Navy conducted a study on the range to the onset of temporary or permanent loss of hearing for sea turtles exposed to impact pile driving, which generates more intense underwater noise than dredging equipment. The study found that the range in which noise would affect sea turtles was short (between 6 and 65 feet). This finding was due to sea turtles' relatively high thresholds for auditory impacts compared to source levels of impact pile driving conducted during U.S. Navy training (Navy 2018). Based on prior observations of sea turtle reactions to sound, if a behavioral reaction were to occur, the responses could include increases in swim speed, change of position in the water column, or avoidance of the sound (Popper et al. 2014). There is no evidence to suggest that any behavioral response would persist beyond the sound exposure.

Startle reactions from sea lions or harbor seals that are in close proximity to barges or other equipment could occur as the result of start-up operations in the morning or from loud noises resulting from construction activities. These responses are temporary, however, and individuals in the vicinity are prone to habituation. Considering the source sound level, sound attenuation over distance, and the typical noise generated from boats and land-based sources, such dredging noise levels would likely be within current noise levels.

One of the primary threats facing sea turtles is vessel strikes, and disposal vessel traffic could encounter turtles on the way to the nearshore disposal site. Marine mammals are generally agile and able to avoid injury by equipment, and other foraging area is available nearby in the bay. They would likely avoid the CAD facility during construction, and although individuals may be curious, there is a low potential for harm to an individual or the population within the vicinity of the CAD facility and the nearshore disposal site.

Breeding would not be affected because sea turtles, sea lions, and harbor seals do not breed in the Lower Harbor. Disposal operations at the nearshore disposal site are also not expected to affect breeding or nursing of any sea turtle or marine mammal species. Foraging may be temporarily affected in the vicinity of disposal operations due to a decrease in water clarity, and there may be a potential reduction in prey items. It is highly unlikely that project activities would affect sea turtle or pinniped foraging in the areas around the dredge given the existing environmental baseline and harbor use. Additionally, foraging sea turtles, seals, and sea lions are not expected to be affected by project activities given the amount of surrounding area available for foraging and the existing environmental baseline of almost constant human presence and recreational activity that already occurs in the area. Proposed project activities therefore are not likely to result in "take" as defined in the Marine Mammal Protection Act (MMPA).

5 Avoidance and Minimization of Impacts

The City is committed to avoiding or minimizing environmental effects during construction of the CAD facility and disposal activities. The following best management practices (BMPs) will be required as a condition of the proposed project and incorporated into the proposed project plans and contract specifications as appropriate:

- Rules and methods set out by the Los Angeles Region Contaminated Sediments Task Force's Long-Term Management Strategy BMP toolbox (CSTF 2005) during CAD facility construction dredging activities shall be provided to the dredge contractor to satisfy federal and state water quality requirements.
- General construction BMPs, including removing floating debris, implementing a water quality monitoring plan, preventing barge overflow, adjusting dredge cycle time and bucket velocity as it is raised and lowered, modifying bucket size or type if necessary, modifying the operation of the dredging equipment to minimize resuspension of sediment, and washing the bucket to remove cohesive sediment, will be implemented if necessary.
- Prior to construction, the proposed project area will be surveyed for the invasive alga *Caulerpa* (*Caulerpa* spp.) and eelgrass (*Zostera marina*) in compliance with federal and state protocols.
- Contractors will be required to have emergency spill response plans and employ general BMPs regarding vessel and equipment maintenance and fueling.
- Prior to construction, the City will submit a Cap Placement Plan for review and approval by the agencies.

Additionally, the City will implement all mitigation measures documented in the FEIR, including the following:

- **MM-AQ-1 Tugboats Used During Construction**: The tugboats used during construction must meet USEPA Tier 4 engine standards by 2024; if Tier 4 tugboats are not available in years 2021 and 2022, tugboats must meet Tier 3 compliant standards. If applicable Tier-compliant tugboats are not available, the City shall purchase Emission Reduction Credits from the South Coast Air Quality Management District (SCAQMD) to offset the exceedance of nitrogen oxides emissions.
- **MM-BIO-1 Pre- and Post-Construction Survey**: Consistent with the CEMP (NOAA 2014) and *Caulerpa Control Protocol* (NOAA 2008, or as amended), a pre-construction eelgrass and *Caulerpa* survey shall be performed by the City in the proposed project area 30 to 60 days prior to commencement of proposed construction activities in the Harbor.
  - If eelgrass is located during the pre-construction survey, a post-construction survey shall also be performed by the City within 30 days following completion of construction to evaluate any immediate effects to eelgrass habitat.

  - If *Caulerpa* is found, the City will immediately notify the Southern California *Caulerpa* Action Team, and construction shall not be conducted until such time as the infestation has been isolated and treated, or the risk of spread from the proposed construction is eliminated.
- **MM-BIO-2 Eelgrass Mitigation**: If a post-construction survey is required and indicates loss of eelgrass habitat within the proposed project area, any impacts to eelgrass that have not previously been mitigated for will be mitigated in accordance with the CEMP (NOAA 2014). In-kind compensatory mitigation is the creation, restoration, or enhancement of habitat to mitigate for adverse impacts to the same type of habitat. Per the CEMP guidelines for southern California, for each square meter of vegetated eelgrass cover adversely impacted, 1.38 square meters of new habitat with suitable conditions to support eelgrass should be planted with a comparable bottom coverage and eelgrass density as impacted habitat (NOAA 2014). The 1.38:1 ratio assumes the following: 1) there is no eelgrass function at the mitigation site prior to mitigation efforts; 2) eelgrass function at the mitigation site is achieved within 3 years; 3) mitigation efforts are successful; and 4) there are no landscape differences (e.g., degree of urban influence, proximity to freshwater source) between the impact site and the mitigation site.
- **MM-CHR-1 Stop Work in the Area If Prehistoric or Historical Archaeological Resources Are Encountered**: In the event that any artifact, or an unusual amount of bone, shell, or non-native stone, is encountered during construction, work would be immediately stopped and relocated to another area. The contractor would stop dredging until a qualified archaeologist can be retained by the City to evaluate the find (36 CFR 800.11.1 and 14 CCR 15064.5[f]). Examples of such cultural materials might include ground stone tools such as mortars, bowls, pestles, and manos; chipped stone tools such as projectile points or choppers; historic artifacts such as bottles or ceramics; or resource gathering items such as fish weir stakes. Native American tribes and the Office of Historic Preservation would be notified of the find. Native American tribes consulted on the proposed project to date include the Gabrieleño Band of Mission Indians – Kizh Nation, and the Juaneño Band of Mission Indians Acjachemen Nation. If the resources are found to be significant, they would be avoided or mitigated.
- **MM-GEO-1 Periodic Monitoring of the CAD Facility**: An OMMP has been developed for the proposed project to conduct periodic monitoring of the CAD facility, including bathymetric surveys and cap coring (Appendix E). In the event of a significant earthquake,[2] these techniques could be used to monitor the integrity of the CAD facility final cap layer. As noted, if any changes in environmental conditions or design assumptions become apparent, then management actions will be considered for the CAD facility. Initial management actions

[2] According to NOAA's National Centers for Environmental Information, a significant earthquake "is classified as one that meets at least one of the following criteria: caused deaths, caused moderate damage (approximately $1 million or more), magnitude 7.5 or greater, Modified Mercalli Intensity (MMI) X or greater, or the earthquake generated a tsunami." (NOAA 2020).

would likely include increasing the level or frequency of monitoring. If indicated, the CAD facility cap design would be augmented in one or more of the following ways: adding more sediment to form a thicker cap; changing the cap material to a coarser, more erosion-resistant material type (coarse sand or gravel); or adding enhanced materials to the cap, such as less porous or chemically absorbent materials.

- **MM-GHG-1 Purchase GHG Emission Offsets:** The City shall purchase annual greenhouse gas (GHG) offset credits to offset GHG emissions during the life of the project. The amount of credits purchased shall be determined based on updated emission calculations as determined by the final equipment list secured by the contractor and using industry-accepted GHG calculation methods. Off-site mitigation credits shall be real, quantifiable, permanent, verifiable, enforceable, and additional, consistent with the standards set forth in Health and Safety Code Section 38562, subdivisions (d)(1) and (d)(2). Such credits shall be based on protocols consistent with the criteria set forth in 17 CCR 95972(a) and shall not allow the use of offset projects originating outside of California, except to the extent that the quality of the offsets, and their sufficiency under the standards set forth herein, can be verified by SCAQMD. Such credits must be purchased within 90-days following the conclusion of each operational year through one of the following: (i) a California Air Resource Board (CARB)-approved registry, such as the Climate Action Reserve, the American Carbon Registry, and the Verified Carbon Standard; (ii) any registry approved by CARB to act as a registry under the California Cap and Trade program; or (iii) through the California Air Pollution Control Officers Greenhouse Gas Reduction Exchange and the SCAQMD. Proof of purchase of the off-site mitigation credits shall be retained by the City.
- **MM-HYDRO-1 Conduct water quality monitoring during all construction activities**: The proposed project will obtain the required permits under RWQCB and/or USACE. Water quality monitoring will be implemented to comply with numeric receiving water limitations (Table 3) and other permit requirements during construction activities to minimize potential water quality impacts to Lower Newport Bay.

Table 3
Numeric Receiving Water Limitations

Parameter	Receiving Water Limitation	
	Eelgrass Present Within 300 Feet	**Eelgrass Not Present Within 300 Feet**
Transmissivity	38%	16%
Turbidity	16 NTU	47 NTU
pH	7< pH <8.6; <0.2 change from ambient	
Dissolved Oxygen	>5 milligram per liter	

- **MM-HYDRO-2 Implement Water Quality BMPs**: Construction contractors shall use BMP water quality controls to ensure compliance with the water quality standards identified herein. Measures could include use of a silt curtain during dredging and/or material placement, a floating boom to be maintained around the proposed project area, and daily inspection of construction equipment for leaks or malfunction. Storage or stockpiling of materials related to construction may be prohibited where such materials could enter the waters of Lower Newport Bay.
- **MM-HYDRO-3 Material placement will take place outside tidal extremes**: Material placement activities should be limited to neap and non-peak tides (i.e., plus or minus 2 hours from slack tide) to limit the horizontal distribution of fill material due to reduced current speeds, where possible. In addition, placement activities should be conducted during a non-peak flood tide versus a non-peak ebb tide. These measures will limit the loss of fill material outside the CAD facility during placement operations.
- **MM-REC-1 Coordinate with Sailing Centers**: The City would coordinate with the sailing organizations and yacht clubs to relocate recreational and mooring activities and minimize the disruption to marine recreational activities.

6 Compensatory Mitigation

While there are no known eelgrass beds within the proposed project area, *Caulerpa* has been found in the Harbor. Therefore, biological mitigation measures (MM-BIO-1 and MM-BIO-2) would be implemented during construction to reduce potential impacts. MM-BIO-1 and MM-BIO-2 would ensure that if eelgrass were identified through pre-construction surveys, no net loss would occur after completion of the proposed project. If loss was indicated, mitigation would occur consistent with the CEMP. MM-BIO-1 would ensure that the proposed project would not lead to the spread of *Caulerpa*. No additional compensatory mitigation is proposed.

7 Cultural Resources

As described in the DEIR, there may be some potential for impacts to archaeological resources. Dredging activities began in the area in the early 1900s, and the major dredging and filling project that created Newport Harbor was completed in 1936. Various maintenance dredging operations have occurred since that time. The CAD facility would be dredged below previously authorized depths and would therefore encounter native sediment. Though this sediment would have been in an active intertidal area, there may be some remaining potential to encounter isolated archaeological artifacts that were dropped or redeposited in the intertidal at some point, though the potential is very low. While the proposed project is not expected to encounter archaeological resources, in the unlikely event of such a discovery, mitigation measure MM-CHR-1 would be implemented to reduce any impacts.

8 Alternatives Analysis

CEQA requires that an EIR present a range of reasonable alternatives to the proposed project. Accordingly, the proposed action and five alternatives that meet most of the proposed project objectives (described in Section 2.4 of the DEIR) are analyzed in Section 6.3 of the DEIR. The five alternatives are as follows:

- Alternative 1: No Project Alternative/No Dredging
- Alternative 2: No CAD Construction Alternative
- Alternative 3: Reduced Dredging
- Alternative 4: Upland Trucking of Material
- Alternative 5: Alternative Location within Newport Harbor

The following alternatives were considered but eliminated from the analysis

- Use of an Electric Dredger
- Disposal of Material at Port Fill Site

Alternatives were developed based on comments received during public scoping and City staff consideration. Please refer to Section 6 of the DEIR (provided in Appendix A).

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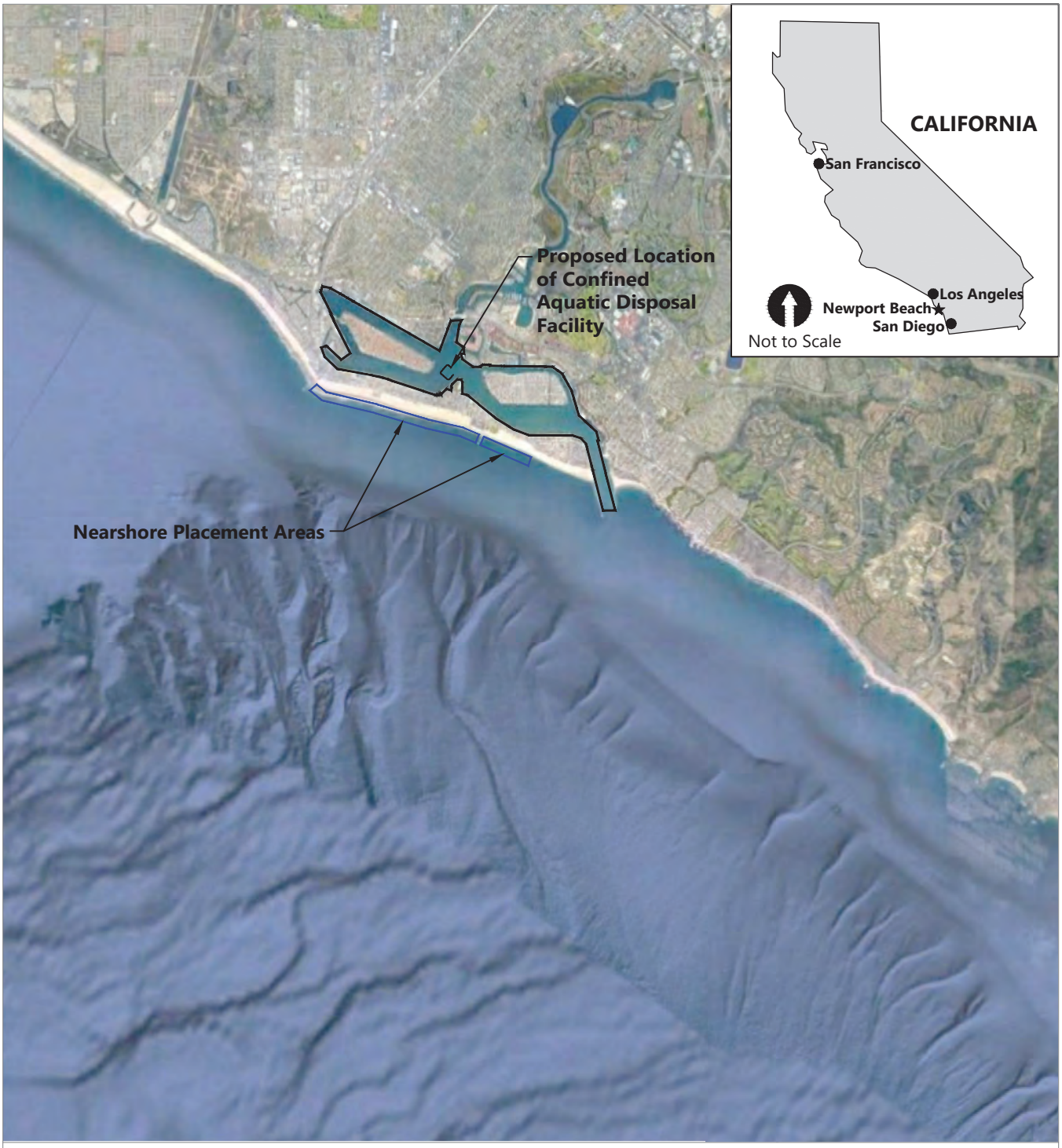

SOURCE: Image from Bing maps.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83
VERTICAL DATUM: Mean Lower Low Water (MLLW)

Approximate Project Location:
33° 36.540', 117° 54.230'

California Coastal Commission
CDP 5-21-0640
Exhibit 3 p. 30 of 32

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Miles

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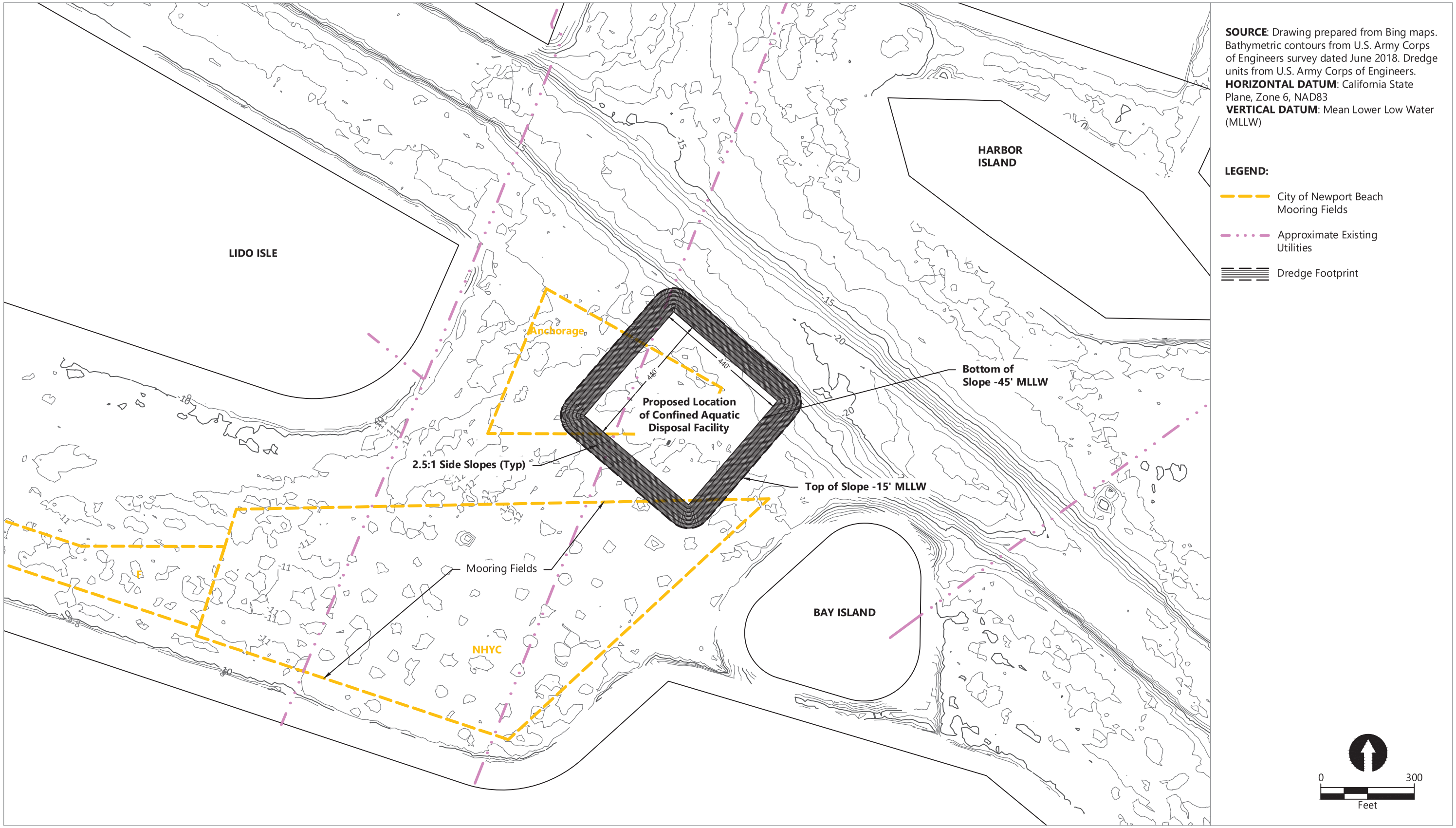
ANCHOR QEA

Figure 1
Project Site and Vicinity
Supplement
Lower Newport Bay Confined Aquatic Disposal (CAD) Construction Project



SOURCE: Drawing prepared from Bing maps. Bathymetric contours from U.S. Army Corps of Engineers survey dated June 2018. Dredge units from U.S. Army Corps of Engineers.
HORIZONTAL DATUM: California State Plane, Zone 6, NAD83
VERTICAL DATUM: Mean Lower Low Water (MLLW)

LEGEND:

- City of Newport Beach Mooring Fields
- Approximate Existing Utilities
- Dredge Footprint

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ANCHOR QEA

Figure 2
Plan View of CAD Facility
Supplement
Lower Newport Bay Confined Aquatic Disposal (CAD) Construction Project

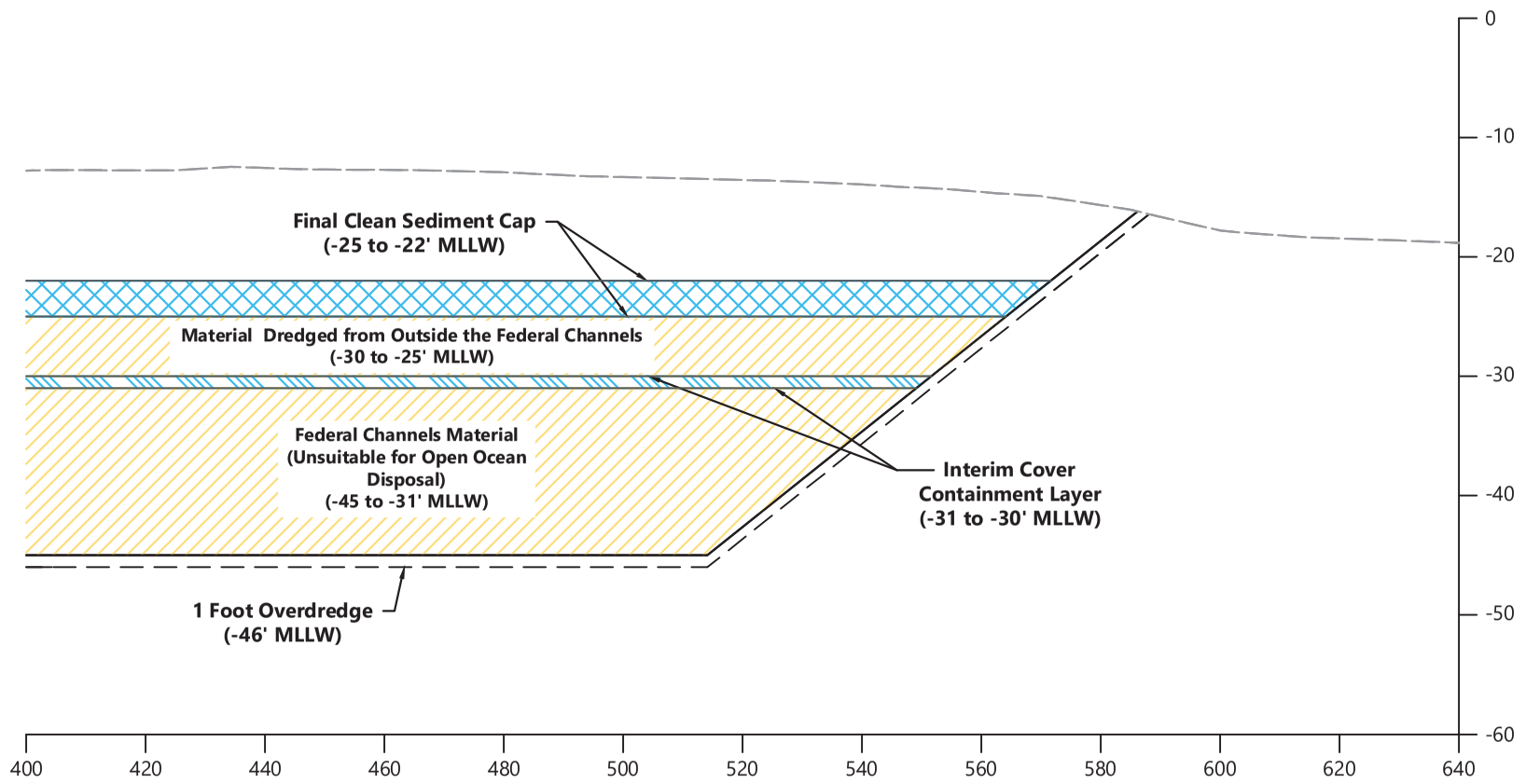
SOURCE: Ariel from Bing Maps, 2018.
HORIZONTAL DATUM: California State Plane, Zone 6, North American Datum of 1983 (NAD83), U.S. Survey Feet
VERTICAL DATUM: Mean Lower Low Water (MLLW)

LEGEND:

