3.13 WATER QUALITY AND OCEANOGRAPHY

3.13.1 Introduction

This section describes the evaluation parameters used to describe and assess water quality conditions within the Port of Los Angeles (the Port), and the oceanographic conditions that affect the harbor. The potential for construction-related operations to result in significant impacts to water quality are evaluated, along with an assessment of possible water quality impacts that may result from the future use of existing upland areas and new upland areas that would be created by the Proposed Action.

3.13.2 Environmental Setting

3.13.2.1 Regional Setting

The Port is located on San Pedro Bay, which is located on the southern coast of Los Angeles County. The harbor was established in 1907 and since that time has been physically modified by dredging and filling operations and the construction of breakwaters and other structures. The Port is adjacent to the Long Beach Harbor, and oceanographically the two ports function as a single unit due to their connection by the inland Cerritos Channel. The two ports also share outer harbor areas behind the San Pedro, Middle and Long Beach breakwaters. These breakwaters protect the harbors from ocean waves, and along with other structures have altered historic currents and sediment transport patterns in the project region.

Near-shore ocean conditions dominate the marine environment of the Port, and are primarily influenced by the coastal marine environment known as the Southern California Bight. The main source of fresh water into the harbor is from the Dominguez Channel, which drains approximately 80 square miles of urban and industrialized watershed located in southern Los Angeles County. Like other waterways in the Los Angeles Basin, the Dominguez Channel was channelized in the mid-1900's to provide flood control protection. Other freshwater sources in the harbor include the discharge of treated sewage to the Outer Harbor area from the Terminal Island Treatment Plant, and discharges from several major storm drains that enter the harbor at different locations. The Dominguez channel is also the major source of sediment input into the harbor. Although not as significant, another source of sediment is from ocean currents that extend past the breakwaters that protect the harbor.

The Harbor consists of several general areas including:

- The Inner Harbor. This area is located north of the Vincent Thomas Bridge and includes channels, basins and boat slips.

- The Outer Harbor. This area includes the portions of the harbor south of Reservation point to the San Pedro and Middle breakwaters.
- Main Channel. This is the central portion of the harbor that is located between the Vincent Thomas Bridge and Reservation Point.

3.13.2.2 Water Quality

Water quality inside the Port is affected by factors such as climate, water circulation, biological activity, surface runoff, effluent discharges and accidental discharges of pollutants from shipping activities. Water quality outside the harbor is influenced by water flushed from the harbor and vessel activity.

The LAHD has been monitoring water quality within the harbor on a monthly basis since 1967. The water quality parameters that are measured include dissolved oxygen (DO), turbidity/transparency, hydrogen ion concentration (pH), contaminants, nutrients, temperature and salinity.

Consistent with the dredge monitoring requirements included in the Los Angeles Regional Contaminated Sediments Task Force (CSTF) Long Term Management Strategy, the LAHD would monitor water quality during dredge and disposal activities of the Proposed Action to ensure compliance with LARWQB's waste discharge requirement (WDR) provisions and that dredging/disposal operations are not creating turbidity plumes that adversely affect water quality. Monitoring has been, and would be conducted according to the following specifications:

- Sampling for the receiving water monitoring shall commence at least one week prior to the start of dredging and fill operations and continue at least one week following completion of all such operations.
- Sampling shall be conducted down current of the dredge sites at least one hour after the start of dredge operations. The following stations shall apply:
  - 30.5 meters (100 feet) up current of the dredging operations, safety permitting
  - 30.5 meters (100 feet) down current of the dredging operations, safety permitting
  - 91.5 meters (300 feet) down current of the dredging operations
  - Control site located in an area not affected by dredging operations
- All samples shall be collected using a grab sampling device or with remote electronic detection equipment.
- Water column light transmittance data from Stations C and D shall be averaged for the near surface (1 meter below the surface), mid-water and bottom (1 meter above the bottom). If the difference in percent light transmittance is 30 percent or greater (based on a comparison of the averaged values at the two stations), water samples shall be collected at mid-depth (or the depth

at which the maximum turbidity occurs) and analyzed for trace metals, Dichlorodiphenyltrichloroethanes (DDTs), polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs). At a minimum, at least one water sample should be collected and analyzed for these parameters during each dredging operation.