Required Dredge Elevation

Allowable Overdepth Elevation

Existing Mudline



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Feet

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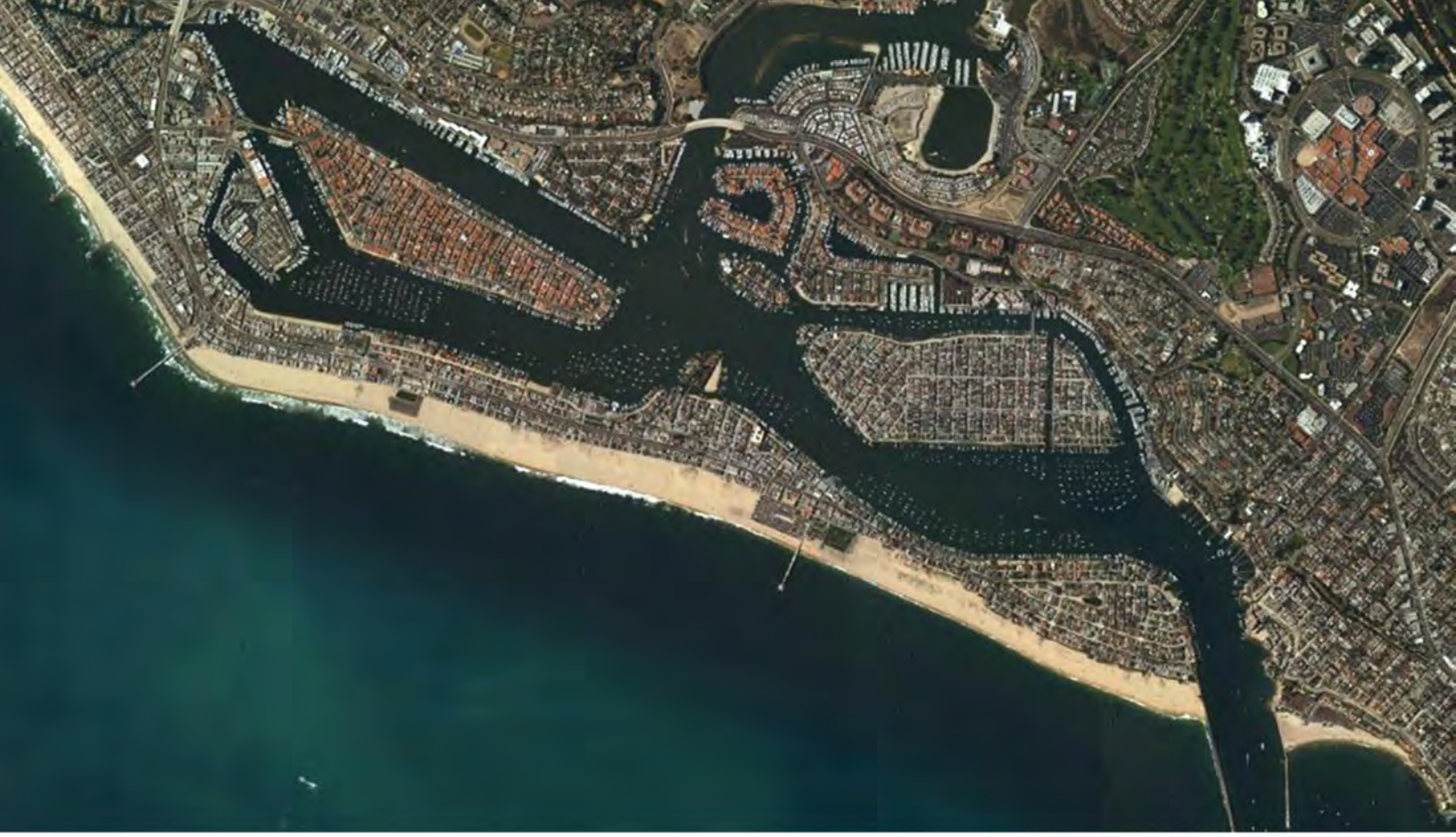
ANCHOR QEA

Figure 3
Cross Section of CAD Facility

Supplement
Lower Newport Bay Confined Aquatic Disposal (CAD) Construction Project



Revised March 10, 2022
Lower Newport Harbor Bay Federal Channels

ANCHOR QEA

Basis of Design Report
Sediment Dredging and Confined Aquatic Disposal

Prepared for City of Newport Beach

Revised March 10, 2022
Lower Newport Harbor Bay Federal Channels

Basis of Design Report
Sediment Dredging and Confined Aquatic Disposal

Prepared for
City of Newport Beach
100 Civic Center Drive
Newport Beach, California 92660

Prepared by
Anchor QEA, LLC
9700 Research Drive
Irvine, California 92618

Project Number: 180243-02.01

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ILLUSTRATIONS

FIGURES

APPENDICES

ABBREVIATIONS

µg/L	micrograms per liter
BODR	Basis of Design Report
CAD	confined aquatic disposal
CAD facility	confined aquatic disposal facility
CCR	California Code of Requirements
CEQA	California Environmental Quality Act
City	City of Newport Beach
cy	cubic yard
EIR	Environmental Impact Report
ERM	effects range median
Federal Channels	Lower Newport Bay Federal Channels
FS	factor of safety
LA-3	LA-3 Ocean Dredged Material Disposal Site
MLLW	mean lower low water
NEPA	National Environmental Policy Act
OMMP	Operations, Management, and Monitoring Plan
PCB	polychlorinated biphenyl
RGP 54	Regional General Permit 54
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers

1 Introduction

1.1 Purpose

This Basis of Design Report (BODR) was prepared by Anchor QEA, LLC, on behalf of the City of Newport Beach (City) to support the upcoming maintenance dredging efforts at the Lower Newport Bay Federal Channels (herein referred to as Federal Channels). The overall intent of the maintenance dredging is to achieve current federally authorized design depths throughout Lower Newport Bay. Figure 1-1 shows a vicinity map of Newport Beach and the project location.

Based on recent sediment suitability evaluations, most of the dredged material is suitable for offshore disposal at approved open ocean or nearshore placement sites. However, the remaining sediment is considered unsuitable for open ocean or nearshore placement and requires an alternative disposal option. Anchor QEA is supporting the City and U.S. Army Corps of Engineers (USACE) with the engineering design, environmental documentation, and development of management requirements for the material's placement and permanent confinement in a subaqueous confined aquatic disposal facility (CAD facility) within the Federal Channels.

There are no cost-effective alternatives for disposal of unsuitable sediments in southern California currently. While an upland landfill exists, its use is less practical for the following reasons:

- **Cost-benefit differential**: The total expenditure to dispose to an upland landfill is much more expensive compared to placing sediments within a CAD facility, LA-3, or the nearshore placement area due to offloading, dewatering, re-handling, transport, and disposal costs.
- **Environmental and community toll**: Hauling unsuitable sediments to an upland landfill could cause significant environmental and community effects due to the number of trucks hauling this material over city and state roadways.

Therefore, this BODR presents the basis for designing and constructing a unique solution to this problem where resources of the City and USACE are combined into one large innovative project. As a key component to this larger project, a CAD facility is constructed to contain sediment that is otherwise unsuitable for open ocean and nearshore disposal. This approach is far more cost effective than landfilling, as it requires minimal transportation costs, no tipping fees, and no need for sediment re-handling. The CAD facility is proposed near the center of Lower Newport Bay between Bay Island, Lido Isle, and Harbor Island, as illustrated in Figure 1-2. The CAD facility will be excavated to a sufficient size and depth to hold the material unsuitable for open ocean disposal from the Federal Channels.

Excavating the CAD facility will produce clean, sandy materials that can be placed at a predetermined nearshore placement area or at LA-3 Ocean Dredged Material Disposal Site (LA-3). Subsequently, sediments dredged from the Federal Channels that are not suitable for open ocean or nearshore placement will be placed within the CAD facility. This material would then be covered with clean

sediments, which can be obtained from the remainder of the Federal Channels and possibly augmented by sand from additional sources (e.g., elsewhere in Lower Newport Bay—as permitted under the City's Regional General Permit 54 [RGP 54] program—or from the Santa Ana River that borders Newport Beach and Huntington Beach, California).

Additional capacity has been included in the design to accommodate additional material from Lower Newport Bay that is not suitable for open ocean or nearshore disposal. The CAD facility will be completed and closed by placing an appropriately thick layer of clean material to function as a permanent confining cap.

1.2 Design Objective

Field studies and engineering analyses have been conducted by Anchor QEA, acting as a technical design consultant to the City and USACE, to evaluate the overall technical feasibility of this project, to investigate key technical details associated with the proposed work, to evaluate necessary design features and a feasible construction approach, and to develop and implement a permitting strategy for the various parties. Anchor QEA has prepared this BODR on behalf of the City and in close coordination with the USACE, Los Angeles District.

Key technical details that were investigated included the subsurface conditions and soil types within and near the proposed location of the CAD facility, the required size of the CAD facility, the ability of the CAD facility to provide long-term isolation of sediments, the stability of the CAD facility dredging and adjacent features, the equipment types that would be associated with the project, and the overall permitting strategy. Furthermore, numeric modeling has been used to evaluate potential scour forces acting on the various surface cap layers that will be installed, including an assessment of wind waves, storm waves, vessel wakes, and propeller wash forces from vessels passing through. All analyses have purposefully been conducted using reasonably conservative assumptions and engineering judgment to design the CAD facility to continue to function properly over the long term.

This BODR documents these analyses and their results. Construction drawings and technical specifications for the Federal Channels maintenance dredging and CAD facility will be included following further design development and once the City's California Environmental Quality Act (CEQA) environmental review process is complete.

1.3 Basis of Design Report Organization

The remaining sections of this BODR are organized as follows:

- **Section 1: Introduction**. This section describes the purpose and objectives of the BODR.
- **Section 2: Maintenance Dredging of Federal Channels**. This section describes overall site and sediment characteristics and provides an overview of the dredging requirements for the Federal Channels.

- **Section 3: Sediment Disposal Alternatives**. This section includes a feasibility review of various sediment disposal alternatives for materials both suitable and unsuitable for open ocean or nearshore placement. This includes the alternative sediment placement strategy of confined aquatic disposal.
- **Section 4: Concept for CAD Facility in Lower Newport Bay**. This section describes how a CAD facility could be constructed and managed within Lower Newport Bay and a rationale for where it should be located to minimize impacts and costs while maximizing its benefit.
- **Section 5: Design of CAD Facility for Long-Term Environmental Protection**. This section describes the technical basis for the design of the CAD facility dredging, filling, and overall protectiveness, including discussions of the following:
  - Ability of capping material to isolate contaminants of concern in underlying sediments
  - Stability of capping material against erosive forces and anchoring
  - Stability of CAD facility dredging and adjacent facilities
  - Consolidation of sediments in the CAD facility over time
  - Protection against bioturbation
- **Section 6: Engineering Analysis of CAD Facility Dredging and Filling**. This section provides information on the engineering analyses conducted as part of the design of the CAD facility.
- **Section 7: Short-Term Water Quality Impacts from Construction**. This section evaluates potential short-term water quality impacts from construction and sediment disposal.
- **Section 8: Permitting Strategy**. This section describes the permitting process for the CAD facility.
- **Section 9: Construction Sequencing and Anticipated Schedule**. This section provides information on the anticipated construction sequencing and schedule for the Federal Channels and CAD facility construction.
- **Section 10: Operations, Management, and Monitoring Plan**. This section describes the management and monitoring processes to be employed during dredging as well as long-term monitoring of the CAD facility.
- **Section 11: References**. This section provides references for the materials cited in this BODR.

The following appendices are supplemental documents to the BODR:

- Appendix A: 2019 Bathymetric Condition Survey
- Appendix B: Sampling and Analysis Program Report
- Appendix C: Utility Location Report (RES 2012)
- Appendix D: Chemical Isolation Cap Analysis
- Appendix E: Vessel Scour Analysis
- Appendix F: Geotechnical Investigations
- Appendix G: Analysis of Short-Term Water Quality Impacts During Construction
- Appendix H: Operations, Management, and Monitoring Plan

2 Maintenance Dredging of Federal Channels

2.1 Site and Project Background

Newport Bay occupies the oceanward end of the Newport Bay/San Diego Creek watershed, located in Central Orange County in the southwest corner of the Santa Ana River Basin, about 35 miles southeast of Los Angeles and 70 miles north of San Diego (Figure 1-1). The watershed encompasses 154 square miles and includes portions of the cities of Newport Beach, Irvine, Laguna Hills, Lake Forest, Tustin, Orange, Santa Ana, and Costa Mesa. Mountains encircle the watershed on three sides; runoff from these mountains drains across the Tustin Plain and enters Newport Bay via San Diego Creek.

Newport Bay is a combination of two distinct waterbodies, Lower and Upper Newport Bay, that are divided by the Pacific Coast Highway Bridge. Most of the commercial and recreational boating occurs in Lower Newport Bay, which is highly developed. Upper Newport Bay has a diverse mix of development in its lower reach and an undeveloped ecological reserve in its upper reach.

2.2 Navigational Needs and Authorized Depths in the Federal Channels

The USACE is responsible for maintaining authorized navigation depths for navigational purposes within federally defined channels in Lower Newport Bay. Figure 2-1 illustrates the authorized limits and depths of the Federal Channels, which have been subdivided into different areas (dredge units) based on historical nomenclature, anticipated dredge volumes, and sediment suitability for open ocean disposal. Authorized design depths within the Federal Channels range from -10 to -20 feet mean lower low water (MLLW;). Table 2-1 includes information on the authorized depths for dredge units proposed for dredging as part of the Federal Channels dredging program.

Table 2-1
Authorized Depths for Dredge Units within the Federal Channels

Federal Channels Dredge Unit	Authorized Depth (feet MLLW)
Entrance Channel	-20
Main Channel North 1 through 5	-20
Turning Basin	-20
Bay Island Area	-15
Newport Channel 1 through 3	-15

Note:
1. Areas within the Federal Channels that are authorized to -10 feet MLLW are not proposed for maintenance dredging.

2.3 Previous Dredging and Disposal Activities

In 2009, in preparation for maintenance dredging activity in Lower Newport Bay, the USACE commissioned a dredged sediment evaluation for nine federal channels within Lower Newport Bay to determine their suitability for open ocean disposal at LA-3 (Newfields 2009). After reviewing this evaluation, the Dredged Material Management Team determined that most sediments from the Federal Channels were suitable for ocean disposal except those representing portions of Main Channel North, Bay Island Middle (below -13 feet MLLW), and Balboa Channel due to elevated mercury concentrations. In 2012 and 2013, large portions of the Federal Channels were dredged to depths of -10 to -17 feet MLLW. Sediment unsuitable for open ocean disposal was placed at the Port of Long Beach's Middle Harbor Fill Site, and the remaining majority of dredged sediment was placed at LA-3.

2.4 Current Maintenance Dredging Needs

Updated harbor-wide multibeam surveys were performed by the USACE in July 2019 (Appendix A). The resulting data were processed to generate a bathymetric map which indicates that dredging is required in multiple areas to achieve authorized design depths, as summarized in Figure 2-1.

Areas that require the most dredging include the Entrance Channel, Main Channel North 1 through 5, Bay Island Area, Turning Basin, and Newport Channel 1 through 3 (Figure 2-1). Dredging each of these areas is estimated to result in the sediment volumes summarized in Table 2-2, which includes dredging to the authorized design depths, plus 2 feet of overdredge allowance.

Because most of the Turning Basin is already at design depth, only the shoaled spots around the periphery of the Turning Basin are proposed for dredging. Therefore, a design depth of -19 feet MLLW, plus 2 feet of overdredge allowance, is applied for the Turning Basin.

Table 2-2
Estimated Dredging Volumes and Suitability for Ocean or Nearshore Placement

Federal Channels	Design Depth (feet MLLW)	Estimated Volume to Design Depth (cy)	2-Foot Overdredge Allowance Volume (cy)	Total Volume (cy)	Suitable for Open Ocean Disposal (cy)	Not Suitable for Open Ocean Disposal or Nearshore Placement (cy)
Entrance Channel	-20	51,700	19,200	70,900	70,900[1]	0
Main Channel North 1	-20	36,600	26,600	63,200	43,200	20,000
Main Channel North 2	-20	37,600	23,200	60,800	40,400	20,400
Main Channel North 3	-20	44,600	38,800	83,400	83,400	0
Main Channel North 4	-20	28,300	26,700	55,000	55,000	0
Main Channel North 5	-20	50,200	39,600	89,800	89,800	0
Turning Basin	-19	5,200	14,300	19,500	0	19,500
Bay Island Area	-15	210,900	135,900	346,800	346,800	0
Newport Channel 1	-15	28,300	18,700	47,000	0	47,000
Newport Channel 2	-15	85,800	39,600	125,400	125,400	0
Newport Channel 3	-15	54,200	24,600	78,800	78,800	0
Totals		**633,400**	**407,200**	**1,040,600**	**933,700**	**106,900**

Notes:
All volumes include 3H:1V perimeter side slopes.
Volumes are based on the June 2018 conditional survey conducted by the USACE for the City.
1. Suitable for nearshore placement and open ocean disposal

2.5 Suitability of Sediments in Federal Channels for Open Ocean or Nearshore Disposal

In December 2017, the City—as the local sponsor—initiated a sediment characterization study to determine the suitability of proposed dredged sediment from the Federal Channels for open ocean disposal at the LA-3 offshore disposal site. Sediment from the Entrance Channel was also evaluated to determine compatibility for nearshore placement at beaches north of the harbor entrance and up to the Santa Ana River.

Sediments from the Federal Channels were characterized in 2018 and 2019 (Anchor QEA 2019). Sediment sampling locations and corresponding core logs are included in the *Sampling and Analysis Program Report* (Anchor QEA 2019), which is provided as Appendix B. In general, the sediment to be removed from the Federal Channels consists of silts underlain by silty sands. Trace shells were encountered in the silty sand layer.

Grain size analysis was conducted on composited samples within each dredge area to provide information on the physical characteristics of the sediments. In general, composited sediment from the areas sampled consisted primarily of fines (68.6% to 98.2% silt and clay) except for the Entrance Channel (98.1% sand).

Chemical testing of the sediments indicated multiple contaminants of concern, including mercury, DDTs, and polychlorinated biphenyls (PCBs). Areas of the Federal Channels with elevated concentrations include the following:

- Mercury exceeded the effects range median (ERM) value in sediment from the Turning Basin; Main Channel North 1, 2, and 3; and Newport Channel 1.
- Total DDTs exceeded the ERM value in all areas except the Entrance Channel.
- Total PCBs exceeded the ERM in the Turning Basin.

Based on the Dredged Material Management Team's review of sediment chemistry results and effects-based testing (i.e., toxicity and bioaccumulation), sediments from Main Channel North 3, 4, and 5, Bay Island Area, Newport Channel 2 and 3, and the Entrance Channel were deemed suitable for open ocean disposal (Figure 1-2). Grain size of the Entrance Channel and proposed nearshore placement area (Newport Pier to the West Newport Jetty) were similarly evaluated to determine compatibility, indicating that sediments from the Entrance Channel are also suitable for nearshore placement.

However, due to elevated concentrations of mercury and/or PCBs, the Turning Basin, portions of Main Channel North 1 and 2, and Newport Channel 1 were deemed not suitable for open ocean disposal (Figure 1-2). These sediments require an alternate disposal option where the sediments are

sufficiently isolated from contact with marine organisms. Table 2-2 includes the estimated volumes of sediments suitable and unsuitable for open ocean disposal within the Federal Channels.

2.6 Existing Utilities

Ten utilities were identified during past dredging projects within Lower Newport Bay. Existing utilities include cable and water that traverse locations where Federal Channels maintenance dredging will occur. The City has been working with AT&T and Southern California Edison to remove all de-energized cables that lie within the footprint of the Federal Channels maintenance dredging. It is anticipated that these cables will be removed during the Federal Channels maintenance dredging. Table 2-3 includes a list of the known utilities within the Federal Channels maintenance dredging footprint identified by the dredging contractor prior to the 2012 Federal Channels dredging program (Appendix C). Prior to the Federal Channels dredging, the contractor will be required to conduct a new utility locate investigation.

Table 2-3
Existing Utilities Within the Federal Channels Maintenance Dredging Footprint

Utility Company	Utility Type	Location in Federal Channels
Southern California Edison	Cable	Newport Channel 2
AT&T	Cable	Bay Island Area
AT&T	Cable	Bay Island Area
City	Water	Main Channel North 2
Southern California Edison	Cable	Bay Island Area
AT&T	Cable	Main Channel North 4
AT&T	Cable	Main Channel North 4
City	Water	Main Channel North 4
City	Water	Main Channel North 5
AT&T	Cable	Main Channel North 5
Southern California Edison	Cable	Entrance Channel

Note:
Further information is provided in Appendix C to the BODR.

3 Sediment Disposal Alternatives

The project originates from the need to identify a cost-effective solution for the disposal of suitable and unsuitable sediments in Federal Channels. Past maintenance dredging efforts included the combination of ocean disposal, nearshore placement, and disposal of unsuitable sediment at a fill site located in the Port of Long Beach, California. Unfortunately, this fill site is not an option for this round of maintenance dredging and thus other cost-effective options need to be considered. Disposal alternatives evaluated for the project are discussed in Sections 3.1 and 3.2.

3.1 Sediments Suitable for Open Ocean or Nearshore Placement

3.1.1 Open Ocean Disposal

Based on the sediment characterization described in Section 2, select sediment from Main Channel North1 and Main Channel North 2 and all sediment in the Entrance Channel, Main Channel North 3, Main Channel North 4, Main Channel North 5, Bay Island Area, Newport Channel 2, and Newport Channel 3 are suitable for open ocean disposal (Table 2-2; Figure 1-2). These sediments underwent testing per the *Evaluation for Dredged Material Proposed for Ocean Disposal: Testing Manual* (USEPA and USACE 1991).

Open ocean disposal is a cost-effective alternative that is widely used at maintenance dredging projects in southern California. Because ocean-disposed dredged sediment does not require a re-handling step, sediment can be dredged and placed directly into a bottom-dump barge, hauled to one of several U.S. Environmental Protection Agency-managed open ocean disposal sites, and discharged. The closest open ocean disposal location to Newport Harbor, located approximately 6 miles to the south (Figure 1-1) from the Entrance Channel, is the LA-3 offshore placement site.

3.1.2 Beneficial Reuse

Promoting beneficial reuse of dredged sediment is considered a national goal of the resource agencies. Beach renourishment, frequently used by USACE in southern California, is one example of sediment reuse, but other possibilities include the use of dredged sediment in the development or manufacturing of commercial, industrial, horticultural, agricultural or other products. Reuse of dredged sediment can be categorized into the options presented in Table 3-1.

Table 3-1
Typical Options for Dredged Sediment Reuse

Description	Example
Landfilling	Daily cover
Landscaping	Grading/topsoil
Agricultural	Amendment to farms
Reclamation	Mines/quarries/brownfields
Engineered fill	Parking lots/roads/embankment

Many of the options in Table 3-1 require additives and/or treatment of the sediment, at least one re-handling step, and significant amounts of available area for the processing equipment and sediment stockpiling. There are also many processing technologies that can be used to increase the suitability of dredged material, particularly for materials that are impacted to some degree by contaminants of concern, including the following:

- Sand separation (hydrocyclones)
- Composting (biosolids or cellulose)
- Solidification/stabilization (e.g., cement, lime, fly ash)
- Soil washing (BioGenesis)
- High-temperature thermal treatment (e.g., Ecomelt, lightweight aggregate, bricks)

Typically, such approaches have proven to be cost-prohibitive for projects of this magnitude because they require the construction of large treatment facilities on site to process the material. This is particularly problematic in Lower Newport Bay, a densely populated public/private harbor where readily available upland space immediately adjacent to the harbor shoreline is extremely limited or nonexistent.

3.1.3 Beach Nourishment

Beach nourishment can be a more practical use case than the reuse options listed above in Table 3-1 for Lower Newport Bay sediments that are free of chemical contaminants and have comparable grain size and aesthetic characteristics to that of the beach under consideration. Sandy sediments with appropriate characteristics can be placed on eroding beaches or in nearshore areas to widen, build-out, and/or protect the ocean-facing beach areas.

Based on the sediment characterization for the Federal Channels maintenance dredging, sandy sediment from the Entrance Channel has chemical and physical characteristics deemed as suitable for nearshore nourishment.

3.2 Sediments Not Suitable for Open Ocean or Beach/Nearshore Placement

Options exist for disposing of sediments that are determined not suitable for open ocean disposal, including upland landfill disposal and confined aquatic disposal. These options range in application and associated costs and are discussed in further detail in Sections 3.2.1 and 3.2.2.

3.2.1 Upland Landfill Disposal

For sediments that do not qualify for open ocean disposal, beneficial reuse, or beach nourishment, more costly disposal scenarios must be considered. One commonly used alternative is to haul the sediment to an upland permitted landfill facility. Two factors to consider in determining the suitability of a specific permitted landfill for disposal of dredged sediment are the concentration of contaminants in the sediment and the total quantity of sediment to be disposed. In addition, the dredged sediment disposed at a landfill typically needs to pass the "paint filter" test, which requires that the sediment must be sufficiently dewatered after dredging to prevent drainage during transport and to minimize excess infiltration during disposal.

The concentration of contaminants in dredged sediment determines its waste type and therefore the class of landfill that can accept the material. In California, landfills are identified as Class I, II, or III:

- Class I landfills can accept materials that are classified by the State of California as hazardous wastes under Title 22 of the California Code of Requirements (CCR).
- Class II landfills are similar in design to Class I landfills but accept only designated waste that has been determined to be below hazardous waste criteria concentrations.
- Class III landfills can accept sediment with relatively lower concentrations of contaminants depending on the individual landfill design and location. Each Class III site operator must maintain a certification with the California State Integrated Waste Management Board specifying the facility's waste acceptance criteria and testing requirements in accordance with applicable state and federal discharge regulations.