- Color photographs shall be taken at the time of sampling to document the presence or absence of visible effects of dredging.
- Field observations shall be recorded on a daily basis during dredging and disposal operations, including the following parameters:
  - Date and time;
  - Direction and estimated speed of currents;
  - General weather conditions and wind velocity;
  - Tide stage;
  - Appearance of trash, floatable material, grease, oil or oily slick, or other objectionable materials;
  - Discoloration and/or turbidity;
  - Odors;
  - Depth of dredge operations during previous day;
  - Amount of material dredged the previous day; and
  - Cumulative total amount of material dredged to date.

Dissolved Oxygen. DO is a principal indicator of water quality. The USEPA and the Los Angeles Regional Water Quality Control Board (LARWQCB) have established a DO concentration of 5 milligrams per liter (mg/l) as the minimum concentration for aquatic habitats (LARWQCB, 1994). The LARWQCB also requires that the mean annual DO concentration be 6 mg/L or greater with no event less than 5 mg/l. Dissolved oxygen concentrations in water samples taken from within the harbor are influenced by a number of factors, including:

- Plant and animal respiration
- Waste (nutrient) discharges
- Surface water mixing through wave action
- Diffusion rates at the water surface
- The depth from which the water sample was taken
- Disturbance of anaerobic bottom sediments

The Basin Plan (LARWQCB, 1994) specifies that the mean annual DO concentration of waters shall be 7 mg/l or greater with no event less that 5 mg/l, except that the mean annual DO concentration in the Outer Harbor area shall be 6 mg/l or higher. As recently as the late 1960s, DO levels in some portions of the Los Angeles Harbor were so low that little or no marine life

could survive. Since that time, government regulations, such as the federal Clean Water Act and the California Porter-Cologne Act have reduced direct waste discharges, resulting in improved DO levels throughout the harbor. The Outer Harbor generally has higher DO concentrations than the Inner Harbor areas due to better water circulation. Monitoring of DO conditions throughout the POLA is conducted by the Port. Data collected throughout 2004 indicate that the mean values for DO levels for bottom samples ranged between 6.3 and 7.8 mg/l, and between 6.3 and 7.9 mg/l for surface water samples (unpublished POLA monitoring data presented in Appendix G).

Occasional plankton blooms occur within the harbor in response to high solar radiation and nutrient levels. These blooms result in severely reduced DO levels, but the effects are usually localized and short-lived. The disturbance of anaerobic bottom sediments by dredging activities also has the potential to result in minor, short-term and localized DO concentration reductions (ACE, 2000).

Transparency/Turbidity. Transparency refers to the clarity of water and its ability to transmit light. Turbidity is the amount of suspended solids in the water column. Increased turbidity levels reduce water transparency because the suspended particles result in the scattering and absorption of light.

Transparency is typically measured by the distance a black and white disk, called a secchi disk, can be seen through the water. Historically, water clarity in the harbor has varied substantially, with secchi disk readings ranging from zero to 40 feet. There has been a general increase in harbor water clarity since 1967; however, readings still vary greatly. Monitoring of water transparency conditions throughout the POLA is conducted by the Port. Data collected throughout 2004 indicate that the mean surface water transparency conditions ranged between five and 18 feet (unpublished POLA monitoring data presented in Appendix G).

Particulate matter can commonly include inorganic solids (sediment particles), organic solids or detritus from activities or organisms, and living plant and animal organisms. Turbidity generally increases as a result of one or a combination of the following conditions: fine sediment from terrestrial runoff, plankton blooms resulting from favorable environmental conditions such as warm weather and high nutrient conditions caused by storm runoff, and dredging activities.

pH. The concentration of hydrogen ions in marine water can be affected by plant and animal metabolism, mixing water sources with different pH values, and to a small extent by disturbances in the water column that cause redistribution of waters with varying pH levels or the resuspension of bottom sediments. Frequently, pH levels correlate to DO concentrations. In the open ocean, pH levels typically range from 8.0 to 8.3. In the Outer Harbors of the POLA and POLB, pH levels have ranged from 8.1 (upper level in warmer months) to 7.4 (lower levels in cooler

months). In the POLA and POLB Inner Harbor waters, pH levels have ranged from 7.0 to 8.7 (USACE and LAHD, 2006). Measurements within the West Basin in 2000 and 2003 found pH to be consistently between 7.8 and 8.0 at all depths throughout each year (USACE and LAHD, 2007). These values are considered representative of 2004 baseline conditions because they are consistent over a three year duration just prior to 2004 and Channel Deepening construction activities were ongoing throughout this period (2000 through 2004). Additionally, pH levels correlate to DO concentrations and the DO concentrations from 2000 to 2003 ranged from 6.3 to 7.9, which is consistent with the 2004 DO concentrations discussed above (USACE and LAHD, 2007). The LARWQCB has established an acceptable range for pH values of 6.5 to 8.5, with a change tolerance level of no more than 0.2 due to project-related discharges.

Contaminants. Contaminants that have been detected in the water of the Port include low levels of heavy metals (cadmium, chromium, copper, lead, mercury, nickel, silver and zinc), oil and grease, polynuclear aromatic hydrocarbons (PAHs), chlorinated hydrocarbons (i.e., DDT and DDE), and polychlorinated biphenyls (PCBs). Waters in the project area that are CWA Section 303(d)-listed for impairment include the Consolidated Slip, Cabrillo Marina, Fish Harbor, Inner Cabrillo Beach Area, Los Angeles/Long Beach Outer Harbor (inside breakwater), Los Angeles/ Long Beach Inner Harbor, and Los Cerritos Channel (LARWQCB, 2006). The Dominguez Channel, which drains into the Consolidated Slip, is also on the current 303(d) list. The reasons for impairment of these water bodies are summarized in Table 3.13-1. Total Maximum Daily Loads (TMDLs) have not been developed for pollutants at any of these areas and are not planned until 2019. The RWQCB amended the Basin Plan (Resolution No. 2004-011) to incorporate a TMDL for bacteria at Los Angeles Harbor, including Inner Cabrillo Beach and the Main Ship Channel. However, this site is not listed for this stressor on the current 303(d) list.

Contaminants in Harbor waters can originate from a number of sources in and outside the Port. Potential sources of trace metals and organics include municipal and industrial wastewater discharges, stormwater runoff, dry weather flows, leaching from ship hull anti-fouling paints, petroleum or waste spills, atmospheric deposition, and resuspension of bottom sediments containing legacy (i.e., historically deposited) contaminants such as DDT and PCBs. Most of the metal, pesticide, and PAH contaminants that enter the Harbor have a low solubility in water and adsorb onto particulate matter that eventually settles to the bottom and accumulates in bottom sediments. Dredging projects in both the Inner and Outer Harbor areas, including the Los Angeles Harbor Deepening Project, have removed contaminated sediments from the Harbor. In addition, some contaminated sediment areas have been covered by less contaminated sediments as part of construction of landfills or shallow water habitat, thereby sealing them from exchange with the overlying water. Controls on other discharge sources have also contributed to decreases over time in the input of contaminants.

Table 3.13-1 Clean Water Act 303(d) List of Water Quality Limited Segments Los Angeles Harbor Areas

Listed Waters/Reaches	Impairments
Los Angeles Harbor, Cabrillo Marina (77 acres)	DDT, PCBs
Los Angeles Harbor, Inner Cabrillo Beach Area (82 acres)	Cu, DDT*, PCBs*
Los Angeles/Long Beach Outer Harbor, inside breakwater (4042 acres)	DDT, PCBs
Los Angeles Harbor, Fish Harbor (34 acres)	DDT, PAHs, PCBs, benzo(a)anthracene, chlordane, chrysene (C1-C4), Cu, dibenz(a,h)anthracene, Pb, Hg, phenanthrene, pyrene, sediment toxicity, Zn
Los Angeles/Long Beach Inner Harbor (3003 acres)	Beach closures, benthic community effects, DDT, PCBs, sediment toxicity
Los Cerritos Channel (31 acres)	Ammonia, bis(2ethylhexyl)phthalate/DEHP, coliform bacteria, Cu, Pb, Zn, trash Sediment: chlordane
Los Angeles Harbor, Consolidated Slip (36 acres)	Benthic community effects, sediment toxicity, dieldrin Sediment: Cd, Cr, Cu, Pb, Hg, Zn Sediment & tissue: chlordane, DDT*, PCBs* Tissue: toxaphene
Domínguez Channel, from Vermont to Estuary (8.3 miles)	Benthic community effects, Cr, Pb, Zn, pesticides, DDT, PAHs, ammonia, bacteria