Sediments in the Federal Channels that are not suitable for open ocean disposal meet the qualifications for disposal at a Class III landfill. This alternative, however, is very expensive for several reasons. First, the sediment must be dewatered prior to transport in order to meet the paint filter test. The dewatering can be accomplished either actively using a mechanical dewatering device (e.g., belt presses, centrifugation, hydro cyclones, or via additives) or passively by constructing a large containment area to hold the sediment until the water evaporates or drains. Next, the sediment must be trucked or shipped via truck or railcar to the landfill. Lastly, the sediment would be subjected to a tipping fee similar to any other waste product that the landfill receives.

Costs, while high, are not the only perceived disadvantage of upland landfill disposal for Federal Channels sediments unsuitable for open disposal. A potentially more significant factor on the greater public is the effect of numerous truck hauling trips, carrying chemically impacted sediments, over City streets and roads for an extended period of time. This activity will pose impacts on noise, emissions, traffic, public street use, and increased wear and tear on road surfacing. For example, at 12 cy per truck, approximately 8,900 truck trips would be required to dispose Federal Channels sediments unsuitable for open ocean disposal without factoring any bulking by the addition of sediment additives for dewatering purposes. Furthermore, about 1 to 2 acres will need to be set aside for the project duration to allow for transfer of sediments onto land, their stockpiling, dewatering and drying, water treatment, truck staging, and placement into the trucks; the Lower Newport Harbor area does not currently have any areas well suited to this purpose.

3.2.2 Alternative Sediment Placement Strategy: Confined Aquatic Disposal

Because of the high costs and environmental impacts associated with upland landfill disposal, an alternative management strategy is desirable for Lower Newport Bay sediments that are not otherwise suitable for open ocean disposal, reuse, or beach placement. The City therefore has committed to evaluating potential alternative disposal techniques and locations.

Sediment disposal guidance for the region is available, as contaminated sediment management options in southern California have been studied thoroughly and documented in two key regional documents: the Los Angeles Contaminated Sediments Task Force Long-Term Management Strategy (CSTF 2005) and the Los Angeles Regional Dredged Material Management Plan (Everest and Anchor QEA 2009). These documents address not only the sediment disposal options already discussed in this section, but also the application of a novel (but not unprecedented) strategy: the use of confined aquatic disposal.

Development of a CAD facility has been shown to be an effective long-term management solution for chemically impacted sediment under the right set of conditions. A CAD facility is constructed underwater by excavating a depression into the existing seabed into which sediment can be placed, and then it is capped with a sufficient type and thickness of clean material (e.g., imported sand or dredged sediment) to keep the underlying sediments permanently isolated from the environment.

The CAD facility concept has been used successfully locally, including the following projects listed below in southern California over the last 20 years:

- At Port Hueneme, which was jointly developed by the U.S. Navy, the USACE, and the Oxnard Harbor District
- At the City of Long Beach (North Energy Island Borrow Pit)

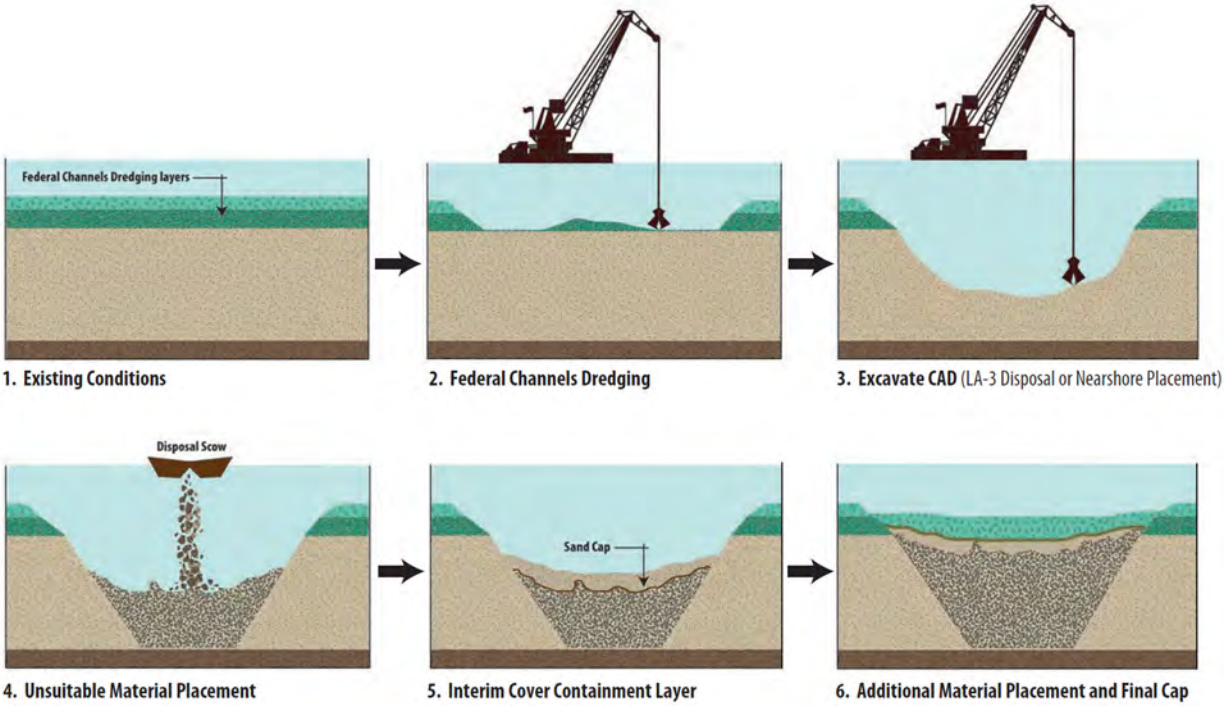
In addition, multiple CAD facilities have been constructed across the country—including harbors in Boston, Massachusetts; Providence, Rhode Island; the Puget Sound Naval Shipyard in Bremerton, Washington; the St. Louis River–Duluth Tar Site, Duluth, Minnesota—and internationally (e.g., a Hong Kong airport; Fredette 2005).

In 2009, the City performed a Feasibility Study for dredged sediment and determined that constructing a CAD facility in Lower Newport Bay was the most cost-effective alternative for managing the City's contaminated sediment (Anchor QEA 2009). In addition, CAD facilities are viewed favorably by regulatory agencies as potential alternatives for management of chemically impacted sediments. Lower Newport Bay offers a unique opportunity to develop a CAD facility in large part for the following reasons:

- Newport Harbor is large enough to accommodate such an approach.
- The sediment that would be removed to create the confined aquatic disposal depression appears to be a good match for nearby beaches—which are in need of nourishment—and would provide a low-cost disposal alternative for suitable sands dredged from within the CAD facility.

This alternative also has the advantage of requiring no rehandling, as unsuitable dredged sediments can be placed directly into a bottom-dump haul barge, moved over the CAD facility, and dropped into the depression, similar to the process that would be used for open ocean disposal (and with a much smaller transportation distance). It provides a cost-effective solution for otherwise unsuitable dredging sediment required to be dredged from the Federal Channels by greatly shortening the sediment haul distance.

Illustration 1
CAD Construction Overview



4 Concept for CAD Facility in Lower Newport Bay

As discussed in Section 3, of the disposal options introduced for otherwise unsuitable sediments, the CAD facility alternative has the greatest potential to be cost effective and environmentally appropriate for Lower Newport Bay. Its cost effectiveness results primarily from the negligible sediment haul distance, the fact that no sediment pretreatment is necessary, and the lack of landfill tipping fees. Furthermore, costs for dredging of the CAD facility can be partially lessened by the reuse of dredged sediment (as appropriate) for a nearby nearshore placement location in Newport Beach.

The basic concept for the CAD facility is that it be excavated to a selected depth and size and then be filled with sediments dredged from the Federal Channels that are not suitable for open ocean or nearshore disposal. These sediments would be overlain by a cap layer consists of clean material that is intended to permanently isolate the underlying sediments from the waters of Newport Bay and the environment.

In order to increase the benefits of the CAD facility for the Newport Beach community, the City also intends to provide additional capacity for subsequent placement of materials dredged from other locations within Lower Newport Bay, which are also unsuitable for open ocean or nearshore disposal. The CAD facility would thereby accommodate additional fill volume from future maintenance dredging projects conducted as part of the City's RGP 54 program as well as sediment that is not covered as part of the program and thus requires an alternative disposal option. At this stage of the design, the City considers 50,000 cy to be a reasonable target capacity for this nonfederal sediment.

During the time that the CAD facility is open (i.e., during placement of the unsuitable material in the CAD facility), the City and its residents would have an initial opportunity to place material dredged from outside the federal navigation channels into the CAD facility; this would be permitted through either the City's RGP 54 program or through an Individual Permit.

Approximately 2 years following construction of the CAD facility and placement of an interim cover containment layer, there would be a second opportunity during a 6-month period for the City and its residents to place material determined unsuitable for unconfined ocean disposal in the CAD facility. The combined total allowance for the initial and second opportunity would be 50,000 cy. If there is remaining capacity (within this 50,000 allowance) at the end of this 6-month period, the City and its residents would be able to place material from the RGP 54 Plan Area determined suitable for unconfined ocean disposal in the CAD facility. This opportunity would provide a more cost-effective and convenient disposal location within the harbor and would bolster the CAD facility's final cap layer.

Figure 4-1 depicts a cross section of the CAD facility concept. The final elevation of the CAD facility infill would be restricted to an elevation that is at or below the water depths necessary for navigation within the harbor.

4.1 Determination of Suitable CAD Location in Lower Newport Bay

Potential CAD facility locations were selected based on preliminary feedback from the City's Harbor Commissioners. The Harbor Commissioners recommended siting the CAD facility next to or within locations where sediment was determined unsuitable and would require placement in the CAD facility. While the recommendation was integral to the siting process, other factors were evaluated that included analysis of geotechnical data to demonstrate CAD facility excavation compliance with current engineering standards and practices, suitability of material for beneficial reuse, feasibility to design and construct the CAD facility based on the volume of sediment to be managed in the CAD facility, logistics during construction, disruption to existing harbor moorings, anchorages, navigation and the public, and public outreach.

The open and relatively large area near the center of Lower Newport Bay—between Lido Isle, Bay Island, and Harbor Island—appears best suited to a CAD facility, as it provides a sufficiently large area in which to excavate the CAD facility and fill it with the appropriate volumes of sediment and capping material. Figure 4-2 shows a plan view of the proposed location and its relation to surrounding harbor features. Additional factors that led to the selection of this location for the CAD facility include its relatively central location within Lower Newport Bay and proximity to the Main Channel, reducing overall transit distances for dredged sediments and providing access for deeper water that allows the barges to be filled to their capacity. This in turn reduces construction duration, costs, and emissions from barge travel due to tugboat operations.

Figure 4-2 shows a plan view of the CAD facility and existing mooring fields and anchorage area used for temporary, short-term anchoring only. The City would coordinate with the public if any vessels within the public mooring area require relocation during construction. In addition, it is anticipated that the anchorage area would be temporarily relocated to the Turning Basin during construction as the City previously did during 2012 Federal Channels dredging.

One known utility (Southern California Edison 12Kv Submarine Cable) requires removal to facilitate the dredging of the CAD facility. The submarine cable, presumed to be currently de-energized, would be removed prior to or during construction of the CAD facility.

The next step is to develop the appropriate scientific and engineering design details for the CAD facility to fully and permanently isolate sediments unsuitable for open ocean disposal from the environment and to avoid any disruptions to the ongoing and future uses of Lower Newport Bay. The evaluation of these details, which results in the fill thicknesses and elevations depicted in Figure 4-1, are the subject of Section 5.

5 Design of CAD Facility for Long-Term Environmental Protection

Section 5 describes the various scientific studies and engineering analyses that were conducted to evaluate and design a permanent cap layer for a CAD facility in Lower Newport Bay that would allow it to physically contain and chemically isolate sediments unsuitable for open ocean disposal. This section also details the development of engineering design elements that are essential for the long-term environmental protectiveness of a CAD facility situated in Lower Newport Bay. A properly designed capping layer—to provide long-term isolation of underlying chemically impacted sediments—requires consideration of several factors and must follow established national standards for CAD facility design and use. In particular, the USACE has published guidance on designing CAD facilities and cap layers to permanently isolate chemically impacted sediments from overlying waters and the environment (Palermo et al. 1998a, 1998b).

The following subsections describe scientific and engineering evaluations involving long-term environmental isolation of sediments below a material cap:

- **Section 5.1** discusses potential erosive forces acting on the CAD facility's surface from the movements of vessels and mooring anchorages in Lower Newport Bay.
- **Section 5.2** discusses protection against bioturbation from burrowing organisms and biota residing in the overlying water column under long-term scenarios.
- **Section 5.3** discusses modeling analyses conducted to predict the ability of surficial capping sediment to chemically isolate the underlying sediments.
- **Section 5.4** integrates the previously described analyses to develop the selected design of the environmentally protective final cap layer and considers possible material sources for the final cap layer.
- **Section 5.5** presents an overview of studies of regional and underlying groundwater aquifers and their positions and depths relative to the CAD facility, focusing on the CAD facility's overall protectiveness of existing groundwater resources.

5.1 Protection Against Physical Disturbance

Vessels travelling over the proposed CAD facility produce propeller-generated currents (i.e., propeller wash) whose magnitude at the seabed depends on vessel characteristics and water depths. Vessels with larger operating power and propeller size in combination with shallower water depths would result in relatively larger forces upon the seabed. As a result, exposure to propeller wash may scour the CAD facility surface material, depending on the sediment properties, tide conditions, and vessel characteristics. This section summarizes the evaluation of the physical stability of the CAD facility surface under various elevations to better understand how vessels may impact the CAD facility's cap.

5.1.1 Propeller Wash

A propeller wash scour model was used to estimate scour depths from propeller wash and evaluate impacts to the CAD facility's surface physical stability and thickness.

Propeller wash scour depths were estimated at three elevations—interim cover containment layer at -30 feet MLLW, material outside the Federal Channels at -25 feet MLLW, and final cap layer elevation at -22 feet MLLW—that are intended to represent a range of fill and cap elevations within the CAD facility. Representative sediment properties were determined based on sediment data (collected in 2013 and 2019) from the proposed cap sources (Anchor QEA 2013, 2018, and 2019). Hydrodynamic conditions based on water levels were evaluated using representative tide conditions (i.e., mean higher high water and MLLW) and one extreme condition (i.e., lowest observed water). Commonly used vessels in Lower Newport Bay were analyzed and included the following:

- Sailboats (50- and 70-feet)
- Tugboat
- Charter boat (e.g., Hornblower)
- Powerboats (90- and 135-feet)

Vessel characteristics from the list above were used to calculate propeller wash velocities, including vessel draft, propeller diameter, and operating power. For the top of each fill and cap layer in the CAD facility, combinations of water levels and vessel operating power were used to provide a range of propeller wash velocities. The corresponding scour depths were then estimated based on the properties of the fill surface existing in the CAD facility at that point.

At an elevation of -25 feet MLLW—the surface of the layer with a combination of sediments under the City's RGP 54 program, along with sediment not covered as part of the City's RGP 54 program—propeller-induced scour depths will be negligible for vessel operations at 25% power. At 50% power, the scour depth is estimated to be 0.1 foot during low tide conditions when water levels are less than 0 foot MLLW. Over the duration of the material placements for this layer, impacts from vessel traffic over the proposed CAD facility are expected to be minimal.

Initially, material placement will have negligible impacts from propeller wash due to the deeper water depths and likely remain negligible most of the time. Propeller-induced scour depths of about 0.1 foot could start occurring at the completion of the interim cover containment layer. After the designed elevation for this layer is achieved, the CAD facility surface will be stable given the relatively small scour depths. Impacts to this layer from vessel traffic may be minimized by limiting the time between completion of this layer and placement of the final cap layer.

Maximum scour depths of the final cap layer are estimated to range from 0.1 to 0.3 foot, which occur at water levels less than 0 foot MLLW. Vessels that may impact the final cap layer include the tugboat, charter boat, 90-foot powerboat, and 135-foot powerboat.

Full details of the scour analysis are provided in Appendix E.

5.1.2 Anchoring Does Not Permanently Affect CAD Facility Surface

The proposed CAD facility would be located near the Newport Harbor Yacht Club mooring area and within a portion of the harbor's anchorage area between Lido Island and Bay Island, so it is expected that vessel anchoring will occur within the CAD facility and capped area footprint. Private vessels anchoring in this area of Lower Newport Bay are likely to penetrate up to one foot into the seabed. However, repeated anchoring events of this sort over time are not considered to cause any permanent effect on the cap integrity. As described in the *Guidance for Subaqueous Dredged Material Capping* (Palermo et al. 1998a), for areas traveled by recreational vessels such as Lower Newport Bay, the impact area from anchoring tends to be relatively small, and after anchors are removed, the area disturbed by the anchor is quickly filled back in by surrounding clean cap sediments and new accumulation.

In the short-term temporary timeframe, individual anchoring events will only disturb the uppermost portion of the cap. Previous studies of ship anchoring (Maushake 2013; Anchor QEA 2016a) have shown that even for vessels much larger than those typically anchoring in Lower Newport Bay (e.g., a 960-foot cargo ship with a 18,000-pound AC-14 anchor), the anchors are only likely to penetrate approximately 2 feet into the seabed, significantly less than the planned cap thickness for the CAD facility in Lower Newport Bay. In reality, the smaller vessels in Lower Newport Bay use smaller anchor types (Ultra anchors; up to 350 pounds), which penetrate more shallowly into the seabed surface.

5.2 Protection Against Bioturbation

In soft bottom marine substrates, bioturbation is the mixing and overturning of sediments caused by organisms residing in the sediments (i.e., benthic organisms). Consistent with Palermo et al. (1998a, 1998b), cap thickness design needs to include a component of thickness that is sufficient to prevent substantial bioturbation of sediments underlying the cap. As such, a cap intending to isolate sediments unsuitable for open ocean disposal should have a thickness greater than or equivalent to the depth where the future bioturbation rate is expected to be close to zero.

A common method of estimating the lower extent of bioturbation (to determine adequate cap design thickness) is to examine those organisms present or likely to be present at the site and identify the deepest burrowers. Applying the most extreme estimate of burrowing depth for a given location tends to be an overly conservative approach because many burrowing organisms are primarily suspension feeders that do little to mix or churn the sediment on a continual basis.

In terms of relative abundance, diversity, and biomass, the majority of benthic organisms reside in the upper 4 to 6 inches of the surface sediments (Berner 1980), which is commonly referred to as the mixed zone. Bioturbation is expected to decrease rapidly below the mixed zone and approaches zero at greater depths where it is so sporadic or infrequent that it is inconsequential and immeasurable.

Although uncommon, in some situations, a small amount of mixing may occur at greater depths because some organisms burrow in sediments deeper than 6 inches. Ghost shrimp (*Neotrypaea californiensis*) and other shrimp of this genus are known to burrow to considerable depths in sediments. However, the preferred habitat for dense beds of ghost shrimp is sandy or muddy intertidal to extremely shallow subtidal estuarine bays. The proposed final cap layer for the CAD facility would be more than 20 feet deep, well below the preferred depth range for burrowing ghost shrimp. Existing regional information collected during 12 years of monitoring at a similar CAD facility in Long Beach indicates that a genus of *Neotrypaea* was present, but only in very low densities (about 1 per 10 square feet), and their presence on the cap did not result in burrows deep enough to affect the integrity of the final cap layer (Anchor QEA 2016b).

Altogether, these factors suggest that substantial bioturbation by ghost shrimp is not expected at the proposed CAD facility location. For the CAD facility proposed at Lower Newport Bay, a more appropriate design depth for bioturbation is estimated as 6 inches where most benthic organisms reside.

5.3 Protection Against Chemical Breakthrough

Chemical isolation modeling was conducted following U.S. Environmental Protection Agency and USACE guidance to simulate the transport of mercury, DDTs, and PCBs through the final cap layer (Palermo et al. 1998a). Model simulations were performed to assess the performance of the cap over a 100-year period. Model-predicted concentrations 6 inches below the surface of the final cap are predicted to remain below the porewater criteria (California Toxics Rule for porewater) and sorbed phase criteria (ERM) for more than 100 years. The model used to evaluate the performance of the interim and final caps and the results are presented in Appendix D.

5.4 Selection and Rationale for Final Cap Layer Material and Thickness

Results of the previously presented analyses indicate the following thickness requirements for the cap layers:

- Up to 0.3 foot (3.6 inches) to protect against scour disturbance from vessel prop wash
- Six inches to protect against bioturbation
- Successful prevention of chemical breakthrough at a depth below the anticipated scouring depth

For the final cap layer, an additional 2 feet of thickness would be included, so that the specified thickness is 3 feet (36 inches). This is significantly greater than the minimum cap thickness required per the analyses conducted, thus providing additional distance between benthic organisms and the underlying sediment and an environmentally conservative, purposefully overdesigned approach to the final cap layer design. Additional overdesign features, such as additional cap thickness, could be readily incorporated initially or in the future, if appropriate.

It is expected that the final cap layer could be sourced from various locations within Lower Newport Bay, including Newport Channel 3 and the Entrance Channel. As such, analyses were conducted using the physical and chemical characteristics at both locations, and each location was determined as a suitable source for the final cap layer. Other potential sources exist, including clean sediments dredged under the City's RGP 54 program or future maintenance dredging efforts at Santa Ana River, though additional analyses would be required prior to approving these as appropriate cap sources.

5.5 Protection of Existing Groundwater Resources

The area of the planned CAD facility was evaluated for its proximity within and/or above significant groundwater sources and aquifers. The interpretation of the hydrogeology of the area was based on previous studies conducted at sites around Newport Beach and regionally.

The main source of groundwater in Orange County is the Main Groundwater Basin, which covers approximately 350 square miles and lies primarily under the Lower Santa Ana River Watershed. However, near the coast at Lower Newport Bay, most of the groundwater wells are in the surrounding area to the north and east of Newport Beach. The local groundwater regime in and around Lower Newport Bay does not have significant aquifers with the capability of producing more than a small amount to a domestic well or stock watering well (COCWMA 2012). Furthermore, the surrounding area of Orange County extracts groundwater from an aquifer that lies at depths of as much as 180 feet below the area, which is well below the depth of the proposed CAD facility.

The lack of groundwater production and use in the Lower Newport Bay area, and the relative depth of the aquifer in the region, suggest that the CAD facility would not affect groundwater resources. The lack of actively used aquifers and the relative depth of the Orange County main groundwater basin also suggest that negligible groundwater upwelling is expected in and through the CAD facility.

6 Engineering Analysis of CAD Facility Dredging and Filling

The following subsections describe the engineering analyses conducted as part of the design of the Lower Newport Bay CAD facility:

- **Section 6.1** discusses the physical and geotechnical properties of materials in which the CAD facility would be situated and the material's apparent suitability for beach placement.
- **Section 6.2** describes the selection of a stable angle of inclination for the CAD facility.
- **Section 6.3** discusses the process of filling the CAD facility with sediments and considerations related to the material's compression and stability.
- **Section 6.4** combines the results of the preceding analyses to determine target dimensions and depths of the CAD facility, as necessary, to contain the required volume of sediment and cap layers.

6.1 Sediment Types to be Dredged to Create CAD Facility

The local geology of Newport Bay consists of crystalline granular soils overlain by sequences of more recently deposited alluvial, fluvial, and marine sediments, which are the typical targeted materials for dredging activity. Myriad studies of subsurface conditions have been conducted over the past 15 years near the proposed location for the CAD facility, including the following:

- Geotechnical investigation in 2005 at Bay Island for a proposed seawall rehabilitation project
- Geotechnical investigation in 2009 for CAD facility locations during the feasibility stage of the project: Borings were conducted in Newport and Main Channel
- Sediment sampling in 2018 and 2019 to below the design depth of the Federal Channels limits to determine the extent of the non-native and native sediment

Locations of the geotechnical investigations and sediment sampling within the footprint of the CAD facility are shown in Figure 6-1. Sections 6.1.1 through 6.1.3 provide summaries of the three investigations and their findings. Detailed reports from each investigation event are provided in Appendix F.

6.1.1 2005 Bay Island Seawall Geotechnical Investigations

Bay Island is an island southwest of the proposed location for the CAD facility. In 2005, a geotechnical investigation was conducted for the proposed Bay Island Sea Wall and Bridge Rehabilitation Project (Diaz Yourman & Associates 2007). Borings were conducted at five locations around Bay Island as well as on each side of the bridge that connects Bay Island with Balboa Peninsula. Boring depths ranged from approximately 8 to 80 feet deep.

Information from this geotechnical investigation provides evidence on the subsurface characteristics of Lower Newport Bay in the general region of the CAD facility. Four of the borings (Bay Island

Seawall Boring 01, 02, 03, and 05) are located less than 1,000 feet from the center of the proposed CAD facility.

Generally, the geotechnical investigation concluded that the soils around Bay Island consist of silty sands to poorly graded sands underlain by sandstone. No bedrock was encountered in any of the explorations, including areas adjacent to the planned dredging depth of the CAD facility. The geotechnical report is included in Appendix F.