Source: USACE and LAHD, 2006
*Fish consumption advisory

Data from the LARWQCB indicate that within the watershed that drains into the harbor, there are ten major NPDES dischargers that consist of publicly owned treatment works (POTWs), generating plants and refineries; 58 minor dischargers; and 62 dischargers covered by general permits (LAHD, 2005). Additional storm water runoff enters the harbor from the Dominguez Channel, which drains a heavily industrialized area of the San Pedro adjacent to the harbor, and has historically been contaminated with metals and DDT. As a result, the sediments located where the Dominguez Channel drains into the harbor (the Consolidated Slip) are heavily contaminated, which may contribute to water contamination through resuspension during storm flow.

Concentrations of trace-level contaminants in Harbor waters are not monitored routinely. Therefore, information to characterize the spatial and temporal patterns in baseline concentrations of individual chemical contaminants in Harbor waters is not available. Nevertheless, concentrations of metals, PAHs, and legacy contaminants such as DDTs and PCBs are expected to vary spatially and over time in response to the magnitude of the numerous source inputs. In particular, concentrations of metals and PAHs in Harbor water are expected to be considerably higher following a storm event due to the higher mass loadings associated with stormwater runoff. Following a large storm event, contaminant concentrations decrease as loadings decline, stormwater mixes with Harbor waters, and contaminants associated with particles settle out of

the water column to the bottom sediments. The Port has developed numerical models that predict the effects of storm flows from selected watersheds, such as the Dominguez Channel watershed, on inputs and fate of chemical contaminants to the Harbor (USACE and LAHD, 2006).

The Monthly Monitoring Program for the Port has measured water quality monthly at locations throughout the POLA. For the majority of the sampling events, levels of oil and grease were minimal or nonexistent. During the last 13 years, more floating solids have been identified, but they were categorized as "unspecific." From May 2005 until March 2006 the Port conducted quarterly enhanced water quality monitoring that coincided with the monthly monitoring program. The enhanced program included chemical and microbiological parameters to compliment the basic biological and visual parameters already being measured. Overall, there were no detections of total organic carbon, oil and grease, and total petroleum hydrocarbons. Concentrations of dissolved and total metals were detected at levels similar to the study average, and no samples had levels above the California Toxic Rule (CTR) criteria. Fecal and total coliform bacteria were detected, primarily during the sampling event that took place 48 hours after a significant rain event, but levels did not exceed the AB 411 criteria for either parameter (USACE and LAHD, 2006). The results summarized above for 2005-2006 are considered representative of 2004 baseline conditions because the composition and magnitude of the primary sources, such as ship traffic, storm patterns and resultant runoff, and biological activity, were comparable.

Nutrients. Photosynthesis by phytoplankton may be limited by the availability of inorganic nutrients, such as phosphates and nitrates. Spatial and temporal variations in the concentration of phosphates and nitrates vary from day to day and are influenced by biological processes, waste-water discharge and storm water runoff. The enclosed nature of the Port has created seasonal and spatial levels of nutrient concentrations that vary from the "normal" levels found in areas outside of the breakwaters.

Depending on the location, depth and season, nutrient levels in the Los Angeles Harbor may vary in concentration by several orders of magnitude. Nutrient concentrations can be high in response to storm water runoff, and localized high-nutrient concentrations in the outer harbor area as a result of discharges from the city of Los Angeles Terminal Island Treatment Plant.

The following ranges were measured in 1978 by Harbors Environmental Projects (Allan Hancock Foundation, 1980): phosphate, 0.172 to 12.39 ppm; ammonia, 0.12 to 119.28 ppm; nitrate, 0.00 to 82.97 ppm; and nitrite, 0.00 to 5.38 ppm. Nutrient concentrations were high during periods of high stormwater runoff. Compared to the nutrient concentrations reported

above, current baseline concentrations may be relatively lower due to additional restrictions on the wastewater discharges to the Harbor. However, data from long-term monitoring efforts do not exist to verify this.

Temperature. Seasonal and spatial variation in water temperature in the harbor reflects the influence of the ocean, local climate, the physical configuration of the harbor, and circulation patterns. General trends in water temperature consist of uniform, cooler temperatures throughout the water column in the winter and spring and of stratified warmer temperatures with cooler waters at the bottom in the summer and fall. The stratified summer and fall conditions may be attributed to warmer ocean currents, local warming of surface waters through insolation, and reduced runoff into near shore waters.

Salinity. Variations in the salinity of the water in the Los Angeles Harbor occur due to the effect of storm water runoff, waste discharges, rainfall and evaporation. Typical seawater has a salinity of 33 parts per thousand (ppt). Harbor waters usually range from 30.0 to 34.2 ppt, but salinities ranging from less than 10.0 ppt to greater than 39.0 ppt have been reported. Salinity in the Outer Harbor is generally higher in the summer than winter, and deeper Outer Harbor sampling stations are typically more saline than shallower stations.

3.13.2.3 Sediments

Chemical analyses of sediment samples taken from locations throughout the Harbor have indicated that course-grained sediments showed some heavy metals to be present in the top samples, with most concentrations being below the Effect Range Low (ER-L)[1] criteria values, meaning that the contaminant concentrations would result in minimal toxic effects (Kinnetic Labs & Fugro, 2007). Concentrations of DDT pesticides and/or PCBs generally exceeded the ER-L values in all of the top samples and half of the bottom samples.

Fine-grained sediments generally had concentrations of DDT pesticides and Aroclor 1254 (a PCB) above ER-L values but below Effect Range Medium (ER-M)[2], meaning that the contaminant concentrations would have a toxic effect 10 to 50 percent of the time. A few heavy metal concentrations were above ER-L values. The metal concentrations were highest within the formation mudstone located in the southern portion of the Main Channel.

[1] ER-L is part of the Effects Range sediment quality guidelines (SQG) established by the NOAA (NOAA, 1999). The guidelines were developed to identify concentrations of contaminants associated with biological effects in laboratory, field, or modeling studies. The ER-L is the concentration of a contaminant in sediment above which harmful effects may be expected to occur and below which toxic effects are rarely observed among sensitive species (USEPA, 2008).

[2] The ER-M is the concentration equivalent to the fiftieth percentile of the compiled study data. Sediment concentrations above the ER-M are "frequently" associated with adverse effects (USEPA, 2008).

Sampling and testing of the sediments described above were performed in July 2006 and followed the USEPA/USACE tiered approach to environmental characterization of dredged materials as defined in the Inland Testing Manual (1998), the Ocean Testing Manual (1991) and Upland Testing Manual (2003) protocols (Kinnetic Labs & Fugro, 2007). Testing was performed at various locations including, but not limited to Berths 118-121, 127-131, 136-140, 206-209, 212-236 (Kinnetic Labs & Fugro, 2007).

The Inner Harbor is significantly cleaner than it was 25 years ago, some segments exhibit the effects of historic deposits of pollution in the sediments and from the existing point and nonpoint discharges. Marine biological communities in part of the Inner Harbor show contamination from PCBs and the chlorinated pesticide DDT and toxicity of the surface water microlayer in a test species (larval kelp bass). Localized areas of contaminated sediments still remain. The CalEPA Office of Environmental Health Hazard Assessment has issued health advisories on the consumption of certain fish species (white croaker, black croaker, queenfish, and surf perches) from Los Angeles and Long Beach Harbors (USACE and LAHD, 2006).

The State Mussel Watch Program has documented instances of high levels of metals, PCBs, TBT, and PAHs in mussel tissue at several locations in the Inner Harbor. Additionally, the Bay Protection and Toxic Cleanup Program (BPTCP) has identified some areas of the Inner Harbor with elevated pollutant levels, some of which exhibit sediment toxicity (USACE and LAHD, 2006).