6.1.2 2009 Geotechnical Investigation for CAD Facility Feasibility Evaluation

In 2009, two borings were conducted—one in Newport Channel and other located in the Main Channel—to understand the subsurface conditions as part of a previously proposed CAD facility feasibility evaluation for the City (Anchor QEA 2009). Results indicated that the predominant sediment type present was fine to medium sand between and below the likely range of depths that would be excavated for a CAD facility, a sediment type that would likely be well suited for nearshore placement. Chemical analyses were also conducted on these sediments for several different analytes. All concentrations were below effects range low and ERM values. (Boring logs and laboratory results from the 2009 feasibility study [Anchor QEA 2009] are included in Appendix F.)

6.1.3 Additional Sediment Sampling in 2018 and 2019

As part of 2018 and 2019 sediment suitability investigations for the Federal Channels, several sediment cores were collected with vibracoring equipment in the proposed location of the CAD facility to below the dredging depths planned for the Federal Channels. Three cores were collected in the footprint of the proposed CAD facility location, and six cores (three to the north and three to the south) were collected nearby. Depths of the cores ranged from approximately -11 feet MLLW to -20 feet MLLW. Two distinct sediment types were apparent: an upper layer of soft silts and clays, underlain by a dense fine sand (Anchor QEA 2019). Field logs and grain size reports are included in Appendix F for sample locations within the CAD facility footprint.

6.1.4 Conclusions Regarding Suitability of Dredged Sediment for Beach Nourishment

According to the existing physical and chemical characteristics of the sediments within the CAD facility location, the sediments are suitable for open ocean disposal. Confirmatory sampling during construction for grain size is expected to be required in the technical specifications of the construction documents to determine the acceptability of sediments at nearshore placement areas. Because material below the upper layer of soft silts and clays may be relatively consolidated, the dredging contractor will need to be prepared to break up clumped or blocky materials (such as by use of a grizzly or other mechanical device) prior to nearshore placement or open ocean disposal.

6.2 Side Slopes of CAD Facility Dredging

Slope stability of the CAD facility dredging was evaluated using standard engineering methodology: the limit equilibrium method applied using the Rocscience Slide v2018.0 software package. The limit equilibrium method calculates a factor of safety (FS) for stability of a given slope as the resisting force (i.e., soil strength) divided by the driving force (i.e., weight of the soil mass plus other external loads). The FS was computed for a suite of assumed trial "slip surfaces" that were identified using a search routine in the software. The search routine iteratively optimized the geometry of the slip surfaces until the lowest FS was identified, and that surface was identified as the "critical" slip surface.

The target FS is the minimum recommended FS for long-term and short-term stability evaluations and is based on recommendations presented by USACE (2003) and Duncan and Wright (2005). The analysis concluded that a post-dredged slope of 2.5H:1V for the CAD facility would have an FS of 1.4, which exceeds the minimum recommended short-term FS of 1.3 (USACE 2003; Duncan and Wright 2005), indicating a sufficient level of stability during the period that the CAD dredging would be open and not yet completely filled.

6.3 Engineering Analysis of CAD Facility Filling

Sections 6.3.1 and 6.3.2 provide information on additional geotechnical analysis conducted on the cap stability and placement methods. In addition, compression of sediment was estimated after placement within the CAD facility to understand settlement of dredged material within the CAD facility.

6.3.1 Sediment Placement Methods

Rapid or irregular placement of ~~s~~ediment could potentially lead to instability of the CAD facility's underlying materials. This can be controlled by limiting the rate or methods of material placement. The technical specifications would require the contractor to place sediments in the CAD facility in individual layers that are of reasonably uniform thickness and free of large mounds. The contractor would be required to open the bottom-dump barge gradually in a controlled manner to minimize mixing of freshly placed sediment with previously placed material.

The contractor would be required to place sediment in individual lifts that are no more than 5 feet thick across the entire footprint of the CAD facility. Each lift would have no more than a 2-foot variation in its surface elevation. Surveys will be conducted throughout the placement process to verify the variance across the CAD facility as lifts progress. Frequent surveys were an effective quality assurance and control measure during material placement at the Port Hueneme CAD facility, If variance is outside the tolerance of the specifications, the contractor will be required to conduct corrective measures to be approved by the engineer.

6.3.2 Compression of Sediment After Confinement in CAD Facility

Sediment would be likely placed in the CAD facility by releasing it from a bottom-dump barge. Although the sediment would undergo some degree of initial "bulking" during the dredging and dumping process, this increase in volume is expected to be short in duration as additional sediment is added to the CAD facility and compresses the previously placed materials. During the placement of subsequent sediment and capping layers, the sediment is expected to undergo both initial and long-term consolidation. Based on expectations regarding the current (in situ) and post-excavation physical properties of the dredged sediment, the total amount of sediment consolidation is predicted to be 2 to 6 feet relative to its initial in situ volume. This consolidation of sediments could provide future opportunities to increase the thickness of the final cap layer if its thickness is observed to decrease over time. In addition, the expected compression of the CAD facility could provide the City with additional "overdesign" opportunities via future clean sediment dredging and placement, which would further increase the thickness of the clean final cap layer.

6.4 Selection of CAD Facility Size, Dredge Depth, and Clean Sediment Cap Elevation

The CAD facility size, depth, and final cap thicknesses were designed to achieve the following goals:

- Accommodates the full volume of sediment determined unsuitable for open ocean disposal that is dredged during the Federal Channels maintenance dredging
- Allowance for additional volume to accommodate materials dredged from outside the Federal Channels
- Allowance for a sufficiently thick final cap layer
- Allowance for sufficient water depth at the proposed location of the CAD facility

Once filled, the top elevation of the final cap layer needs to be deep enough to avoid precluding marine traffic in the area while accommodating the possibility of future harbor deepening activities. In the future, this area could be deepened to an elevation -20 feet MLLW (to match the adjacent Main Channel North 3 design depth), which would result in dredging to depths of -20 to -22 feet MLLW when a 2-foot allowance for overdredging is considered. This is deeper than the currently authorized depth of -15 feet MLLW within the proposed location of the CAD facility. It is desirable to maintain the top elevation of the final cap at or below this elevation range to avoid having the capping material inadvertently dredged during future maintenance dredging. Therefore, the highest extent of the final cap layer would be restricted to no more than -22 feet MLLW elevation.

The primary element in designing the CAD facility is to determine an appropriate volume capacity that is sufficient to contain the necessary volume of sediment to be deposited within it. Figure 4-1

shows a typical cross section through the CAD facility, incorporating the following individual layers, listed from bottom (deepest) to top (shallowest):

- Placement of 106,900 cy of Federal Channels sediment determined unsuitable for open ocean disposal
  - For this stage in the design, an additional 10% contingency has been included in this layer to be conservative, bringing the total dredged to approximately 117,600 cy.
- Placement of enough clean material to create a 1-foot-thick interim cover containment layer
- Placement of as much as 50,000 cy of sediment within Lower Newport Bay but outside the Federal Channels (permittable and not permittable under the City's RGP 54 program)
  - This would occur over predetermined time frames (pending agency approval) to allow for City residents and City maintenance dredging projects to take advantage of the CAD facility as a local solution for disposal.
- Placement of enough capping material for final isolation to create a final cap layer that is at least 3 feet thick

6.4.1 Effects of Sediment Consolidation

The volume occupied by sediment within the CAD facility would change over time because it occupies a larger volume in its initially "bulked" state and then gradually consolidates to lesser volumes. As a result, the sediment surface within the CAD facility may appear to be artificially "high" immediately after its placement, but subsequent settlement is to be expected and some of which would occur as the filling proceeds.

The volume of sediment initially placed within the CAD facility may undergo temporary "bulking," occupying a volume that is 20% higher than after compression has occurred. Over time, a consolidation analysis indicates that the placed materials within the CAD facility could undergo 2 to 6 feet of compression from its original pre-dredge volume, which may ultimately result in the CAD facility having additional volume capacity above those estimated here. The gap in time between the initial placement of sediment unsuitable for open ocean disposal and final clean sediment cap should provide enough time for the consolidation to occur (see Section 9 for additional information on construction sequencing). The final elevation of the CAD facility is designed to accommodate material to a final surface elevation of -22 feet MLLW. Sediment settlement would drop the final surface farther below this limiting elevation, thus providing additional capacity.

6.4.2 Selection of CAD Dimensions

The CAD facility dredging needs to have the following:

- Adequate sizing to contain the minimum estimated volume of sediment produced as a result of the various project components (as listed in Section 6.4)
- A final top surface that is no higher than -22 feet MLLW (as discussed previously)

A geometric analysis of a trapezoidal-shaped CAD facility with a base footprint of 435 feet by 435 feet, 2.5H:1V side slopes, and a base elevation of up to -46 feet MLLW will have about 222,400 cy of capacity below an elevation -22 feet MLLW. At the top of the CAD facility (-15 feet MLLW), the footprint is 590 feet by 590 feet. This footprint fits between Lido Isle, Bay Island, and Harbor Island, and it is well offset (more than 200 feet) from adjacent waterside facilities and seawalls.

It is expected that maintenance dredging within the Bay Island Area would take place prior to the CAD facility dredging. If the design depth of -15 feet MLLW plus 2 feet of overdredge is achieved during this phase of the maintenance dredging, the total dredging of the CAD facility itself (-17 feet MLLW down to a bottom elevation of -45 feet MLLW, plus 1 foot of overdredge allowance) would equate to approximately 282,400 cy.[1] If no dredging takes place within the Bay Island Area, the total dredging of the CAD facility itself from the existing mudline of approximately -13 feet MLLW to -45 feet MLLW, plus 1 foot of overdredge allowance, equates to approximately 340,700 cy based off the conditional survey conducted by the USACE in June 2018.

Additional details on the Federal Channels dredging and CAD facility design will be included in the construction drawings and technical specifications.

[1] For this stage of the design, maintenance dredging in Bay Island Area is expected to dredge to the full 2 foot overdredge allowance (-17 feet MLLW). If the contractor only dredges to the design depth (-15 feet MLLW), an additional 25,000 cy of dredging would be required.

7 Short-Term Water Quality Impacts from Construction

Short-Term Fate (STFATE) model scenarios were developed, executed, and evaluated to estimate the potential for sediment drift and loss of material during fill operations at the proposed CAD facility in Lower Newport Bay. The model includes the ability to evaluate potential water quality impacts relative to applicable water quality standards (e.g., California Toxics Rule saltwater continuous concentration). Results from five distinct scenarios were evaluated to estimate depositional patterns within the CAD facility during various tidal currents and the potential for water quality exceedances. The five scenarios evaluated are as follows:

1. The first scenario represented the layer of material consisting of sediment from areas determined unsuitable for open ocean disposal within the Federal Channels.
2. The second scenario represented the layer of material consisting of sediment from areas identified for use as either an interim containment layer or final cap layer from the Federal Channels program.
3. The third scenario represented the layer of material consisting of sediment determined unsuitable for open ocean disposal within the boundaries of the RGP 54 Plan Area.
4. The fourth scenario represented sediment from the Federal Channels identified as an alternative source for an interim containment layer or final cap layer (sediments associated with the Entrance Channel).
5. The fifth scenario represented material consisting of sediment from within Main Channel North 1 that was determined unsuitable for open ocean disposal and contained the greatest amount of fine-grained materials.

Key findings from these model simulations are as follows:

- There are no restrictions of placement events during neap tides (i.e., first and third quarters of the moon).
- During spring tides, best management practices should be implemented to limit placement events during non-peak tidal current velocities (i.e., plus or minus 2 hours from slack tide; Figure G-3 in Appendix G) to limit the horizontal distribution of fill material.
  - Disposal events occurring during non-peak ebbing tides result in 10% to 21% of material lost outside the proposed CAD facility.
    - Most of the material lost outside the proposed CAD facility would deposit within 75 feet (one model grid cell)
    - The greatest amount of material lost outside the proposed CAD facility occurred during ebbing tides when placement of material suitable for use as an interim cover containment layer or final cap layer (Scenarios 2 and 4) was occurring. Because this material would be sequenced after placement of unsuitable material, any material from Scenarios 2 and 4 deposited beyond the boundaries of the

proposed CAD facility would act as thin layer cover over any unsuitable material that may have been "lost" from the proposed CAD facility.

  - Disposal events occurring during non-peak flooding tides result in 6% to 9% of material to be lost outside the proposed CAD facility.
- The maximum observed thicknesses of deposited material ranged from 1.3 to 2.3 feet within the model grid cell directly associated with the placement location. Deposit thicknesses rapidly decreased in adjacent model grid cells (within 75 feet).
- The water quality standards for dissolved copper, dissolved mercury, and total PCBs were not violated.
- The water quality standard for total DDx was exceeded during the modeled disposal events for all material types. However, predicted water quality concentrations after 4 hours of material placement from Scenarios 1, 2, 3, and 4 were equal to the existing background water quality concentration (0.00130 micrograms per liter [µg/L]), and predicted water quality concentrations after 4 hours of material placement from Scenario 5 were only 0.0003 µg/L greater than background.
  - Predicted water column concentrations for total DDx do not exceed the Lower Newport Bay organochlorine compounds Total Maximum Daily Load (TMDL) acute water quality targets; however, they do exceed the TMDL's chronic water quality targets.
  - The removal, placement, and containment of DDx-contaminated Lower Newport Bay sediments at the proposed CAD facility provide a greater benefit than any short-term water quality impacts.
- Water quality monitoring following placement of materials from Scenarios 1 through 4 (listed above) may have limited practicality because predicted total DDx concentrations are similar to typical method detection limits currently achieved by regional analytical laboratories. Predicted total DDx concentrations following placement of materials from Scenario 5 (listed above) were greater than typical method detection limits. Strategies to minimize the volume of material from Scenario 5, such as mixing with material from other dredge units, should be used to minimize water quality impairments.

The full assessment and associated results and discussion are provided as Appendix G.

8 Permitting Strategy

Dredging of the USACE Federal Channels and CAD facility are subject to CEQA and NEPA review. The City is acting as the lead CEQA agency, and the USACE is acting as the lead NEPA agency. The process of obtaining project approvals and permits is complex, and the information presented in this section is intended only as a general summary of the permitting process for the project.

The first step of the City's CEQA process and the USACE NEPA process was to develop appropriate CEQA and NEPA documentation for the project.

The USACE is responsible for NEPA compliance for the Federal Channels maintenance dredging component of the overall project and is preparing a supplement to their existing Environmental Assessment. As the lead federal agency, and as part of the Federal Channels maintenance dredging, the USACE has assumed responsibility for coordinating with resource agencies such as the National Marine Fisheries Service and California Department of Fish and Wildlife and ensuring compliance with requirements of statutes such as the Endangered Species Act and the Magnuson-Stevens Fishery Conservation and Enhancement Act. In addition, the USACE assumed the lead role in addressing cultural and historic resource issues, including requirements of Section 106 of the National Historic Properties Act. The USACE will also be obtaining a federal consistency determination from the California Coastal Commission, which satisfies requirements of the Coastal Zone Management Act and Clean Water Act (Section 401) water quality certification from the Santa Ana Regional Water Quality Control Board.

Identification, design, permitting, and construction of an alternate disposal location is the responsibility of the City of Newport Beach as the local sponsor. In November 2019, the City released a Notice of Preparation and Initial Study, which initiated preparation of an Environmental Impact Report (EIR) under CEQA. The EIR will address construction of the CAD facility, dredging of unsuitable material and placement in the CAD facility, dredging of suitable material from within the Federal Channels to support the interim cover containment layer and final cap layer, and dredging of additional material from outside the Federal Channels. Following completion of the EIR public notice, the City will submit permit applications to the following agencies:

- **Coastal Development Permit:** The California Coastal Commission is the agency responsible for this permit.
- **Standard Individual Permit:** USACE will be the Lead Agency for the Rivers and Harbors Act Section 10 and Clean Water Act Section 404 permits as well as associated consultations for Endangered Species Act and Essential Fish Habitat. Additionally, pursuant to 33 United States Code 408 (Section 14 of the Rivers and Harbors Act of 1899, as amended) review under Section 408 will be required approval of any proposed activity that might interfere with, injure, or impair the use of a river or harbor improvement project. This approach furthers the

USACE's interest, expressed throughout the Rivers and Harbors Act of 1899, in protecting the navigability of United States waters by prohibiting the use or alteration of navigation or flood control works where contrary to the public interest or where it would impair those works' usefulness.

- **Clean Water Act Section 401 Water Quality Certification**: A Clean Water Act Section 401 Water Quality Certification will be required by the Santa Ana Regional Water Quality Control Board.
- **Surface Lease Agreement**: A Surface Lease Agreement may be required from the California State Lands Commission.

This permitting strategy has been coordinated extensively with the USACE in addition to the various regulatory agencies; however, pending additional public feedback during the CEQA EIR process and through subsequent coordination with the regulatory agencies, this permit strategy may be updated and revised.

9 Construction Sequencing and Anticipated Schedule

Section 9 describes the recommended construction sequencing for the Federal Channels maintenance dredging and CAD facility construction. The production rates, durations, and construction sequence reflected in Section 9 are based on professional judgment, similar project experience, and knowledge of the existing conditions in Lower Newport Bay.

9.1 Recommended Project Sequence

It is expected that the maintenance dredging portion of the project would be accomplished under a USACE contract and take place as several discrete dredging, disposal, and sediment placement events. The City would be responsible for the dredging of the CAD facility and all ancillary costs associated with the CAD facility dredging (e.g., surveys and water quality monitoring). These two projects (though independent) would require close coordination and planning during construction. It is anticipated that the CAD facility would be included in the final design for the Federal Channels project to accommodate the unsuitable sediment in Main Channel North 1, Main Channel North 2, the Turning Basin, and Newport Channel 1. Newport Channel 3 was selected for the interim cover containment layer and final cap layer due to its chemical composition and proximity to the proposed CAD facility location.[2]

The following list provides the recommended sequence of events to accomplish the goals of both projects (Sections 9.3 through 9.8 detail the processes for accomplishing each step):

- **Phase 1 (Section 9.3):** Entrance Channel Dredging and Placement in Nearshore Placement Area
- **Phase 2 (Section 9.4):** Lower Newport Bay Federal Channels Dredging (Suitable for Open Ocean Disposal) and Placement at LA-3
- **Phase 3 (Section 9.5):** CAD Facility Dredging and Placement at Nearshore Placement Area or LA-3
- **Phase 4 (Section 9.6):** Federal Channels Dredging (Unsuitable for Open Ocean Disposal) and Placement at CAD facility
- **Phase 5 (Section 9.7):** Newport Channel 3 Dredging and Placement in CAD Facility for Interim Cover Containment Layer
- **Phase 6 (Section 9.8):** Dredging Outside the Federal Channels and Placement in CAD Facility (To Be Conducted After Completion of Federal Channels)
- **Phase 7 (Section 9.9):** Newport Channel 3 Dredging and Placement in CAD Facility for Final Cap Layer (To Be Conducted After Completion of Federal Channels)

[2] If the City identifies additional sources for the final cap layer, material will require testing and confirmation that the sourced material meets the performance criteria of sediments tested and modelled as part of this BODR.

9.2 Debris Removal

No debris within the Federal Channels were identified during the conditional survey conducted by the USACE in 2018. If debris is encountered during any elements of the dredging process, debris would be removed mechanically and placed onto a flat deck barge for appropriate disposal. Remnant timber piles would be required to be removed in their entirety, to the extent feasible. Debris would be transported to an on-site offloading location (e.g., at the end of the Rhine Channel) and placed into trucks for final transport and disposal at an approved disposal site.

9.3 Entrance Channel Dredging and Placement at Nearshore Placement Area

Approximately 70,900 cy of sediment will be dredged from the Entrance Channel in 2020 as part of the Federal Channels maintenance dredging project. The dredged sediments will be disposed of at an approved nearshore placement area. The volume estimates are based on a dredging template that includes dredging from the existing mudline to an authorized depth of -20 feet MLLW (plus 2 feet of overdredge allowance). The design slopes of the Entrance Channel are set at 3H:1V to minimize sloughing of material.

In addition to the Entrance Channel dredging, it is expected that the USACE will repair rock revetment along the jetties of the Entrance Channel during this phase of the project. However, it is outside the scope of this design and therefore not included in the BODR.

9.3.1 Equipment

Maintenance dredging projects typically use mechanical dredges (crane utilizing a clamshell) to conduct dredging. Dredged sediments are placed into a bottom-dump barge, then the barge is transported to the nearshore placement area where the sediment is dumped within a predefined location.

9.3.2 Anticipated Production Rate

The dredging production rate (i.e., the volume of dredged materials removed per hour) for a crane utilizing a clamshell bucket was estimated for purposes of developing a schedule for Entrance Channel dredging. Factors that impact dredging productivity vary with equipment, site characteristics, and weather conditions. Production rates may be higher in some areas of the site and lower in others, depending on sediment type, water depths, and the presence of debris. In addition, production rates may also be impacted by turbidity control requirements stipulated in the permits.

The following assumptions were made to estimate the dredge production rate:

- Size of clamshell bucket is 15 to 18 cy

- Cycle time (i.e., the time to close the bucket with dredged material, pull it out of the water, place the dredged sediment into the barge/offloading area, and return the bucket to the water for the next dredge cut) equals 60 seconds per cycle
- Uptime (i.e., the time that the dredge is working, excluding routine maintenance, unexpected maintenance, dredge positioning, encountering unexpected debris, and the need to periodically switch out the barges used to transport dredged material) equals 70%
- Bucket load equals 60% in situ sediment and 40% water by volume

The assumptions in the aforementioned bullet list are based on engineering judgment, familiarity with harbor conditions, and discussions with dredging contractors. It is further assumed that dredging operations would be conducted 6 days per week for 10 hours a day, yielding a production rate of approximately 5,000 cy per day. This results in a total estimated dredging duration of approximately 15 days for the project for a total removal volume of 70,900 cy. The project schedule for dredging depends on the additional time required for mobilization and demobilization (including installation and removal of the turbidity barrier system, if required) and the number of dredges used, among other factors.

9.3.3 Dredging Limits

The dredging limits are defined by the target dredging surface and the horizontal limits of removal. Dredging limits, which define the volume and current disposition of sediment that must be removed, are defined by the Federal Channels limits. The development of the target dredging surface involves identifying the surface of the native sediment underlying the sediment to be dredged and specifying a cut back slope around the perimeter to minimize sloughing of materials into the dredging area. The horizontal dredging limit for the footprint was defined by the Federal Channels plus any additional extent resulting from side slopes. The design slopes of the Federal Channels dredging are set at 3H:1V to minimize sloughing of material. The vertical dredging limit was limited to an elevation of -20 feet MLLW (plus 2 feet of overdredge allowance).

9.4 Lower Newport Bay Federal Channels Dredging (Suitable for Open Ocean Disposal) and Placement at LA-3

Prior to dredging the CAD facility, it is expected that additional areas with sediment suitable for open ocean disposal (including Main Channel North 1 through 5, Bay Island Area, and Newport Channel 2) will be dredged and disposed at LA-3. Based on bathymetric data collected by the USACE in June 2018, approximately 784,000 cy of suitable sediment will be dredged from these locations as part of Federal Channels maintenance dredging. The dredged sediments will be disposed at an open ocean disposal site (LA-3). The volume estimates are based on a dredging template that includes dredging from the existing mudline to an authorized depth between -15 feet MLLW and -20 feet

MLLW (plus 2 feet of overdredge allowance). The design slopes are set at 3H:1V to minimize sloughing of material.

9.4.1 Equipment

Dredging mechanically using a crane (or other suitable equipment) mounted on a flatdeck barge has been selected as the preferred dredging method based on an evaluation of Federal Channels conditions. The mechanical dredge will be equipped with a clamshell bucket or equivalent for soft material. The specific make and model of the bucket to be employed (to be determined by the selected contractor) will be based on the sediment types present and the dredging requirements. However, due consideration will be given to the ability of the selected bucket and associated equipment to keep turbidity generation to within acceptable limits given the expected turbidity monitoring requirements at the Federal Channels and sediment characteristics.

Dredged sediment removed from the water will be placed into a split-hull material barge. Once filled, the split-hull material barge will transport the dredged sediment to LA-3 for disposal using a tender for power and maneuvering.

9.4.2 Anticipated Production Rate

The dredging production rate is assumed to be approximately 5,000 cy per day (i.e., the production rate used in Section 9.3.2 for clamshell dredging). This results in a total estimated dredging duration of approximately 157 days for the project with a total removal volume of 784,000 cy. The project schedule for dredging depends on the additional time required for mobilization and demobilization (including installation and removal of the turbidity barrier system) and the number of dredges used, among other factors.

9.4.3 Dredging Limits

The horizontal dredging limits for sediment suitable for open ocean disposal within Main Channel North 1 through 5, Bay Island Area, and Newport Channel 2 are defined by the Federal Channels and public and private marinas and jetties. The vertical dredging is set to an elevation between -15 feet MLLW and -20 feet MLLW with an overdredge allowance of 2 feet. The slopes are set at 3H:1V to minimize sloughing of material. The total dredging volume of Federal Channels sediment that is suitable for open ocean or nearshore placement is listed in Table 2-2.

9.5 CAD Facility Dredging and Placement at Nearshore Placement Area or LA-3

Based on bathymetric data collected by the USACE in June 2018, approximately 282,400 cy of sediment will require removal and disposal. Bay deposits will be transported to LA-3 for open ocean disposal and sand material (greater than 80%) will be transported to a predetermined nearshore

placement area along Newport Beach. The selection of design dimensions and volume capacity of the CAD facility is discussed in detail in Section 6.4.2.

9.5.1 Equipment

The contractor that will be selected to dredge in the previous section will likely be the same contractor that conducts the CAD facility dredging. Therefore, it is expected this dredging will occur with a mechanical dredge equipped with a clamshell bucket and split-hull barge for placement at an approved nearshore placement area or LA-3.

According to the sediment samples collected within the CAD facility footprint, silty material may be present to approximately -18 feet MLLW, which may require disposal at LA-3 pending sediment testing. Most of the sediment within the CAD facility footprint is expected to be sand and acceptable for placement at an approved nearshore placement area. In situ testing and monitoring of the dredge sediment will be required for confirmation of suitability for beach placement and will be included in the technical specifications.

9.5.2 Anticipated Production Rate

The dredging production rate is assumed to be approximately 5,000 cy or more per day (i.e., the production rate used in Section 9.3.2 for clamshell dredging). This results in a total estimated dredging duration of approximately 57 days for the project with a total removal volume of 282,400 cy. The total project schedule for dredging depends on the additional time required for mobilization and demobilization (including installation and removal of the turbidity barrier system, if required), and the number of dredges used, among other factors.

9.5.3 Dredging Limits

The dredging limits for the CAD facility are defined by the target dredging surface and the horizontal limits of removal. Dredging limits were determined by the following (see Section 6.4):

- The capacity necessary to contain dredged sediment from the Federal Channels that is unsuitable for open ocean disposal
- Additional sediment from Lower Newport Bay that is unsuitable for open ocean disposal
- An appropriate interim cover containment layer
- A final cap layer

The horizontal dredging limit for the CAD facility is designed to be within the boundary of the Bay Island Area and the dredge footprint of the Federal Channels. The vertical dredging limit is an elevation of -46 feet MLLW (includes 1 foot of allowable overdredge) to stay well above the principal aquifer in Newport Beach. The design slopes of the CAD facility dredging are set at 2.5H:1V to minimize sloughing of material while reducing the overall footprint of the CAD facility.

9.6 Federal Channels Dredging (Unsuitable for Open Ocean Disposal) and Placement at CAD Facility

Approximately 117,600 cy of sediment unsuitable for open ocean disposal (includes 10% contingency) will be removed from the Turning Basin, Main Channel North 1, Main Channel North 2, and Newport Channel 1. Volume estimates for select areas within Main Channel North 1 and North 2 that were determined unsuitable for open ocean disposal are based on a dredging template that includes dredging to the authorized depth of -20 feet MLLW with a 2 foot overdredge allowance. The Turning Basin volume estimates are based on a dredging template that includes an authorized depth of -19 feet MLLW with a 2 foot overdredge allowance. Newport Channel 1 volume estimates are based on a dredging template that includes an authorized depth of -15 feet MLLW with a 2 foot overdredge allowance.

9.6.1 Equipment

It is likely that the contractor selected to conduct maintenance and CAD facility dredging would also dredge the Federal Channels. Therefore, it is expected this dredging will occur with a mechanical dredge equipped a clamshell bucket and bottom-dump barge for placement within the CAD facility.

9.6.2 Anticipated Production Rate

The dredging production rate is assumed to be approximately 5,000 cy per day (i.e., the production rate used in Section 9.3.2 for clamshell dredging). This results in a total estimated dredging duration of approximately 24 days for the project with a total removal volume of 117,600 cy. The total project schedule for dredging depends on the additional time required for mobilization and demobilization (including installation and removal of the turbidity barrier system, if required) and the number of dredges used, among other factors.

9.6.3 Dredging Limits

The horizontal dredging limits for sediment unsuitable for open ocean disposal within Main Channel North 1 through 5, Turning Basin, and Newport Channel 1 are defined by the Federal Channels plus any additional extent resulting from side slopes. The vertical dredging limit was limited to an elevation of -15 feet MLLW and -20 feet MLLW with an overdredge allowance of 2 feet. The slopes are set at 3H:1V to minimize sloughing of material.

9.6.4 Dredging Volumes

Based on bathymetric data collected by the USACE in 2018 at Main Channel North1, Main Channel North 2, Turning Basin, and the Newport Channel 1 (Appendix A) and recent sampling performed by Anchor QEA (Appendix B), it is estimated that approximately 106,900 cy of dredged sediment will be removed from these locations. These volumes have been increased by 10% (117,600 cy) to provide a

more conservative capacity within this layer. Volumes for sediment unsuitable for open ocean disposal in Main Channel North 1, Main Channel North 2, Turning Basin, and the Newport Channel 1 are summarized in Table 2-2.

9.7 Newport Channel 3 Dredging and Placement at CAD Facility for Interim Cover Containment Layer

After sediments unsuitable for open ocean disposal have been removed and placed within the CAD facility, a 1-foot-thick interim cover containment layer will be placed to provide physical protection of the underlying sediments from any erosive forces imposed from vessel uses above. It is anticipated that interim cover containment layer would be sourced from the Federal Channels (e.g., Newport Channel 3) as the maintenance dredging continues. Approximately 9,900 cy of cover material will be required from the Federal Channels maintenance dredging to provide a 1-foot-thick interim cover containment layer. This could be achieved in a few days using a mechanical dredge with a clamshell bucket.

9.8 Dredging Outside Federal Channels and Placement at CAD Facility

As mentioned in Section 6.4, the CAD facility capacity was designed to accommodate additional sediment from Lower Newport Bay dredged outside of the Federal Channels and either permitted or not permitted under the City's RGP 54 program. This additional capacity has been estimated at approximately 50,000 cy. Sourcing for this sediment will be coordinated amongst the applicants, the City, and agencies but could include the following:

- Public and private marinas that do not pass chemical testing for open ocean disposal under the City's RGP 54 program
- City marinas that are not included under the RGP 54 program (Balboa Yacht Basin, Promontory Bay, etc.)

The City has agreed to develop a Sediment Management Plan for sediment that is unsuitable for open ocean disposal and outside of the Federal Channels. At this stage of the design, it is assumed that the capacity limit for sediment is 50,000 cy.

Dredging is anticipated to be conducted using smaller mechanical dredging equipment with bottom-dump barges. Contractors will be required to follow the same permit conditions as those required under the larger CAD facility dredging and disposal project to minimize impacts to water quality and ensure accurate disposal within the CAD facility footprint. The contractors will also be required to obtain approval under the City's RGP 54 program or Individual Permit process.

Due to the timing uncertainties for this component of the project, the construction schedule in Section 9.9 expects this dredging to take place 2 years after the interim cover containment layer is placed. Production and duration will vary between projects and as such are not included in the

BODR. Instead, a 6-month period is expected to be included after the 2-year period has passed to allow City applicants to obtain permits for their respective projects.

9.9 Newport Channel 3 Dredging and Placement at CAD Facility for Final Clean Cap Layer

After the dredging window for public and City projects closes, the final cap layer will be placed in the CAD facility by the City to chemically isolate the underlying sediments from burrowing organisms and biota residing in the overlying water column. This clean sediment cap has been designed to a thickness of 3 feet, equating to approximately 33,600 cy of additional sediment sourced by the City. Sourcing for this capping material would be coordinated between the City and agencies prior to construction. For this stage of the design, it is expected that the final cap layer will be sourced from undredged material within Newport Channel 3. Other sources to be considered include future dredging at the Entrance Channel, sediments dredged under the City's RPG 54 program, and maintenance dredging at the Santa Ana River.[3] This final cap layer could be constructed in 1 to 2 weeks using a mechanical dredge with a clamshell bucket.

If both the interim cover containment layer and final cap layer are sourced from Newport Channel 3, approximately 35,300 cy of material will remain within Newport Channel 3 after both layers have been placed within the CAD facility. To achieve the authorized designed depth plus 2 feet of overdredge allowance, additional dredging and disposal at LA-3 would be required within Newport Channel 3.

9.10 Construction Schedule

A draft construction schedule is presented in Figure 9-1. This schedule—developed based on current design knowledge, professional judgment, and experience from other similar projects—may be modified as part of subsequent design development. CAD facility placement activities discussed in Sections 9.8 and 9.9 are estimates since the time frame for these activities would be determined after consultation with the City and agencies. As such, it is expected that these two layers would be completed as separate projects.

[3] If the City identifies additional sources for the final cap layer, material will require testing and confirmation that the sourced material meets the performance criteria of sediments tested and modelled as part of this BODR.

10 Operations, Management, and Monitoring Plan

An Operations, Management, and Monitoring Plan (OMMP) has been developed to present the City's planned approach for managing the site as a disposal facility for use by the City and USACE during a single combined dredging project. The OMMP, provided as Appendix H, includes the following elements:

- Overview of the OMMP objectives, establishment of the OMMP, and the proposed CAD facility description (Sections 2 to 4)
- Discussion of the legal authority and responsibility for the City to operate a CAD facility within Lower Newport Bay (Section 3)
- Discussion of associated regulatory permits needed for creation and operation of the CAD facility (Section 5)
- Explanation of communications plan and operating requirements for site use (Section 6)
- Presentation of an environmental monitoring program (Section 7)
- Details for proposed annual reporting (Section 7)
- Discussion of contingency plans to address unexpected construction issues or long-term stability should they become a concern (Section 8)

11 References

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California Coastal Commission
CDP 5-21-0640
Exhibit 5

Santa Ana Regional Water Quality Control Board

September 30, 2022

Chris Miller
City of Newport Beach Public Works Department
100 Civic Center Drive
Newport Beach, CA 92660

Email: Cmiller@newportbeachca.gov

CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION AND ORDER FOR THE LOWER NEWPORT BAY CONFINED AQUATIC DISPOSAL CONSTRUCTION PROJECT (SARWQCB WDID # 302021-09)

Dear Chris Miller:

Enclosed please find a Clean Water Act Section 401 Water Quality Certification and Order, authorized by Santa Ana Regional Water Quality Control Board Executive Officer, Jayne Joy. This Order is issued to you for Lower Newport Bay Confined Aquatic Disposal Construction Project (Project). Attachments A through D of the Enclosure are also part of the Order.

This Order is issued in response to an application submitted by City of Newport Beach for the proposed Project discharge to waters of the State to ensure that the water quality standards for all waters of the State impacted by the Project are met. You may proceed with your Project according to the terms and conditions of the enclosed Order.

If you require further assistance, please contact me at Claudia.Tenorio@waterboards.ca.gov.

Sincerely,

Claudia Tenorio

Claudia Tenorio
Senior Environmental Scientist (Supervisory)
Regional Planning Programs Section
Santa Ana Regional Water Quality Control Board

Enclosures (1): Order for 302021-09 Lower Newport Bay Confined Aquatic Disposal Construction Project

cc: [Via email only] (w/ enclosure):

U.S Army Corps of Engineers, Los Angeles District– Gerardo Salas – Gerardo.Salas@usace.army.mil
U.S. Environmental Protection Agency, Region 9 – R9cwa401@epa.gov
U.S. Environmental Protection Agency, Region 9 – Allan Ota – Ota.Allan@epa.gov
U.S. Environmental Protection Agency, Region 9 – Melissa Scianni – Scianni.Melissa@epa.gov
State Water Resource Control Board, Office of Chief Counsel – Katherine Bramble– Katherine.Bramble@waterboards.ca.gov
State Water Resources Control Board, Division of Water Quality -- Water Quality Certification Unit – Stateboard401@waterboards.ca.gov
Anchor QEA, LLC – Adam Gale – agale@anchorqea.com
California Coastal Commission – Mandy Revell – Mandy.Revell@coastal.ca.gov

Santa Ana Regional Water Quality Control Board

CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION AND ORDER

Reg. Meas. ID:	445141
Place ID:	876651
SARWQCB WDID #:	302021-09
USACE #:	SPL-2021-00425

Effective Date: September 30, 2022

Program Type: Dredging

Project Type: Channel Construction and Maintenance

Project: Lower Newport Bay Confined Aquatic Disposal Construction Project (Project)

Federal Permit: United States Army Corps of Engineers (USACE) Individual Permit, File No. SPL-2021-00425

Permittee: City of Newport Beach

Permittee Contact: Chris Miller
City of Newport Beach Public Works Department
100 Civic Center Drive
Newport Beach, CA 92660
Phone: (949) 644-3043
Email: Cmiller@newportbeachca.gov

Permittee's Agent: Adam Gale
Anchor QEA, LLC
9700 Research Drive
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Phone: (949) 334-9635
Email: agale@anchorqea.com

Water Board Staff: Claudia Tenorio
Senior Environmental Scientist (Supervisory)
3737 Main Street, Suite 500
Riverside, CA 92501
Email: Claudia.Tenorio@waterboards.ca.gov

Water Board Contact Person:
If you have any questions, please call Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) staff listed above or (951) 782-4130 and ask to speak with the Regional Planning Programs Section Supervisor.

Table of Contents

I. Order

This Clean Water Act (CWA) section 401 Water Quality Certification action and Order (Order) is issued at the request of City of Newport Beach (Permittee) for the Lower Newport Bay Confined Aquatic Disposal Construction Project (Project). This Order is for the purpose described in the application and supplemental information submitted by the Permittee. The application was received on August 26, 2021. The application was deemed complete on December 31, 2021.Prior to receiving a complete application, Santa Ana Water Board staff issued a notice of incomplete application, and the Permittee responded to the request for application information as summarized in Table 1.

Table 1: Record of Notice(s) of Incomplete Application	
Date of Notice of Incomplete Application	Date Requested Information Received
9/24/2021	10/26/2021

Additionally, on April 25, 2022, Santa Ana Water Board staff requested additional information necessary to supplement the contents of the complete application, and the Permittee responded to the request on April 25, 2022.

II. Public Notice

The Santa Ana Water Board provided public notice of the Project application pursuant to California Code of Regulations, title 23, section 3858 on September 24, 2021. Due to public interest expressed relating to the Project, the Santa Ana Water Board posted a draft Order for public review and comment from September 2, 2022, to September 16, 2022. The Santa Ana Water Board considered all comments submitted during the respective public comment periods prior to issuing this Order.

III. Project Purpose

The Project's purpose is to construct a confined aquatic disposal (CAD) facility in the central portion of Lower Newport Bay. The Project would provide a permanent disposal (i.e. placement) location for contaminated sediment determined unsuitable for open ocean disposal from the Lower Newport Bay Federal Channels (Federal Channels), as well as sediment outside of the Federal Channels not permitted under the Permittee's Maintenance Dredging Program Regional General Permit 54 (RGP 54)[1]. Additionally, dredged material generated from the construction of the CAD facility appropriate for beach nourishment would be placed along nearshore ocean beaches or disposed of at an approved open ocean disposal site.

IV. Project Description

Natural processes result in the movement and accumulation of sediment in Lower Newport Bay, which must be dredged periodically. The United States Army Corps of Engineers (USACE) is responsible for maintaining authorized channel depths for navigation in the Federal Channels, as part of the Federal Channels Maintenance Dredging Program. Sediment sampling conducted in 2018 and 2019 by the Permittee and USACE determined that most of the dredged material would be suitable for open ocean disposal at the permitted LA-3 Ocean Dredged Material Disposal Site (LA-3) or can be utilized for beach nourishment. However,

[1] RGP 54 authorizes small-scale maintenance dredging, the discharge of dredged material at adjacent beach sites (for beach nourishment), and disposal of dredged material at the LA-3 Ocean Dredged Material Disposal Site, nearshore ocean beaches, or an approved upland disposal site outside the coastal zone.

dredging in the following portions of the Federal Channels – Turning Basin, Main Channel North 1 (MCN-1), MCN-2, and Newport Channel 1 (see Attachment A) – would expose sediment deemed unsuitable for ocean disposal due to elevated concentrations of polychlorinated biphenyl (PCBs), mercury, and dichloro-diphenyl-trichloroethanes (DDTs), and therefore requires an alternate management location for the dredged sediment.

The Project would provide a permanent disposal location for contaminated sediment determined unsuitable for open ocean disposal dredged from the Federal Channels. Dredging of the Federal Channels is a separate project undertaken by the USACE as part of the Federal Channels Maintenance Dredging Program. The CAD facility would be constructed to accommodate a total of 199,500 cubic yards (CY) of sediment as described below:

- 106,900 CY of unsuitable dredged material from the Federal Channels;
- 50,000 CY of unsuitable dredged material from outside the Federal Channels;
- 9,000 CY of clean material, likely from the Newport Channel 3, for an interim cap to provide a containment layer designed at a thickness of one (1) foot; and
- 33,600 CY for a final cap layer consisting of clean material placed at a thickness of three (3) feet.

A mechanical dredge equipped with a clamshell bucket and bottom-dump barges would be utilized for construction of the CAD facility and placement of material. The CAD facility construction would take approximately six (6) months. The proposed size of the CAD facility is approximately 590 feet by 590 feet and would require dredging approximately 282,400 CY of sediment from the existing mudline. The dredged footprint for the CAD facility (cell) is approximately eight (8) acres (348,100 square feet).

The CAD facility's size and volume incorporates side slopes, final CAD facility elevation, and engineering design considerations to accommodate the material and ensure its stability. As a result, a greater volume of material is required to excavate the CAD facility (282,400 CYs) compared to the volume of material expected to be placed in the CAD facility (199,500 CYs). The top of slope for the CAD facility would range between -15 to -17 feet mean lower low water (MLLW)[2]. The CAD facility would be constructed to accommodate the possibility of dredging the Bay Island area deeper in the future to match the authorized depth of -20 feet MLLW in the adjacent Main Channel 3. Thus, the final elevation of the final cap is designed to be at a depth of -22 feet MLLW elevation to accommodate future deepening to -20 feet MLLW and two (2) feet of allowable overdredge. The bottom of the CAD is designed to -45 feet MLLW plus one (1) foot of allowable overdredge.

Approximately two (2) years following dredging for construction of the CAD facility, the placement of material from the Federal Channels, and the installation of an interim cap, there would be one 6-month period for the Permittee and its residents to place up to 50,000 CY of dredged material from outside of the Federal Channels in the CAD, prioritizing material determined unsuitable for open ocean disposal. If there is remaining capacity (within this 50,000 CY allowance) after material determined unsuitable for open ocean disposal is placed in the CAD, and before the end of the 6-month period, the Permittee is proposing to allow its

[2] The average of the lower low water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, comparison of simultaneous observations with a control tide station is made to derive the equivalent datum of the National Tidal Datum Epoch. https://tidesandcurrents.noaa.gov/datum_options.html

residents to place material from the RGP 54 Plan Area determined suitable for open ocean disposal in the CAD facility. However, these activities would require separate approval and be permitted separately through an amendment or re-issuance of the Permittee's RGP 54 Order, or through the issuance of Individual Orders prior to placement into the CAD. If the 50,000 CYs of material is not achieved within the 6-month time period, the Permittee would close the CAD facility and place a 3-foot-thick, clean final cap, thus leaving the final elevation of the CAD facility lower than originally designed. The final elevation of the CAD facility would be restricted to an elevation that is at or below the water depths necessary for navigation within Lower Newport Bay.

Following the 6-month period, a final cap layer would be placed to isolate the underlying contaminated sediment from the water column, burrowing organisms and biota, and Lower Newport Bay. The final cap layer has been designed to a thickness of 3 feet (33,600 CY) and may consist of dredged sediment under an amendment or re-issuance of the Permittee's RGP 54 Order. Additionally, the Permittee is proposing to utilize dredged material generated from maintenance dredging at the Santa Ana River as a contingency, or other sources available at the time for the final cap layer (both options to be permitted separately). Testing of the sediment during dredging would be required to determine suitability for the final cap layer.

The construction of the CAD facility would generate 282,400 CYs of dredged material. It is anticipated that most of this material would be suitable for nearshore ocean placement for beach nourishment purposes at predefined areas, prioritizing as shallow placement as feasible up to -13 feet MLLW (see Attachment A). The top two (2) feet of material may require disposal at LA-3. Sediment sampling during dredging of the CAD facility would be required to determine the acceptability of sediments for nearshore placement areas.

V. Project Location

The Project is located within the central portion of Lower Newport Bay between Bay Island, Lido Isle, and Harbor Island, as well as nearshore waters in Newport Beach, Orange County. The center of the CAD facility is approximately 33.609921° N / -117.905348° W. Maps showing the Project location and proposed nearshore placement areas are found in Attachment A of this Order.

VI. Project Impact and Receiving Waters Information

The Project is located within the jurisdiction of the Santa Ana Water Board. Receiving waters potentially impacted by this Project are protected in accordance with the Water Quality Control Plan for the Santa Ana River Basin (1995) and subsequent amendments (Basin Plan) and other plans and policies. The Basin Plan includes water quality standards, which consist of existing and potential beneficial uses of waters of the state (including waters of the United States), water quality objectives to protect those uses, and the state and federal antidegradation policies.

In 1996 and 1998, the Newport Bay and San Diego Creek watersheds were identified as water quality limited due to several toxic pollutants under section 303(d) of the CWA, and the United States Environmental Protection Agency (USEPA) designated the watershed as a high priority for the development of Total Maximum Daily Loads (TMDLs). Lower Newport Bay was identified as water quality impaired for the following pollutants: copper, lead, selenium, zinc, chlordane, dieldrin, DDT, and PCBs. In 2002, the USEPA addressed these impairments through *Total Maximum Daily Loads for Toxic Pollutants in San Diego Creek and Newport Bay, California* (Toxics TMDLs; USEPA 2002).

In 2011, the Santa Ana Water Board adopted TMDLs for organochlorine compounds for San Diego Creek and Newport Bay, which were subsequently approved by USEPA and replaced USEPA's Toxics TMDLs for chlordane, dieldrin, DDT, and PCBs. In 2017, the Santa Ana Water Board adopted TMDLs for selenium for San Diego Creek, Santa Ana-Delhi Channel, and Big Canyon Wash; no impairment to beneficial uses from selenium was found in Newport Bay. The USEPA approved the Board's selenium TMDLs, which then replaced USEPA's Toxics TMDLs for selenium.

Although Newport Bay has been delisted for lead and zinc, USEPA's Toxic TMDLs are still in effect until the Santa Ana Water Board adopts, and USEPA approves, revised TMDLs for these two metals. Newport Bay is still impaired for copper. Santa Ana Water Board staff have developed revised TMDLs for copper; however, until these copper TMDLs are adopted by the Santa Ana Water Board, and approved by USEPA, the Toxics TMDLs are still in effect for copper as well. The following Santa Ana Water Board Resolutions are applicable to Lower Newport Bay: R8-2011-0037, *Organochlorine Compounds Total Maximum Daily Loads for San Diego Creek, Upper and Lower Newport Bay* and *Investigative Order R8-2018-0075 Order Directing County of Orange and Dischargers to the Newport Bay Watershed Narrative Sediment Quality in Upper Newport Bay and Lower Newport Bay*.

Receiving Water:	Lower Newport Bay
Existing or Potential Beneficial Uses:	Navigation, Water Contact Recreation, Non-contact Water Recreation, Commercial and Sportfishing, Wildlife Habitat, Rare, Threatened, or Endangered Species, Spawning, Reproduction, and Development, Marine Habitat, Shellfish Harvesting

VII. Description of Direct Impacts to Waters of the United States

On behalf of the Permittee, Anchor QEA (Permittee's Agent), developed a set of scenarios to evaluate potential sediment dispersion patterns associated with the disposal operations for the CAD facility, and predict compliance with applicable water quality standards using the Short-Term Fate (STFATE) model[3]. Five scenarios were developed to represent various potential sediment sources that may be placed within the CAD. The scenarios included maximum expected current velocities during ebb and flood tide conditions, three grain size classes, and two placement locations. The analysis was reviewed and evaluated by the USACE's Engineering Research and Development Center (ERDC) and USEPA. Both ERDC and USEPA confirmed the use of the STFATE model and that its parameters were appropriate.

The California Toxics Rule (CTR) Saltwater Criterion Continuous Concentration (CCC; i.e., chronic water quality criterion) for dissolved copper (3.1 µg/L), dissolved mercury (0.94 ug/L), total PCBs (0.03 ug/L), and total DDT compounds, referred to as DDx, (0.001 µg/L) were used in the model to evaluate potential water quality impacts; the predicted results were compared to both the CTR CCC and the CTR Criterion Maximum Concentration (CMC; i.e., acute water quality criterion). The water quality criteria for dissolved copper, dissolved mercury, total PCBs, and total DDx did not exceed the CTR acute criteria (CMC). STFATE modeling indicates that DDx water column concentrations are predicted to exceed the chronic water

[3] STFATE is a sediment transport model designed to evaluate the short-term fate of dredged material disposed in open water for prediction deposition and water quality effects. The model was developed by the USACE Engineering Research and Development Center (ERDC) https://cfpub.epa.gov/si/si_public_record_Report.cfm?Lab=REGION%2009&dirEntryID=17857

quality criterion (CCC) during some placement events; however, the STFATE modeling further indicates that the DDx concentrations would be similar to the ambient water column concentrations currently occurring in Lower Newport Bay.

Once the CAD facility is constructed and the final cap layer is placed, the potential for resuspension of contaminated sediments is considered minimal as the material would be physically isolated. Chemical isolation modeling was conducted to simulate the transport of mercury, DDx, and total PCBs through the final cap layer over a 100-year period. Concentrations six (6) inches below the surface of the final cap are predicted to remain below the porewater criteria (CTR) and sorbed phase criteria National Oceanic and Atmospheric Administration (NOAA) 2008 Screening Quick Reference Tables (SQuiRTs) effects range medium (ERM) for marine sediments for more than 100 years.

The dredging activities for the CAD construction and capping activities would temporarily displace benthic habitat and infauna from the dredging footprint (348,100 square feet), making the benthic habitat and infauna unavailable for special-status species fish to forage. However, following completion of sediment-disturbing activities, (i.e., construction, dredged sediment disposal, final cap placement) benthic habitat in this area is expected to recolonize within approximately two years. To assess whether the recolonizing benthic infauna community are similar to or more diverse than the displaced fauna, the Permittee must provide an assessment of the current benthic community composition, diversity, and health for comparison to post-construction conditions to the Santa Ana Water Board for review and approval 60 days prior to the start of any bottom-disturbing activities within the Project site.

The Permittee proposes to nourish nearby beaches through nearshore placement of clean sand material. The beach nourishment activities have the potential to result in temporarily increased turbidity. These areas are expected to return to background turbidity levels after placement concludes.

Permanent impacts are categorized as those resulting in a physical loss in area and also those degrading ecological condition only. The Project is not anticipated to result in any permanent physical loss of waters of the United States or degradation of ecological condition.

VIII. Description of Indirect Impacts to Waters of the United States

The Santa Ana Water Board recognizes the potential for indirect impacts to waters of the United States associated with the Project. Dredging has the potential to result in accidental spills if equipment is improperly managed. Various materials used during construction could be introduced into the marine environment, including fuel oils, grease, or other petroleum products. These contaminants may be toxic to fish or cause altered oxygen diffusion rates and acute and chronic toxicity to aquatic organisms. Eelgrass and estuarine habitat may similarly be adversely affected by contaminants if introduced to the aquatic ecosystem.

IX. Avoidance and Minimization

The Permittee would implement best management practices (BMPs) throughout the CAD facility construction and during material placement. The following BMPs would be implemented:

- General construction BMPs, including removing floating debris, implementing a water quality monitoring plan, preventing barge overflow, adjusting dredge cycle time and bucket velocity as it is raised and lowered, modifying bucket size or type if necessary,

modifying the operation of the dredging equipment to minimize resuspension of sediment, and washing the bucket to remove cohesive sediment;

- During dredging and placement events, silt curtains would be used to reduce turbidity by isolating the active dredging site from the rest of Lower Newport Bay;
- To minimize the potential for material loss during dredging and placement activities, the Permittee would utilize beam leveling to pull or sweep all placement material that settles outside the CAD facility back to and within the CAD facility boundaries before a clean cover layer is placed or capping is conducted; and
- The final cap layer, using clean material, would be extended beyond the edges of the CAD facility to cover the newly settled material.

X. Compensatory Mitigation

No compensatory mitigation is currently required for the Project. The Project would not result in a net loss of physical area to waters of the United States. The final cap layer would be maintained to ensure long-term containment and chemical isolation of unsuitable dredged material. Moreover, benthic communities are expected to recolonize within approximately two (2) years following placement of the final cap layer. However, this Order requires the Permittee to conduct monitoring to compare pre-Project benthic community conditions to those post-construction. If degradation or loss of the benthic community is found post-construction, the Permittee shall mitigate this impact at a minimum of a 1:1 ratio and must submit a mitigation plan for review and approval by the Santa Ana Water Board. Additionally, eelgrass impacts are not anticipated to occur. However, if eelgrass is identified within the boundaries of the Project area, the Permittee must mitigate for eelgrass impacts at a minimum mitigation to impact ratio of 1.38:1 (mitigation: impact). Please see sections XIV.J (1) and (2) of the Order for other compensatory mitigation requirements.

XI. California Environmental Quality Act (CEQA)

On May 25, 2021, the Permittee, as lead agency under CEQA (Pub. Resources Code, § 21000 et seq.), certified an Environmental Impact Report (EIR) for the Project (State Clearinghouse No. 2019110340). The lead agency filed a Notice of Determination (NOD) with the Clerk of the Board of Supervisors, County of Orange on May 26, 2021.

The Santa Ana Water Board is a responsible agency under CEQA for the purposes of issuing this Order. As a responsible agency, the Santa Ana Water Board is "responsible for considering only the effects of those activities involved in a project which it is required by law to carry out or approve." (Pub. Resources Code, § 21002.1(d).) In issuing this Order, the Santa Ana Water Board has considered the EIR certified by the lead agency, and in making its determinations and findings, must presume that the EIR comports with the requirements of CEQA and is valid (see Pub. Resources Code, §§ 21080.1(a), 21167.2). More specifically, the Santa Ana Water Board considered those sections of the EIR pertaining to potential impacts to water quality. When implemented in accordance with the mitigation measures required in the EIR and the Conditions set forth in this Order, potentially adverse impacts to water quality from the Project should be reduced to a less-than-significant level and beneficial uses of waters of the United States protected.

XII. Petitions for Reconsideration

Any person aggrieved by this action may petition the State Water Resources Control Board (State Water Board) to reconsider this Order in accordance with California Code of

Regulations, title 23, section 3867. A petition for reconsideration must be submitted in writing and received within thirty (30) calendar days of the issuance of this Order.

XIII. Fees Received

An application fee of $2,066 was received on August 26, 2021. The fee amount was determined as required by California Code of Regulations, title 23, sections 3833(b)(3) and 2200(a)(3) and was calculated as Category B - Dredging Discharges (fee code 86) with the dredge and fill fee calculator. Under Category B, additional Project fees would be billed annually based on the quantity of material dredged during the previous fiscal year.

XIV. Conditions

The Santa Ana Water Board has independently reviewed the record of the Project to analyze impacts to water quality and designated beneficial uses within the watershed of the Project. In accordance with this Order, the Permittee may proceed with the Project under the following terms and conditions:

A. Authorization.

a. Facility Footprint: The dredge footprint of the CAD facility shall not exceed 8 acres. The total dredged material to be placed within the CAD shall not exceed 199,500 CY of sediment as described below:

- 106,900 CY of unsuitable dredged material from the Federal Channels;
- 50,000 CY of unsuitable dredged material from outside the Federal Channels;
- 9,000 CY of clean material, likely from the Newport Channel 3, for an interim cap to provide a containment layer designed at a thickness of one (1) foot; and
- 33,600 CY for a final cap layer consisting of clean material placed at a thickness of three (3) feet.

Anchoring or any other bottom disturbing activities not associated with the Project activities are prohibited within the CAD footprint until the final cap layer has been placed.

b. Invasive Alga, Caulerpa: Prior to initiating any bottom disturbing activity, the Permittee shall survey the Project area for the invasive alga Caulerpa (Caulerpa spp.) in accordance with the most current Caulerpa Control Protocol established by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NOAA Fisheries) and in compliance with federal and state protocols for an Infected System[4]. If Caulerpa is found, the Permittee shall notify the Southern California Caulerpa Action Team (SCCAT), in writing via email or other verifiable means within 24 hours of discovery. In the event that Caulerpa is detected, construction activities shall not be conducted until the infestation has been isolated,

[4] Any bay, harbor, estuary, lagoon, or ecological unit in which Caulerpa has been identified, regardless of where the infestation occurs geographically within the system, unless determined otherwise by NOAA's National Marine Fisheries Service (NOAA Fisheries) and California Department of Fish and Wildlife (CDFW).

and treated, or the risk of spread from the construction activities is eliminated and the SCCAT has concurred in writing.

c. Eelgrass: Thirty (30) days prior to initiating any bottom disturbing activities, the Permittee shall survey the Project area for eelgrass. If eelgrass is located, a post-construction survey shall also be performed by the Permittee within thirty (30) days following completion of final cap placement to evaluate any immediate effects to eelgrass habitat. The eelgrass survey shall be consistent with the Eelgrass Protection and Mitigation Plan for Shallow Waters in Lower Newport Bay: An Ecosystem Based Management Program (City of Newport Beach; October 14, 2015) (Newport Bay Eelgrass Protection and Mitigation Plan) and conform to the latest California Eelgrass Mitigation Policy (CEMP) procedures established by the NOAA Fisheries.

i. Prior to commencement of any bottom disturbing activity authorized under this Order, the boundaries of any eelgrass meadow within 30 feet of the activity shall be marked with buoys so that equipment and vessel operators avoid damage to eelgrass meadows.

ii. Barges and other vessels shall be anchored a minimum of 15 feet from any eelgrass bed. Anchors and anchor chains shall not encroach into any eelgrass bed.

iii. Barges and other vessels shall avoid transit over any eelgrass meadow to the maximum extent practicable. Where transit over eelgrass beds is unavoidable, such transit shall only occur during high tides when grounding and potential damage to eelgrass can be avoided.

B. Bathymetric Surveys: The Permittee shall conduct the following bathymetric surveys and submit within 14 days of survey completion to Santa Ana Water Board staff for review.

a. A bathymetric survey of the CAD facility shall be conducted within 30 days of initiation disposal operations to ensure the CAD facility has been constructed to meet the design specifications as outlined as part of the Basis of Design Report (BODR, Anchor QEA 2022) and in this Order.

b. A bathymetric survey of the CAD facility shall be conducted within 14 days after the sediments unsuitable for open ocean disposal have been placed within the CAD facility to ensure that the material has been placed evenly within the CAD facility.

c. A bathymetric survey of the CAD facility shall be conducted within 14 days after the interim cover containment layer is constructed to ensure that the material has been placed evenly and at the proper depth within the CAD facility.

d. A bathymetric survey of the CAD facility shall be conducted within 14 days after the final cap is constructed to ensure that the material has been placed evenly and at the proper depth within the CAD facility.

C. Interim Cap Bioturbation Monitoring: If placement of dredged material from outside the Federal Channel has not initiated within three (3) months of the installation of the interim

cap layer, the Permittee shall conduct visual bioturbation monitoring. If recolonization of benthic communities occurs during the 3-month time period, the interim cap thickness shall be increased to 18 inches (1.5 feet) to provide adequate protection from resuspension and contaminant flux as a result of burrowing marine organisms.

D. Reporting and Notification Requirements

The following section details the reporting and notification types and timing of submittals. Requirements for the content of these reporting and notification types are detailed in Attachment B, including specifications for photo and map documentation during the Project construction. Written reports and notifications shall be submitted using the *Reporting and Notification Cover Sheet* located in Attachment B and signed by the Permittee or an authorized representative.

1. Project Reporting:

a. Annual Reporting. The Permittee shall submit an Annual Report each year on the anniversary of the effective date of this Order. Annual reporting shall continue until a *Notice of Project Complete Letter* is issued to the Permittee. The Annual Report shall include documentation of compliance with all required conditions, monitoring, and applicable water quality standards.

2. Project Status Notifications:

a. Commencement of Construction. The Permittee shall submit a *Commencement of Construction Report* at least seven (7) days prior to start of initial bottom disturbing activities.

b. Interim Cap Placement. The Permittee shall submit a *Notice of Interim Cap Placement* following completion of interim cap placement. This notice shall be submitted to Santa Ana Water Board staff within 14 days following interim cap placement and include results of the bathymetric survey.

c. Final Cap Placement. The Permittee shall submit a *Notice of Final Cap Placement* following completion of final cap placement. This notice shall be submitted to Santa Ana Water Board staff within 14 days following final cap placement and include results of the bathymetric survey.

d. Request for Notice of Completion of Discharges Letter. The Permittee shall submit a *Request for Notice of Completion of Discharges Letter* following completion of active Project construction activities, including any required restoration and Permittee-responsible mitigation. This request shall be submitted to Santa Ana Water Board staff within 30 days following completion of all Project construction activities. Upon acceptance of the request, Santa Ana Water Board staff will issue to the Permittee a *Notice of Completion of Discharges Letter*, which will end the active discharge period and, if appropriate, associated annual fees.

e. Request for Notice of Project Complete Letter. The Permittee shall submit a *Request for Notice of Project Complete Letter* when construction and any required

post-construction monitoring is complete[5] and no further Project activities will occur. This request shall be submitted to Santa Ana Water Board staff within 30 days following completion of all Project activities. Upon approval of the request, the Santa Ana Water Board staff will issue to the Permittee a *Notice of Project Complete Letter*, which will end the post-construction monitoring period and associated annual fees, if applicable.

3. **Conditional Notifications and Reports:** The following notifications and reports are required as appropriate.

   a. **Accidental Discharges of Hazardous Materials.**[6] Following an accidental discharge of a reportable quantity of a hazardous material, sewage, or an unknown material, the following applies (Wat. Code, § 13271):

      i. As soon as (A) the Permittee has knowledge of the discharge or noncompliance, (B) notification is possible, and (C) notification can be provided without substantially impeding cleanup or other emergency measures, then the Permittee shall:
      - first call – 911 (to notify local response agency)
      - then call – Office of Emergency Services (OES) State Warning Center at (800) 852-7550 or (916) 845-8911
      - lastly, follow the required OES procedures as set forth in the *California Hazardous Materials Spill / Release Notification Guidance*

      ii. Following notification to OES, the Permittee shall notify the Santa Ana Water Board, as soon as practicable (ideally within 24 hours). Notification may be via telephone, email, delivered written notice, or other verifiable means.

      iii. Within five (5) working days of notification to the Santa Ana Water Board, the Permittee shall submit an *Accidental Discharge of Hazardous Material Report.*

   b. **Violation of Compliance with Water Quality Standards.** The Permittee shall notify the Santa Ana Water Board of any event causing a violation of compliance with water quality objectives. Notification may be via telephone, email, delivered written notice, or other verifiable means.

      i. Examples of noncompliance events include, but not limited to, a lack of storm water treatment following a rain event, discharges causing a visible plume in a water of the United States, or exceedances in water column contaminant levels.

      ii. If an exceedance of a water quality contaminant level does occur, the Permittee must conduct additional sampling to confirm the exceedance. If the exceedance

[5] Completion of post-construction monitoring will be determined by Santa Ana Water Board staff and will be contingent on successful attainment of restoration and mitigation performance criteria.

[6] "Hazardous material" means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment. (Health & Safety Code, § 25501.)

is confirmed by the additional sampling, then the Permittee will be required to investigate and remediate the cause of the exceedance, submit a corrective action plan to the Santa Ana Water Board within seven (7) days of the exceedance, and submit a report with the results of the investigation including analytical and QA/QC data within 30 days of the exceedance.

iii. This notification shall be followed within three (3) working days by submission of a *Violation of Compliance with Water Quality Standards Report* to the Santa Ana Water Board.

c. Modifications to Project. Project modifications may require an amendment of this Order. The Permittee shall give advance notice to Santa Ana Water Board staff by submitting a *Modifications to Project Report*, if Project implementation as described in the application materials is altered in any way or by the imposition of subsequent permit conditions by any local, state, or federal regulatory authority. The Permittee shall inform Santa Ana Water Board staff of any Project modifications that will interfere with the Permittee's compliance with this Order. Notification may be made in accordance with conditions in the Certification Deviation section of this Order.

d. Transfer of Property Ownership. This Order is not transferable in its entirety or in part to any person or organization except after notice to the Santa Ana Water Board in accordance with the following terms:

i. The Permittee shall notify the Santa Ana Water Board by submitting a *Transfer of Property Ownership Report* of any change in ownership or interest in ownership of the Project area. The Permittee and purchaser shall sign and date the notification and provide such notification to the Santa Ana Water Board at least ten (10) days prior to the transfer of ownership. The purchaser shall also submit a written request to the Santa Ana Water Board to be named as the permittee in a revised order.

ii. Until such time as this Order has been modified to name the purchaser as the new permittee, the Permittee shall continue to be responsible for all requirements set forth in this Order.

e. Transfer of Long-Term Best Management Practices (BMPs) Maintenance. If maintenance responsibility for post-construction BMPs is legally transferred, the Permittee shall submit to the Santa Ana Water Board a copy of such documentation and shall provide the transferee with a copy of a long-term BMP maintenance plan that complies with manufacturer or designer specifications. The Permittee shall provide such notification to the Santa Ana Water Board with a *Transfer of Long-Term BMP Maintenance Report* at least 10 days prior to the transfer of BMP maintenance responsibility.

E. Monitoring and Reporting Program

1. General Monitoring Provisions: California Water Code sections 13267 and 13383 authorize the Regional Water Quality Control Boards to require technical and monitoring reports. The monitoring and reporting requirements in contained herein are necessary to demonstrate compliance with this Order. The burden, including costs, of these

requirements bears a reasonable relationship to the need for the information and the benefits to be obtained from that information.

i. All sampling, sample preservation, and analytical procedures shall be in accordance with the current approved edition of *"Standard Methods for the Examination of Water and Wastewater"* (American Public Health Association) and/or 40 Code of Federal Regulations part 136 approved methods, unless otherwise specified by the Executive Officer of the Santa Ana Water Board.

ii. Unless otherwise approved by the Regional Water Board's Executive Officer, all analyses shall be conducted by a laboratory accredited by State Water Board's Environmental Laboratory Accreditation Program.

iii. The Permittee shall have and implement an acceptable written quality assurance (QA) plan for laboratory analyses and contracted laboratories. Duplicate chemical analyses shall be conducted on a minimum of ten percent (10%) of the samples.

iv. All monitoring instruments and devices used by the Permittee to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. In the event that continuous monitoring equipment is out of service for greater than a 24-hour period, the Permittee shall obtain a representative grab sample each day the equipment is out of service. The Permittee shall correct the cause(s) of failure of the continuous monitoring equipment as soon as practicable. In the annual report, the Permittee shall specify the period(s) during which the equipment was out of service, and if the problem has not been corrected, shall identify the steps which the Permittee is taking or proposes to take to bring the equipment back into service and the schedule for these actions.

2. **Pre-Construction Monitoring**: 60 days prior to start of bottom disturbing activities, the Permittee shall submit a Sampling and Analysis Plan (SAP) to the Santa Ana Water Board for review and approval. At a minimum, the SAP shall include the following:

a. A representative number of randomly placed (using a numeric model) surficial sediment samples both within the footprint of the CAD facility and within the 75-foot dispersal area around the CAD both prior to the start of the CAD construction.

b. A map and GPS data for the source location(s) and the volume of material being sourced from each location.

c. Samples shall be analyzed for contaminants of concern (metals, including mercury, and organics, including at a minimum, total DDx, total PCBs, and current use pesticides such as pyrethroids), toxicity, total organic carbon, and grain size.

d. Provide an assessment of the current benthic community composition, diversity, and health for comparison to post-construction conditions.

e. Copies of the original chain-of-custody forms and analytical laboratory data sheets including QA data.

3. **Construction Water Quality Monitoring**: 60 days prior to start of any bottom disturbing activities, the Permittee shall submit *a Water Quality Monitoring and Reporting Plan* to the Santa Ana Water Board for review and approval. The Project activities shall not proceed until the *Water Quality Monitoring and Reporting Plan* has been approved by Santa Ana Water Board. At a minimum, the plan shall include the following:

   a. Water column monitoring shall occur at set distances from the bottom disturbing activities and disposal activities. The proposed down current sampling distances for each new bottom disturbing or disposal activity shall be at a minimum of 150, 200, and 250 feet, and the samples shall be collected at controlled locations, within 15 minutes of the disposal event. In addition, one up current station located within 150 feet of the Project area shall also be monitored as a reference location for comparison with the down current locations.

   b. At each controlled location, continuous depth profiles shall be collected a minimum of three times per week at the following depths, three (3) feet below the water surface, one (1) foot above the ocean bottom, and the midway point between the previous depths.

   c. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

   d. Monitoring and reporting shall be required more frequently or adjusted from the initial approved frequency based on review of date collected, as determined by the Santa Ana Water Board Executive Officer, to maintain, compliance with this Order and/or as specified in this Order. The results of this monitoring shall be included in the calculation and reporting of the data submitted in the annual report.

   e. The Permittee shall conform to the following water column quality objectives when initiating any bottom disturbing activities, including construction of the Project and during dredge material placement activities within the Project footprint:

      i. Oil and Grease. Waste discharges shall not result in deposition of oil, grease, wax, or other material in concentrations that result in a visible film or in coating objects in the water, or that cause a nuisance or adversely affect beneficial uses.

      ii. Dissolved Oxygen. The dissolved oxygen content of enclosed bays and estuaries shall not be depressed to levels that adversely affect beneficial uses as a result of controllable water quality factors. Dissolved oxygen levels shall not be depressed below 5.0 mg/L outside of the Project site.

      iii. pH. The pH of bay or estuary waters shall not be raised above 8.6 or depressed below 7.0 as a result of controllable water quality factors; ambient pH levels shall not be changed by more than 0.2 unit.

      iv. Light Transmissivity. Monitoring of light transmissivity shall occur within the sampling water column, throughout the Project footprint. Averaged light transmissivity shall not decrease more than 40 percent within the cumulative average of samples collected and analyzed. Monitoring areas shall be the same as for turbidity.

v. **Turbidity.** Increases in turbidity that result from controllable water quality factors shall comply with the following: where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases shall not exceed 20 percent; where natural turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU; and where natural turbidity is greater than 100 NTU, increases shall not exceed 10 percent. Changes in turbidity shall not adversely affect beneficial uses.

vi. **Total Suspended Solids.** Enclosed bays and estuaries shall not contain suspended or settleable solids in amounts which cause a nuisance or adversely affect beneficial uses as a result of controllable water quality factors.

vii. **Total PCBs.** Monitoring of total PCBs concentrations shall occur within the sampling water column, throughout the Project footprint. The CMC value of 0.014 µg/L according to the CTR, shall be used as an acute toxicity concentration.

viii. **Total DDx.** Monitoring of total DDx concentrations shall occur within the sampling water column, throughout the Project footprint. The CMC value of 1.1 µg/L, according to the CTR, shall be used as an acute toxicity concentration.

ix. **Chlordane.** Monitoring of total chlordane concentrations shall occur within the sampling water column, through the Project footprint. The CMC value of 2.4 µg/L, according to the CTR, shall be used as an acute toxicity concentration.

x. **Dieldrin.** Monitoring of dieldrin concentrations shall occur within the sampling water column, throughout the Project footprint. The CMC value of 0.24 µg/L, according to the CTR, shall be used as an acute toxicity concentration.

xi. **Toxaphene.** Monitoring of toxaphene concentrations shall occur within the sampling water column, throughout the Project footprint. The CMC value of 0.73 µg/L, according to the CTR, shall be used as an acute toxicity concentration.

xii. **Arsenic.** Monitoring of arsenic concentrations shall occur within the sampling water column, throughout the Project footprint. The CMC value of 69.0 µg/L, according to the California Toxics Rule, shall be used as an acute toxicity concentration.

xiii. **Copper.** Monitoring of copper concentrations shall occur within the sampling water column, throughout the Project footprint. The CMC value of 4.8 µg/L, according to the CTR, shall be used as an acute toxicity concentration.

xiv. **Chromium.** Monitoring of chromium (VI) concentrations shall occur within the sampling water column, throughout the Project footprint. The CMC value of 1,100 µg/L, according to the CTR, shall be used as an acute toxicity concentration.

xv. **Lead.** Monitoring of lead concentrations shall occur within the sampling water column, throughout the Project footprint. The CMC value of 210 µg/L, according to the California Toxics Rule, shall be used as an acute toxicity concentration.

xvi. **Nickel.** Monitoring of nickel concentrations shall occur within the sampling water column, throughout the Project footprint. The CMC value of 74 µg/L, according to the California Toxics Rule, shall be used as an acute toxicity concentration.

xvii. **Zinc.** Monitoring of zinc concentrations shall occur within the sampling water column, throughout the Project footprint. The CMC value of 90 µg/L, according to the California Toxics Rule, shall be used as an acute toxicity concentration.

xviii. **Mercury.** Monitoring of mercury concentrations shall occur within the sampling water column, throughout the Project footprint. The Instantaneous Maximum water quality objective of 0.4 µg/L, according to the 2015 California Ocean Plan, shall be used as an acute toxicity concentration.

xix. **Tributyltin.** Monitoring of tributyltin (TBT) concentrations shall occur within the sampling water column, throughout the Project footprint. The CMC value of 0.42 µg/L, according to the USEPA's 2021, Ambient Aquatic Life Water Quality Criteria for Tributyltin (TBT), shall be used as an acute toxicity concentration.

Sampling shall be conducted in accordance with Table 2 sampling parameters[7].

[7] Parameters shall be analyzed using the analytical methods described in 40 Code of Federal Regulations Part 136; where no methods are specified for a given pollutant, a description of the method to be used must be submitted to the Santa Ana Water Board staff for approval. A hand-held field meter may be used, provided the meter utilizes a U.S. Environmental Protection Agency-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring shall be maintained onsite.

Table 2: Parameter, Acute Toxicity Criterion, Sample Type and Frequency Requirements				
Parameter	Acute Toxicity Criterion	Unit of Measurement	Type of Sample	Minimum Frequency
Oil and Grease	N/A	N/A	Visual	Continuous
Dissolved Oxygen	>5.0 mg/L	mg/L & % saturation	Grab[8]	Three times per week
pH	N/A	Standard Units	Grab	Three times per week
Turbidity	N/A	NTU	Grab	Continuous
Total Suspended Solids	N/A	mg/L & ppm	Grab	Three times per week
PCBs	0.014	µg/L	Grab	Three times per week
DDx (total DDTs)	1.1	µg/L	Grab	Three times per week
Chlordane	2.4	µg/L	Grab	Three times per week
Dieldrin	0.24	µg/L	Grab	Three times per week
Toxaphene	0.73	µg/L	Grab	Three times per week
Arsenic	69	µg/L	Grab	Three times per week
Copper	4.8	µg/L	Grab	Three times per week
Chromium	1100	µg/L	Grab	Three times per week
Lead	210	µg/L	Grab	Three times per week
Nickel	74	µg/L	Grab	Three times per week
Zinc	90	µg/L	Grab	Three times per week
Mercury	0.4	µg/L	Grab	Three times per week
Tributyltin (TBT)	0.42	µg/L	Grab	Three times per week

f. If continuous turbidity monitoring demonstrates turbidity greater than the allowed percentage of increase above natural turbidity levels, the sampling frequency for all other parameters shall increase to continuous monitoring.

g. The Permittee shall comply with the numeric receiving water limitations specified in Table 3. Samples shall be collected at a minimum of four sampling locations, at a distance of no more than 300 feet from the Project boundary, including a sample from the perimeter of the Project boundary, and a sample from within the Project boundary. The Permittee may use the Permittee's most recent eelgrass survey to determine whether eelgrass is present within 300 feet of a project site.

i. **Light Transmissivity.** Monitoring of light transmissivity shall occur within the sampling water column, throughout the Project footprint. Averaged light transmissivity shall not decrease more than 40 percent within the cumulative average of samples collected and analyzed. Light transmissivity shall not decrease more than 38% where eelgrass is present within 300 feet. Light transmissivity shall not decrease more than 16% where no eelgrass is present within 300 feet. Monitoring areas shall be the same as for turbidity.

ii. **Turbidity.** Increases in turbidity that result from controllable water quality factors shall comply with the following: where eelgrass is present within 300 feet, increases shall not exceed 16 NTU; where no eelgrass is present within 300 feet,

[8] A "grab" sample is defined as any individual sample collected in less than fifteen (15) minutes

increases shall not exceed 47 NTU. Changes in turbidity shall not adversely affect beneficial uses.

Table 3: Numeric Receiving Water Limitations		
Parameter	Receiving Water Limitation	
	Eelgrass Present within 300 ft	No Eelgrass Present within 300 ft
Light Transmissivity	38%	16%
Turbidity	16 NTU	47 NTU
pH	7 > pH < 8.6 < 0.2 change from ambient	
Dissolved Oxygen	> 5 mg/L	

4. **Interim Cap Placement Plan.** 60 days prior to interim cap placement, the Permittee shall submit an *Interim Cap Placement Plan* to Santa Ana Water Board for review and approval. The *Interim Cap Placement Plan* shall include the following:

   a. Sediment characterization data for material to be used for the interim cap layer to determine its suitability. The characterization data shall be representative of the volume of material being dredged for placement of the interim cap from each source location and must include chemistry (metals, including mercury, and organics, including at a minimum, total DDx, total PCBs, and current use pesticides such as pyrethroids), toxicity, total organic carbon, and grain size analysis.

   b. Visual bioturbation monitoring, if placement of dredged material has not initiated within three (3) months of the installation of the interim cap layer.

   c. A map and GPS data for the source location(s) and the volume of material being sourced from each location.

   d. Copies of the original chain-of-custody forms and analytical laboratory data sheets including QA data.

5. **Final Cap Placement Plan.** 90 days prior to the placement of the interim cap layer, the Permittee shall submit a *Final Cap Placement Plan* to Santa Ana Water Board staff for review and approval. The placement of the interim cap shall not occur until the *Final Cap Placement Plan* has been approved by the Santa Ana Water Board Executive Officer. The *Final Cap Placement Plan* shall include the following:

   a. Final design of the final cap layer, including a thickness of no less than 3 feet;

      i. If the 50,000 CYs of material is not achieved within the 6-month time period, the Permittee would close the CAD facility and place a 3-foot-thick, clean final cap, thus leaving the final elevation of the CAD facility lower than originally designed. The final elevation of the CAD facility must be restricted to an elevation that is at or below the water depths necessary for navigation within Lower Newport Bay;

   b. The source(s) of the final cap material including a map and GPS location(s);

c. Characterization data and testing results of the material intended to be used for the final cap layer, and confirmation that the sourced material meets the performance criteria of sediment tested and modelled as part of the Basis of Design Report (BODR, Anchor QEA 2022). Characterization data shall include chemistry (metals, including mercury, and organics, including at a minimum, DDTs, PCBs, and current use pesticides such as pyrethroids), toxicity, total organic carbon, and grain size analysis;

d. The number of samples to be analyzed per volume of fill material used in the final cap layer. In addition, the location(s) of the fill source(s) shall be documented and the volume of fill from each location recorded and tracked; and

e. Copies of the original chain-of-custody forms and analytical laboratory data sheets including QA/QC data.

6. **Nearshore Sand Placement Plan:** 30 days prior to nearshore placement activities, the Permittee shall submit a *Nearshore Placement Plan* to the Santa Ana Water Board for review and approval. The *Nearshore Placement Plan* shall include the following:

   a. Framework for the Permittee to monitor, record, and report the location and depth of sand placement events to verify material has been placed as shallow as possible.

   b. Sediment characterization data for material to be used for nearshore placement to determine its suitability. The characterization data shall include chemistry (metals, including mercury, and organics, including at a minimum, total DDx, total PCBs, and current use pesticides such as pyrethroids), toxicity, total organic carbon, and grain size analysis.

      i. Only clean sand material composed of greater than 80% sands shall be placed along nearshore placement areas outlined in Attachment A.

   c. A map and GPS data for the source location(s) and the volume of material being sourced from each location.

   d. Copies of the original chain-of-custody forms and analytical laboratory data sheets including QA data.

7. **Accidental Discharges/Noncompliance:** Upon occurrence of an accidental discharge of hazardous materials or a violation of compliance with a water quality standard, Santa Ana Water Board staff may require water quality monitoring based on the discharge constituents and/or related water quality objectives and beneficial uses.

8. **Post-Construction:** The Permittee shall monitor the Project site for fifteen (15) years after the final cap has been placed to ensure excessive erosion, CAD facility instability, or other water quality pollution or degradation is not occurring as a result of the Project activities. Post-construction monitoring shall include the following:

   a. Bathymetry surveys using multi-beam sonar immediately following construction and final cap placement, after three (3) months, six (6) months, twelve (12) months, five (5) years, and ten (10) years.

b. Porewater concentrations shall be monitored for metals and total PCBs using in-situ sediment probes one (1) year following construction, five (5) years following construction, and fifteen (15) years following construction.

c. At (1) year, five (5) years, ten (10), and fifteen (15) years following completion of final cap placement, the Permittee shall conduct sediment coring to provide information on the physical characteristics of the final cap layer and underlying sediment (i.e., final cap thickness, horizontal coverage, and extent of mixing between layers) and the chemical characteristics of the final cap layer for comparison to baseline data collected immediately after final cap placement. Core chemistry data will be collected at a minimum of five locations distributed across the CAD facility to establish a profile of chemicals in various layers of the final cap and in the underlying sediment.

d. At year two (2) and five (5), the Permittee shall implement the Inland Surface Waters, Enclosed Bays, and Estuaries Water Quality Control Plan - Sediment Quality Provisions using the sediment quality objectives (SQOs) method, which requires analysis of sediment chemistry, toxicity, and benthic community health to determine whether there are impacts to the benthic community within the Project site. The sample locations must be randomized using a numeric model and must be representative of the Project site, including the 75-foot dispersal area.

e. The Permittee shall submit a plan of implementation for the *Sediment Quality Provisions* to the Santa Ana Water Board for review and approval within one (1) year following final cap placement. The sediment quality method weight of evidence approach as specified in the Sediment Quality Provisions (2018) must be used.

f. If any samples are found to not meet the SQOs (i.e., are possibly, likely, or clearly impacted), additional remediation of the Project site may be necessary as determined by the Santa Ana Water Board. Sample analyses and SQO calculations shall also be compared to pre-Project conditions. If water quality pollution or degradation is occurring, contact the Santa Ana Water Board staff member overseeing the Project within three (3) working days. The Santa Ana Water Board may require the submission of a Violation of Compliance with Water Quality Standards Report. Additional permits may be required to carry out any necessary site remediation.

g. At a minimum, visual bioturbation and benthic community monitoring shall be conducted annually within the Project footprint for no less than 5 years after construction of the final cap has been completed. Photographic documentation including number and types of burrows, should be included in the Permittees Annual Report for the Project as well as documentation that demonstrates that the benthic community that recolonized the Project site is equivalent to or in better condition than that which existed prior to the Project. Any differences in benthic community composition, abundance, density, and diversity shall be documented and explained in the Annual Report.

h. Nearshore Biological Monitoring. One (1) year post sand placement, a nearshore biological survey shall be conducted following the exact methods employed by Coastal Resources Management, Inc. and documented in their January 26, 2022, (City of Newport Beach, Lower Newport Harbor CAD) Newport Beach Nearshore

Marine Biological Survey. The post-Project report shall compare the pre- and post-survey results and draw conclusions regarding any potential adverse impacts of the Project on the nearshore marine benthos and potential recommendations to improve future deposition events. The final report shall be submitted within 90 days of the final survey.

F. Standards

1. This Order will expire if Project activities do not commence within five (5) years from the effective date of the Order. Any request for extension of the expiration date must be approved in writing by the Santa Ana Water Board.

2. This Order is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330 and California Code of Regulations, title 23, chapter 28, article 6 commencing with sections 3867-3869, inclusive. Additionally, the Santa Ana Water Board reserves the right to suspend, cancel, or modify and reissue this Order, after providing notice to the Permittee, if the Santa Ana Water Board determines that the Project fails to comply with any of the conditions of this Order; or when necessary to implement any new or revised water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act (Water Code, § 13000 et seq.) or federal Clean Water Act section 303 (33 U.S.C. § 1313). For purposes of Clean Water Act section 401(d), the condition constitutes a limitation necessary to assure compliance with water quality standards and appropriate requirements of state law.

3. This Order is not intended to and shall not be construed to apply to any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license, unless the pertinent certification application was filed pursuant to subsection 3855(b) of chapter 28, title 23 of the California Code of Regulations, and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

4. This Order is conditioned upon total payment of any fee required under title 23 of the California Code of Regulations and owed by the Permittee.

5. In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, processes, or sanctions as provided for under state and federal law. For purposes of Clean Water Act section 401(d), the applicability of any state law authorizing remedies, penalties, processes, or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Order.

G. General Compliance

1. Failure to comply with any condition of this Order shall constitute a violation of the Porter-Cologne Water Quality Control Act and the Clean Water Act. The Permittee and/or discharger may then be subject to administrative and/or civil liability including but not limited to pursuant to Water Code section 13385.

2. If the conditions of this Order are changed, any of the criteria or conditions as previously described are not met, or new information becomes available that indicates a water quality problem, the Santa Ana Water Board may require that the Permittee submit a Report of Waste Discharge and obtain Waste Discharge Requirements.

3. Permitted actions shall not cause a violation of any applicable water quality standards and the state antidegradation policy, including impairment of designated beneficial uses for receiving waters, as adopted in the Basin Plan and any subsequent Basin Plan amendments or in any applicable State Water Board water quality control plan or policy. The source of any such discharge shall be eliminated as soon as practicable.

4. In response to a suspected violation of any condition of this Order, the Santa Ana Water Board may require the holder of this Order to furnish, under penalty of perjury, any technical or monitoring reports the Santa Ana Water Board deems appropriate, provided that the burden, including costs, of the reports bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. The additional monitoring requirements ensure that permitted discharges and activities comport with any applicable effluent limitations, water quality standards, and/or other appropriate requirement of state law.

5. The Permittee shall, at all times, fully comply with engineering plans, specifications, and technical reports submitted to support this Order and all subsequent submittals required as part of this Order. The conditions within this Order and Attachments supersede conflicting provisions within Permittee submittals.

6. This Order and all of its conditions contained herein continue to have full force and effect regardless of the expiration or revocation of any federal license or permit issued for the Project. For purposes of Clean Water Act section 401(d), this condition constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements of state law.

H. Administrative

1. Signatory requirements for all document submittals required by this Order are presented in Attachment C of this Order.

2. This Order does not authorize any act that results in the taking of a threatened, endangered, or candidate species, or any act that is now prohibited or becomes prohibited in the future under either the California Endangered Species Act (Fish & Game Code, §§ 2050-2097) or the federal Endangered Species Act (16 U.S.C. §§ 1531-1544). If a "take" will result from any act authorized under this Order held by the Permittee, the Permittee shall obtain authorization for the take prior to any construction or operation of the portion of the Project that may result in a take. The Permittee is responsible for meeting all requirements of the applicable endangered species act for the Project authorized under this Order.

3. The Permittee shall grant Santa Ana Water Board staff or an authorized representative (including an authorized contractor acting as a Water Board representative), upon presentation of credentials and other documents as may be required by law, permission to:

a. Enter upon the Project or compensatory mitigation site(s) premises where a regulated facility or activity is located or conducted, or where records are kept;

b. Have access to and copy any records that are kept and are relevant to the Project or the requirements of this Order;

c. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order;

d. Sample or monitor for the purposes of assuring Order compliance.

4. A copy of this Order shall be provided to any consultants, contractors, and subcontractors working on the Project. Copies of this Order shall remain at the Project site for the duration of this Order. The Permittee shall be responsible for work conducted by its consultants, contractors, and any subcontractors.

5. A copy of this Order shall be available at the Project site(s) during construction for review by site personnel and agencies. All personnel performing work on the Project shall be familiar with the content of this Order and its posted location at the Project site.

I. Construction

1. Construction and Operational Best Management Practices (BMPs): The following BMPs shall be implemented:

a. If nearshore sand placement is to be conducted during nighttime hours; nights with predicted grunion runs as identified by the CDFW must be avoided(https://wildlife.ca.gov/Fishing/Ocean/Grunion).

b. Operational BMPs, such as reduction in dredging rate, modification of clamshell operation, use of favorable tidal conditions to minimize spread of turbidity plumes, and temporary suspension of dredging, shall be employed, as necessary. Other general construction BMPs, including removing floating debris, preventing barge overflow, adjusting dredge cycle time and bucket velocity as it is raised and lowered, modifying bucket size or type when necessary, modifying the operation of the dredging equipment to minimize resuspension of sediment, and washing the bucket to remove cohesive sediment, shall be implemented as necessary.

c. To minimize the potential for material loss during dredging and placement activities, the Permittee would utilize beam leveling to pull or sweep all placement material that settles outside the CAD facility back to and within the CAD facility boundaries before a clean cover layer is placed or capping is conducted; and

d. During dredging and placement events, monitoring buoys that provide continuous and real-time information on turbidity levels shall deployed and maintained both up and down current of the Project area. Turbidity monitoring buoys should be placed 150 feet up current of the Project Area and at 150, 200, and 250 feet down current of the Project Area.

e. Silt curtains shall be utilized during dredging and material placement activities to reduce turbidity by isolating the active dredging site from the rest of Lower Newport Bay. Additionally, a floating boom shall be maintained around the Project area.

i. The silt curtains must be comprised of Type 3 impermeable (heavy duty) geotextile material.

ii. The silt curtains must be maintained as a full turbidity enclosure. The silt curtains must be supported by floating debris booms in open water areas and include bottom connectors, ballast chains, and tension cables to fully secure and minimize movement of the silt curtains.

iii. Silt curtains must be continuously monitored for damage, dislocation, or gaps and must be immediately repaired where it is no longer continuous or where it has loosened.

f. Material placement must take place outside tidal extremes. Material placement activities should be limited to neap and non-peak tides, defined as plus or minus 2 hours from slack tide, to limit the horizontal distribution of dredged or fill material placed in the CAD facility due to reduced current speeds. In addition, placement activities should be conducted during a non-peak flood tide. These measures would limit the loss of dredged or fill material outside the CAD facility during placement operations.

g. All materials generated from the Project activities shall be managed appropriately. The Permittee shall identify all potential pollution sources associated with the Project and incorporate all necessary pollution prevention BMPs for each potential pollution source identified. Any and all debris resulting from construction activities shall be removed from the site within ten (10) days of completion of construction.

h. Sediment for nearshore placement shall be placed, not dumped, using means to minimize turbidity and disturbance to Lower Newport Bay sediments.

i. BMPs for effective perimeter control shall be in place at all times to control the discharge of pollutants from the Project site during CAD construction and material placement. Chemical, fuel, and lubricant containers shall be kept closed and protected from damage or upset at all times, unless being actively used.

b. Substances resulting from Project-related activities and that could be harmful to aquatic life shall not be discharged to waters of the United States. These substances include but are not limited to petroleum lubricants and fuels, cured and uncured cements, epoxies, paints and other protective coating materials, Portland cement concrete or asphalt concrete, and washings and cuttings thereof.

c. Motorized equipment shall not be maintained or parked in such manner that petroleum products or other pollutants from the equipment might enter waters of the United States. Equipment shall not be operated on-site in waters of the United States, except as necessary to complete the proposed Project.

2. **Hazardous Materials:** During construction activities, the Permittee shall comply with local, state, and federal laws and regulations regarding the handling and storage of hazardous substances.

J. Compensatory Mitigation: No permanent degradation of ecological condition is expected from the Project; however, the Permittee shall comply with the following mitigation requirements if degradation is subsequently identified:

1. **Benthic Impacts.** If post-construction degradation or loss of the benthic community within the Project site is found (after completion of post-construction monitoring for this potential impact in year five (5) following placement of the final cap layer), the Permittee shall mitigate this impact at a minimum of a 1:1 ratio. However, if recolonization of benthic communities occurs between placement of the interim cap and final cap layer the Permittee shall mitigate those impacts at a ratio greater than 1:1, up to a 2:1 ratio. The Permittee must submit a mitigation plan with all of the elements required by the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* for review and approval by the Santa Ana Water Board.

2. **Eelgrass Impacts.** If eelgrass has been identified within the boundaries of the Project area, the Permittee shall mitigate for eelgrass impacts at a minimum mitigation to impact ratio of 1.38:1. If eelgrass is found during the pre-dredging survey, a post-dredging survey must be performed within 30 days following Project completion to quantify any unanticipated losses to eelgrass habitat. Impacts must then be determined from a comparison of pre- and post-dredging survey results. Impacts to eelgrass, if any, must be mitigated through conformance with the CEMP, which defines the mitigation ratio and other requirements to achieve mitigation for significant eelgrass impacts. If required following the post-dredging survey, the CEMP defined mitigation plan must be developed, submitted to and approved by the Santa Ana Water Board, and implemented to offset eelgrass impacts. If compensatory mitigation cannot be completed onsite, the Permittee shall mitigate for at least a 3:1 mitigation ratio.

XV. Certification Deviation

Minor modifications of Project locations or predicted impacts may be necessary as a result of unforeseen field conditions, necessary engineering re-design, construction concerns, or similar reasons. Some of these prospective Project modifications may have impacts on water resources. For purposes of this Certification, a *Certification Deviation* is a Project locational or impact modification that does not require an immediate amendment of the Order because the Santa Ana Water Board has determined that any potential water resource impacts that may result from the change are sufficiently addressed by the Order conditions and the CEQA findings. After the termination of construction, this Order will be formally amended to reflect all authorized Certification Deviations and any resulting adjustments to the amount of water resource impacts and required compensatory mitigation amounts.

A Project modification shall not be granted a *Certification Deviation* if it warrants or necessitates changes that are not addressed by the Order conditions such that the Project impacts are not addressed in the Project's environmental document or the conditions of this Order. In this case, a supplemental environmental review and different Order will be required.

XVI. Water Quality Certification

I hereby issue the Order (SARWQCB WDID # 302021-09) for the Lower Newport Bay Confined Aquatic Disposal Construction Project. This Order certifies that any discharge from the referenced Project will comply with the applicable provisions of Clean Water Act sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards), as long as all of the conditions listed in the Order are met.

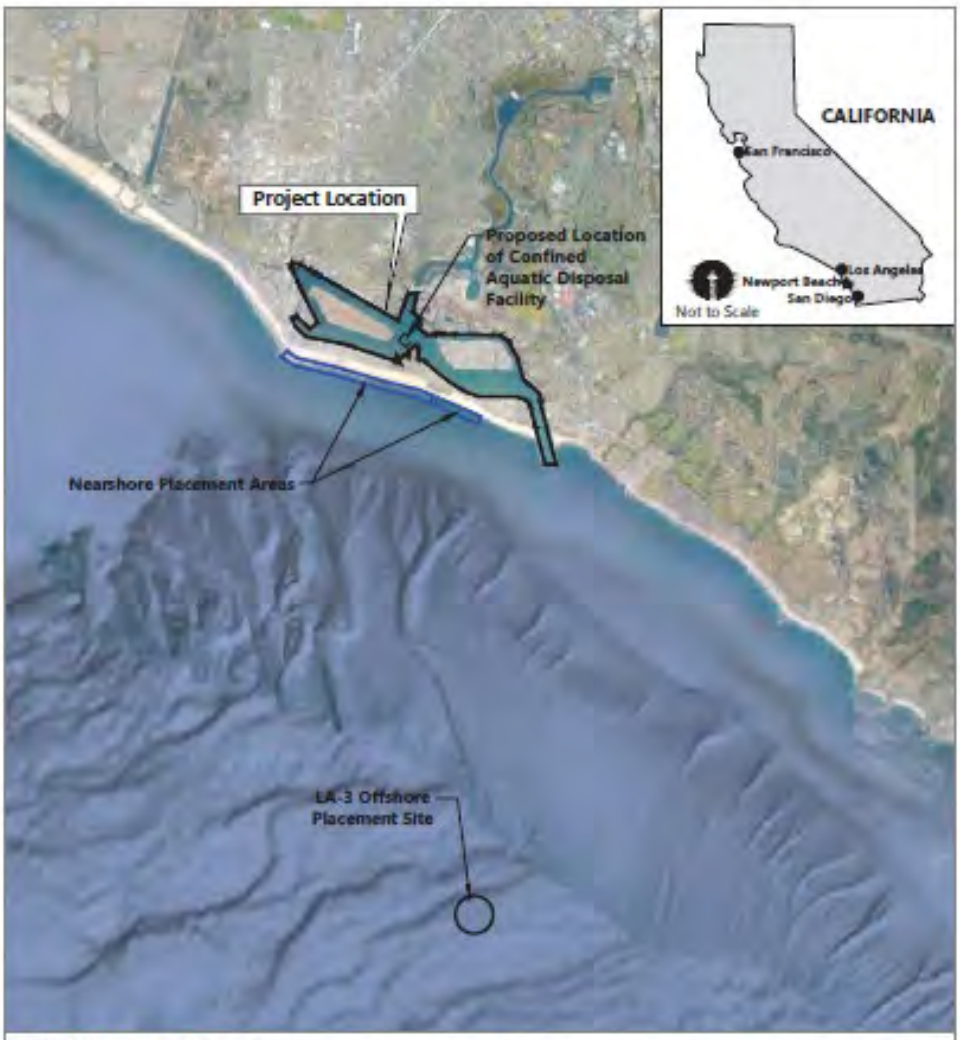
This discharge is also regulated pursuant to State Water Board Water Quality Order No. 2003-0017-DWQ, which authorizes this Order to serve as Waste Discharge Requirements pursuant to the Porter-Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.).

Except insofar as may be modified by any preceding conditions, all Order actions are contingent on: (a) the discharge being limited, and all proposed mitigation being completed in strict compliance with the conditions of this Order and the attachments to this Order; and (b) compliance with all applicable requirements of statewide Water Quality Control Plans and Policies and the Santa Ana Water Board's Basin Plan and Policies.

Jayne Joy P.E.
Executive Officer
Santa Ana Regional Water Quality Control Board

Date

Attachment A	Project Maps
Attachment B	Report and Notification Requirements
Attachment C	Signatory Requirements
Attachment D	40 CFR Part 121.7 Compliance



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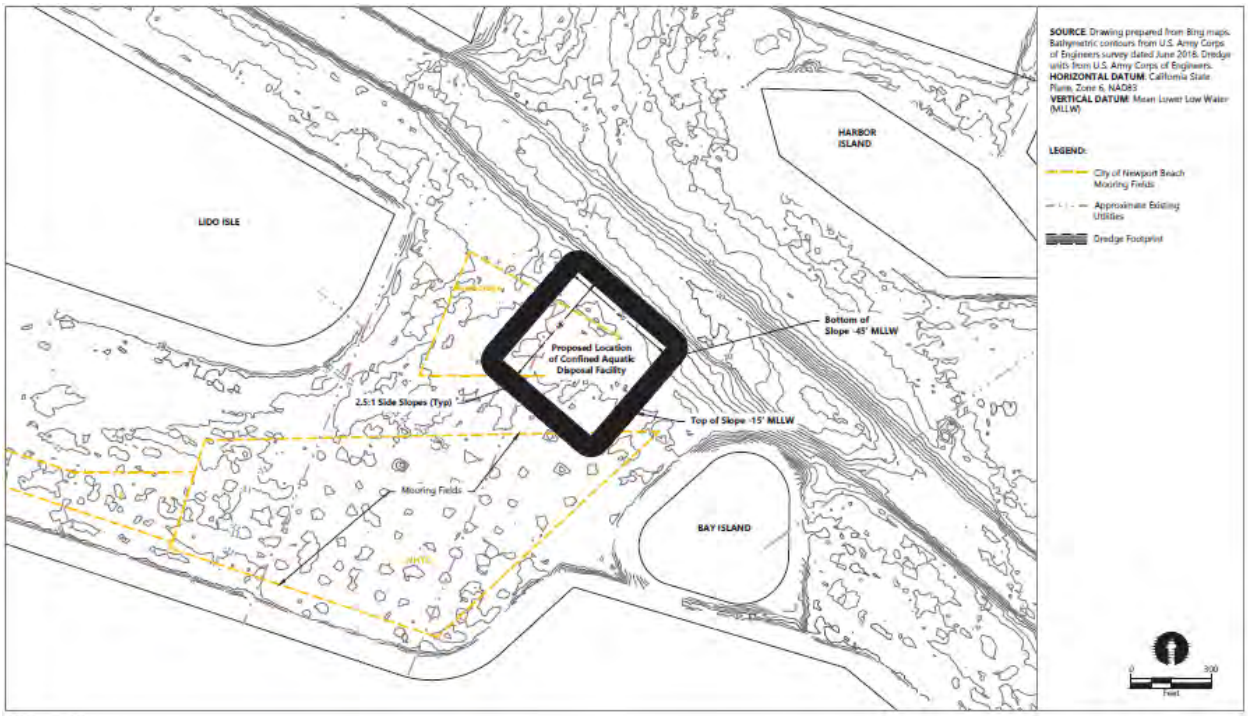
Filepath: K:\Projects\0340-City of Newport Beach\Federal Channel\0340-RP-024 ISR VIC MAP.dwg Figure IS-1

ANCHOR QEA

Figure 1
Project Site and Vicinity
Supplement
Lower Newport Bay Confined Aquatic Disposal (CAD) Construction Project

ANCHOR QEA

Figure 1-2
Federal Channels Maintenance Dredging Sediment Suitability Map
Final Environmental Impact Report
Lower Newport Bay Confined Aquatic Disposal (CAD) Construction Project (PA2019-020)



ANCHOR QEA

Figure 3
Plan View of CAD Facility
Supplement
Lower Newport Bay Confined Aquatic Disposal (CAD) Construction Project

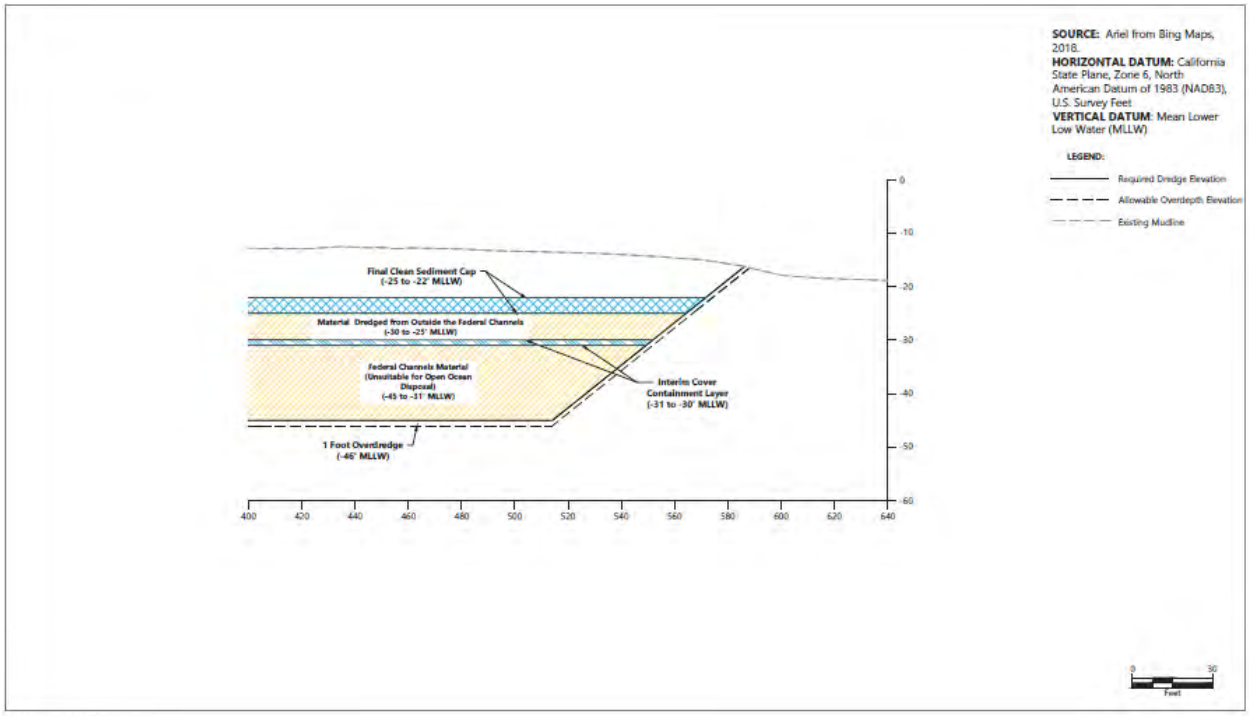


Figure 4
Cross Section of CAD Facility
Supplement
Lower Newport Bay Confined Aquatic Disposal (CAD) Construction Project

Copies of this Form

In order to identify your Project, it is necessary to include a copy of the Project-specific Cover Sheet below with your report (see page 3). Please retain for your records.

Report and Summary Submittal Instructions

1. Check the box on the *Report and Notification Cover Sheet* next to the report or notification you are submitting.

2. Sign the *Report and Notification Cover Sheet* and attach all information requested for the Report Type.

3. **Electronic Report Submittal Instructions:**
   - Submit signed *Report and Notification Cover Sheet* and required information via email to: RB8-401Reporting@waterboards.ca.gov
   - Include in the subject line of the email:
     Subject: 302021-09 Lower Newport Bay CAD Project and [Report Type]

Definition of Reporting Terms

1. **Active Discharge Period:** The active discharge period begins with the effective date of this Order and ends on the date that the Permittee receives a *Notice of Completion of Discharges Letter* or, if no post-construction monitoring is required, a *Notice of Project Complete Letter*. The Active Discharge Period includes all elements of the Project, including site construction and restoration, and any Permittee responsible compensatory mitigation construction.

2. **Request for Notice of Completion of Discharges Letter:** This request by the Permittee to the Santa Ana Water Board staff pertains to projects that have post construction monitoring requirements (e.g., if site restoration were required to be monitored for five (5) years following construction). Santa Ana Water Board staff will review the request and send a *Completion of Discharges Letter* to the Permittee upon approval. This letter will initiate the post-discharge monitoring period and a change in fees from the annual active discharge fee to the annual post-discharge monitoring fee.

3. **Request for Notice of Project Complete Letter:** This request by the Permittee to the Santa Ana Water Board staff pertains to projects that either have completed post-construction monitoring and achieved performance standards or have no post-construction monitoring requirements and no further Project activities are planned. Santa Ana Water Board staff will review the request and send *a Project Complete Letter* to the Permittee upon approval. Termination of annual invoicing of fees will correspond with the date of this letter.

4. **Post-Discharge Monitoring Period:** The post-discharge monitoring period begins on the date of the *Notice of Completion of Discharges Letter* and ends on the date of the *Notice of Project Complete Letter* issued by the Santa Ana Water Board staff. The Post-Discharge Monitoring Period includes continued water quality monitoring or compensatory mitigation monitoring.

5. **Effective Date:** September 30, 2022

Map/Photo Documentation Information

When submitting maps or photos, please use the following formats.

1. Map Format Information:
Preferred map formats of at least 1:24000 (1" = 2000') detail (listed in order of preference):

- GIS shapefiles: The shapefiles shall depict the boundaries of all Project areas and extent of aquatic resources impacted. Each shape should be attributed with the extent/type of aquatic resources impacted. Features and boundaries should be accurate to within 33 feet (10 meters). Identify datum/projection used and, if possible, provide map with a North American Datum of 1983 (NAD83) in the California Teale Albers projection in feet.
- Google KML files saved from Google Maps: My Maps or Google Earth Pro. Maps shall show the boundaries of all Project areas and extent/type of aquatic resources impacted. Include URL(s) of maps. If this format is used, include a spreadsheet with the object ID and attributed with the extent/type of aquatic resources impacted.
- Other electronic format (CAD or illustration format) that provides a context for location (inclusion of landmarks, known structures, geographic coordinates, or USGS DRG or DOQQ). Maps shall show the boundaries of all Project areas and extent/type of aquatic resources impacted. If this format is used, include a spreadsheet with the object ID and attributed with the extent/type of aquatic resources impacted.
- Aquatic resource maps marked on paper USGS 7.5-minute topographic maps or Digital Orthophoto Quarter Quads (DOQQ) printouts. Maps shall show the boundaries of all Project areas and extent/type of aquatic resources impacted. If this format is used, include a spreadsheet with the object ID and attributed with the extent/type of aquatic resources impacted.

2. Photo-Documentation: Include a unique identifier, date stamp, written description of photo details, and latitude/longitude (in decimal degrees) or map indicating location of photo. Successive photos should be taken from the same vantage point to compare pre/post construction conditions.

REPORT AND NOTIFICATION COVER SHEET	
Project:	Lower Newport Bay Confined Aquatic Disposal Construction Project
Permittee:	City of Newport Beach
SARWQCB WDID:	302021-09
Reg. Meas. ID:	445141 **Place ID:** 876651
Order Effective Date:	September 30, 2021

Report and Survey Type Submittal	
Report Type 1	☐**Caulerpa Survey**
Report Type 2	☐**Eelgrass Survey**
Report Type 3	☐**Bathymetric Surveys**
Report Type 4	☐**Annual Report**
Report Type 5	☐**Commencement of Construction**
Report Type 6	☐**Interim Cap Placement**
Report Type 7	☐**Final Cap Placement**
Report Type 8	☐**Request for Notice of Completion of Discharges Letter**
Report Type 9	☐**Request for Notice of Project Complete Letter**
Report Type 10	☐**Accidental Discharge of Hazardous Material Report**
Report Type 11	☐**Violation of Compliance with Water Quality Standards Report**
Report Type 12	☐**Modifications to Project Report**
Report Type 13	☐**Transfer of Property Ownership**
Report Type 14	☐**Transfer of Long-Term Best Management Practices (BMPs) Maintenance Report**
Report Type 15	☐**Sampling and Analysis Plan**
Report Type 16	☐**Water Quality Monitoring Plan**
Report Type 17	☐**Interim Cap Placement Plan**
Report Type 18	☐**Final Cap Placement Plan**
Report Type 19	☐**Nearshore Sand Placement Plan**

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."	
Print Name [1]	**Affiliation and Job Title**
Signature	**Date**

[1]STATEMENT OF AUTHORIZATION (include if authorization has changed since application was submitted)

I hereby authorize _____ to act in my behalf as my representative in the submittal of this report, and to furnish upon request supplemental information in support of this submittal.

_____ _____
Permittee's Signature Date

***This Report and Notification Cover Sheet must be signed by the Permittee or a duly authorized representative and included with all written submittals.**

Report Type	When to Submit
Report Type 1 – Caulerpa Survey	30 days prior to initiating any bottom disturbing activities.
Report Type 2 – Eelgrass Survey	30 days prior to initiating any bottom disturbing activities, and 30 days post-construction.
Report Type 3 – Bathymetric Surveys	Within 14 days of survey completion.
Report Type 4 – Annual Report	Each year by the effective date of the Order. Annual reports shall continue until a *Notice of Project Complete Letter* is issued to the Permittee.
Report Type 5 – Commencement of Construction	Seven (7) days prior to the start of Project activities.
Report Type 6 – Interim Cap Placement	Within 14 days following interim cap placement.
Report Type 7 – Final Cap Placement	Within 14 days following final cap placement
Report Type 8 -- Request for Notice of Completion of Discharges Letter	Within 30 days following completion of Project construction activities. Notify that post-construction monitoring is required and would end the active discharge period.
Report Type 9 – Request for Notice of Project Complete Letter	Within 30 days following completion of all Project construction activities, including all required post-construction monitoring and mitigation.
Report Type 10 – Accidental Discharge of Hazardous Material Report	Within five (5) working days following the date of an accidental discharge. Continue reporting as required by Santa Ana Water Board staff.
Report Type 11 – Violation of Compliance with Water Quality Standards Report	Within three (3) working days of the noncompliance event notification to Santa Ana Water Board staff.
Report Type 12 – Modifications to Project Report	If Project implementation as described in the application materials is altered in any way or by the imposition of subsequent permit conditions by any local, State, or federal regulatory authority
Report Type 13 – Transfer of Property Ownership	At least ten (10) working days prior to the transfer of ownership.
Report Type 14 – Transfer of Long-Term Best Management Practices (BMPs) Maintenance Report	At least ten (10) working days prior to the transfer of BMPs maintenance responsibility.
Report Type 15 – Sampling and Analysis Plan	60 days prior to start of bottom disturbing activities.
Report Type 16 – Water Quality Monitoring Plan	60 days prior to start of bottom disturbing activities
Report Type 17 – Interim Cap Placement Plan	60 days prior to interim cap placement.
Report Type 18 – Final Cap Placement Plan	90 days prior to the placement of the interim cap layer.
Report Type 19 – Nearshore Sand Placement Plan	30 days prior to nearshore placement activities

SARWQCB WDID # 3031021-09

SIGNATORY REQUIREMENTS

All Documents Submitted In Compliance With This Order
Shall Meet The Following Signatory Requirements:

1. All applications, reports, or information submitted to the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) shall be signed and certified as follows:

   a) For a corporation, by a responsible corporate officer of at least the level of vice-president.
   b) For a partnership or sole proprietorship, by a general partner or proprietor, respectively.
   c) For a municipality, or a State, federal, or other public agency, by either a principal executive officer or ranking elected official.

2. A duly authorized representative of a person designated in items 1.a through 1.c above may sign documents if:

   a) The authorization is made in writing by a person described in items 1.a through 1.c above.
   b) The authorization specifies either an individual or position having responsibility for the overall operation of the regulated activity.
   c) The written authorization is submitted to the Santa Ana Water Board staff contact prior to submitting any documents listed in item 1 above.

3. Any person signing a document under this section shall make the following certification:

   "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Compliance with 40 Code of Federal Regulations section 121.7d)

The purpose of Attachment D is to comply with 40 Code of Federal Regulations (CFR) section 121.7(d)(1), which requires an explanation of why a condition is necessary to assure that the authorized discharge will comply with water quality requirements, and a citation to federal, state, or tribal law that authorizes the condition.

Attachment D uses a similar organizational structure as the *Conditions* Section, and the statements below correspond with the conditions set forth in the *Conditions* Section. The Sections preceding the *Conditions* Section are not “conditions” as used in 40 CFR section 121.7(d).

Attachment D includes citations to some sources of authority that are applicable to all conditions. These sources are specifically identified where they are most relevant but are also generally applicable to the conditions below. These conditions are generally required to comply with the state’s Statement of Policy with respect to Maintaining High Quality of Waters in California (“Antidegradation Policy,” State Water Board Resolution No. 68-16), which requires that for any “activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatmentor control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the State will be maintained.” All Regional Board Water Quality Control Plans incorporate California’s Antidegradation Policy by reference. The state Antidegradation Policy incorporates the federal Antidegradation Policy (40 CFR § 131.12), which requires "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." According to U.S. EPA, dischargers of dredged or fill material comply with the federal Antidegradation Policy by complying with U.S. EPA’s section 404(b)(1) Guidelines. The State Water Board adopted a modified version of U.S. EPA’s section 404(b)(1) Guidelines, also referred to as the “State Supplemental Guidelines,” in the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Dredge or Fill Procedures).

The State Water Board adopted the Dredge or Fill Procedures on April 2, 2019, which became effective on May 28, 2020. The Dredge or Fill Procedures were adopted pursuant to the State Water Board’s authority under Water Code section 13140 (state policy for water quality control) and 13170 (water quality control plan), and accordingly have regulatory effect. Consistent with Government Code section 11353, a clear and concise summary of the Dredge or Fill Procedures is available in California Code of Regulations, title 23, section 3013. Under the Dredge or Fill Procedures, the permitting authority may only approve a project if the demonstrations set forth in Section IV.B.1 have been made. The information required by Section IV.A is necessary to ensure compliance with Section IV.B.1. Additionally, California Code of Regulations, title 23, chapter 28 sets forth regulations pertaining to water quality certifications. Section 3856 of title 23 identifies information that must be included in water quality certification requests, including a description of steps that have or must be taken to avoid, minimize,and compensate for impacts to waters of the state/United States.

In addition, the conditions within the Order are generally required pursuant to the Santa Ana Water Board's Water Quality Control Plan for the Santa Ana River Basin (Basin Plan), and where applicable, statewide water quality control plans and policies including, but not limited to, the California Ocean Plan, California Thermal Plan, EnclosedBays and Estuaries Plan, Inland Surface Waters, Enclosed Bays, and Estuaries (ISWEBE) Plan, Plan for California's Nonpoint Source Pollution Control Program, Statement of Policy with Respectto Maintaining High Quality of Waters in California, Cannabis Cultivation Policy, Water Quality Control Policy for the Enclosed Bays and Estuaries of California, Water Quality Control Policy for Addressing Impaired Waters, Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List, Municipal Solid Waste Policy, Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program, Recycled Water Policy, Supplemental Environmental Projects Policy (SEP), State of California Executive Order W-59-93 (Wetlands "No Net Loss" Policy), and Water Reclamation Policy, which were adopted and are periodically revised pursuant to Water Code section 13240. The Basin Plan and other applicable statewide plans and policies include water quality standards, which consist of existing and potential beneficial uses of waters of the state/United States, water quality objectives to protect those uses, and the state and federal antidegradation policies. For instance, the Basin Plan includes water quality objectives for, oil and grease, pH, dissolved oxygen, temperature, toxic substances, solid, suspended or settleable materials, floating material, turbidity, color, and taste and odor, which ensure protection of beneficial uses.

Conditions

Authorization

Authorization under this Order is granted based on the Clean Water Act Section 401 Water Quality Certification Application (application) information submitted. Water Code section 13264 prohibits any discharge that is not specifically authorized in this Order.

Reporting and Notification Requirements

The reports confirm that the best management practices required under this Order are sufficient to protect beneficial uses and water quality objectives. The reports related to accidental discharges also ensure that corrective actions, if any, that are necessary to minimize the impact or clean up such discharges are taken as soon as possible. These monitoring and reporting conditions are authorized because the Water Boards have the authority to investigate the quality of any waters of the state within its region under Water Code sections 13383 and 13267. The burden of preparing these reports, including costs, bears a reasonable relationship to the need for the reports, and the benefits to be obtained from the reports.

Authorization under this Order is granted based on the application information submitted, including the legally responsible party. Conditions regarding transfers are necessary to confirm whether the new owner wishes to assume legal responsibility for compliance with this Order. If not, the original Permittee remains responsible for compliance with this Order. Confirmation is also necessary to confirm whether liability for long-term best management practices maintenance is accepted by another entity. If not, the original Permittee remains responsible for compliance with this Order. Water Code section 13264 prohibits any discharge that is not specifically

authorized in this Order.

Monitoring and Reporting Program

Consistent with the Dredge or Fill Procedures, Section IV.A.2.c, water quality monitoring plans are required for any in-water work. Water quality monitoring and reporting is required to assure that 1) the authorized discharge of dredge/fill material will not adversely affect the beneficial uses of the receiving water or cause a condition of nuisance; 2) the discharge will comply with all applicable water quality objectives; and 3) treatment and control of the discharge will be implemented to assure that pollution and nuisance will not occur and the highest water quality is maintained. Accordingly, these conditions require implementation of best practicable treatments and controls to prevent pollution and nuisance, and to maintain water quality standards at the project site. These monitoring and reporting conditions are authorized because the Water Boards have the authority to investigate the quality of any waters of the state/United States under Water Code sections 13383 and 13267. The burden of preparing these reports, including costs, bears a reasonable relationship to the need for, and benefits of, the reports.

Standard Conditions

“This Order is subject to modification or revocation …”

“This Order is not intended and shall not be construed to apply to any activity involving a hydroelectric facility …”

“This Order is conditioned upon total payment of any fee …”

These conditions are necessary to assure that any discharge authorized will comply with water quality requirements. Water quality requirements include state regulatory requirements for point source discharges into waters of the United States. California Code of Regulations, title 23, chapter 28 sets forth regulations pertaining to water quality certifications for point source discharges to waters of the United States. These conditions were included to comply with section 3860 of title 23, which sets forth conditions that must be included in all water quality certifications.

General Compliance

“Permitted actions must not cause a violation of any applicable water quality standards …”

Permitted actions may not cause a violation of applicable water quality standards. This condition related to compliance with water quality objectives and designated beneficial uses is required pursuant to the Santa Ana Water Board’s Basin Plan and/or other applicable statewide plans and policies. The Basin Plan’s water quality standards consist of existing and potential beneficial uses of waters of the state/United States, water quality objectives to protect those uses, and the state and federal antidegradation policies. The Antidegradation Policy requires that the quality of existing high-quality water be maintained unless any change will be consistent with the maximum benefit to the people of the state, will not unreasonably affect present or anticipated future beneficial usesof such water, and will not result in water quality less than that prescribed in water quality control plans or policies. The Antidegradation Policy further requires best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and the highest water quality consistent with maximum benefit to the people of the state will be maintained.

Applicable beneficial uses (Basin Plan, Chapter 3, Tables 3-1 and 3-2) and water quality objectives (Basin Plan, Chapter 4, Table 4-1) to protect those uses include the designated

beneficial uses and a) color (Basin Plan, pages 4-3, 4-14, & 4-23), floating materials (Basin Plan, pages 4-3 & 4-10), Oil and Grease (Basin Plan, pages 4-3, 4-14, & 4-24), dissolved oxygen (Basin Plan, pages 4-4 &4-14), pH (Basin Plan, pages 4-4, 4-18, & 4-24), solid, suspended and settleable material (Basin Plan, pages 4-5 & 4-19), taste and odor (Basin Plan, pages 4-4, 4-19, & 4-25), temperature (Basin Plan, pages 4-6 & 4-20), toxic substances (Basin Plan, pages 4-6, 4-20, & 4-26), and turbidity (Basin Plan, pages 4-6 & 4-20) water quality objectives.

"The Permittee must, at all times, fully comply with engineering plans, specifications, and technical reports…"

Authorization under this Order is granted based on the application information submitted, including engineering plans, specifications, and technical reports. Water Code section 13264 prohibits any discharge that is not specifically authorized in this Order.

Administrative

"Signatory requirements for all document submittals…"
Conditions related to signatory requirements are also authorized by Water Code sections 13383 and 13267, which requires any person discharging waste that could affects the quality of waters to provide to the Water Boards, under penalty of perjury, any technical or monitoring program reports as required by the Water Boards. The signatory requirements are consistent with 40 CFR section 122.22.

"The Permittee shall grant Santa Ana Water Board staff …"
Conditions related to site access requirements are authorized pursuant to the Water Boards' authority to investigate the quality of any waters of the state under Water Code sections 13383 and 13267. Water Code section 13267(c) provides that "the regional board may inspect the facilities of any person to ascertain whether the purposes of this division are being metand waste discharge requirements are being complied with."

"A copy of this Order shall be provided to any consultants, contractors, and subcontractors …"
"A copy of this Order must be available at the Project site(s) during construction…"
These conditions require site personnel and agencies to be familiar with the content of the Order and mandate availability of the document at the Project site. This condition is required to assure that any authorized discharge will comply with the terms and conditions of the Order.

Construction

Best Management Practices

All the conditions related to best management practices are consistent with the Water Boards' authority to establish, "[w]ater quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area" pursuant to Water Code section 13241(c). The activities authorized under this Order have the potential to result in a discharge that exceeds water quality objectives and work in waters of the state must not cause an exceedance of water quality objectives. As required by Water Code section 13369, all Water Quality Control Plans incentivize the use of best management practices to prevent prohibited discharges into waters of the state.

These conditions are necessary to prevent violation of state discharge prohibitions that protect water quality objectives. For instance, fuels and lubricants associated with the use of mechanized equipment have the potential to result in toxic discharges to waters of the state in violation of water quality standards, including the floating material and toxic substances. Water Code section 13264 prohibits any discharge that is not specifically authorized in this Order.

Hazardous Materials
These conditions are required pursuant to the Basin Plan (toxic substances objective, pages 4-6, 4-20, & 4-26) and the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP), which prohibit the discharge of substances in concentrations toxic to human, plant, animal, or aquatic life. Toxic compounds can impair the beneficial uses of cold freshwater habitat, estuarine habitat, marine habitat, preservation of rare and endangered species, fish migration, fish spawning, warm freshwater habitat, and wildlife habitat. Conditions related to toxic and hazardous materials are necessary to assure that discharges comply with any water quality objectives adopted or approved under Water Code sections 13170 or13245.

Conditions related to concrete/cement are required pursuant to the Basin Plan, to ensure that discharges to waters do not adversely raise or lower pH levels.

Mitigation for Permanent Impacts

Conditions related to mitigation requirements are required by the Dredge or Fill Procedures, Section IV.A.2.b. In addition, Section IV.B.1.a of the Dredge or Fill Procedures require that the Water Boards will approve a project only after it has been determined that a sequence of actions has been taken to first avoid, then to minimize, and lastly compensate for adverse impacts that cannot be practicablyavoided or minimized. (See also State Supplemental Guidelines, § 230.10, [restrictions on discharge]; Cal. Code of Regs., tit. 23, § 3856(h) [requiring submittal of proposed mitigation and description of steps taken to avoid, minimize, or compensate].) Accordingly, compensatory mitigation may be required for projects that would result in permanent impacts.

Conditions regarding compensatory mitigation are necessary to ensure compliance with the state and federal Antidegradation Policies. Compensatory mitigation conditions are consistent with Executive Order W‑59-93, commonly referred to as California’s “no net loss” policy for wetlands. Compensatory mitigation requirements are also authorized by Water Code section 13263, which requires the imposition of requirements that implement water quality control plans, takes into consideration the beneficial uses to be protected, and the need to prevent nuisance.