3.13.2.4 Oceanography

The Los Angeles Harbor is a southern extension of the relatively flat coastal plain, bounded on the west by the Palos Verdes Hills, which offer protection to the bay from prevailing westerly winds and ocean currents. The harbor area was once an estuary that received freshwater from the Los Angeles and San Gabriel Rivers. Dredging, filling and channelization that has occurred throughout the Los Angeles/Long Beach Harbor complex over the past 100 years has completely altered the estuarine conditions that previously existed.

Tides. Tides are sea level variations that result from astronomical and meteorological conditions. Tidal variations along the coast of Southern California are caused by the passage of two harmonic tide waves, one with a period of 12.5 hours and the other with a period of 25 hours. This combination of two harmonic tide waves usually produces two high and two low tides each day. The result is two high waters and two low waters each day, consisting of a higher high water (HHW) and a lower high water (LHW), and a higher low water (HLW) and a lower low water (LLW).

The mean tidal range for the outer harbor is 3.76 feet; and the mean average difference between all of the HHW and LLW is approximately 5.6 feet. The extreme tidal range between maximum high and maximum low waters is about 10.5 feet. The highest and lowest tides reported are 7.96 feet above mean lower low water (MLLW) and -2.56 feet below MLLW, respectively. Available Los Angeles Harbor tide data from 1923 to 1984 indicate that the highest water elevations usually occur during November though March, which is the same period that more severe offshore storms usually occur along the California coast.

Waves. Ocean waves impinging on the Southern California coast can be divided into three primary categories according to origin: southern hemisphere swell, northern hemisphere swell, and seas generated by local winds. Los Angeles Harbor is directly exposed to ocean swells entering from two main exposure windows to the south and southeast, regardless of swell origin. The more severe waves from extra-tropical storms (Hawaiian storms) enter from a southerly direction. The Channel Islands and Santa Catalina Island provide some sheltering from these larger waves, depending on the direction of approach. The other major exposure window opens to the south, allowing swells to enter from storms in the southern hemisphere, tropical storms and southerly waves from extra-tropical storms.

Most swells from the southern hemisphere arrive at Los Angeles from May through October. Southern hemisphere swells characteristically have low heights and long periods. Typical swell rarely exceed four feet in height in deep water, however, with periods as long as 18 to 21 seconds, they can break at over twice their deep water wave height. Northern hemisphere swells generally occur from November though April. Deep water wave heights have ranged up to 20 feet, but are typically less than 12 feet. Northern hemisphere wave periods generally range from 12 to 18 seconds.

Local wind-generated seas are predominantly from the west and southwest, however, they can occur from all offshore directions throughout the year. Local seas are usually less than six feet in height, with wave periods of less than 10 seconds.

Water Circulation. Circulation patterns are established and maintained by tidal currents. Flood tides in the Los Angeles Harbor flow into the harbor and up the channels, while ebb tides flow down the channels and out of the harbor. In the Outer Harbor, near Angel's Gate and Queen's Gate, maximum surface tidal velocities reach approximately 0.8 feet per second (fps), while minimum tidal velocities of 0.088 fps occur in the Inner Harbor areas since the construction of the Pier 400 landfill.

Circulation patterns in the harbor are determined by a combination of tide, wind, thermal structure and local topography. A large clockwise gyre is found in the surface waters of the outer

Los Angeles and Long Beach Harbors during both rising and falling tides. The net tidal exchange is inward through Angel's Gate, and outward through Queen's Gate and the gap between the eastern end of Long Beach Breakwater and Alamitos Bay. Therefore, there is a net eastward flow within the harbor.

Mixing is less in the Inner Harbor than in the Outer Harbor. Tidal-induced water exchange in the Inner Harbor is 22 percent of the total harbor water volume per day. Neglecting discharges, flushing efficiency of the harbor has been determined using the tidal prism method. Overall tidal exchange rates fluctuate between 8 and 25 percent, with the flushing rate estimated at 90 tidal cycles.

3.13.3 Applicable Regulations

3.13.3.1 Water Quality

NPDES Requirements. The Clean Water Act, as amended, provides that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. Current regulations generally prohibit discharges of storm water to waters of the United States from industrial activities and from construction activities that encompass one acre or more of soil disturbance unless the discharge is in compliance with an NPDES permit.

To implement these NPDES requirements, the State Water Resource Control Board (SWRCB) has adopted a Statewide General Permit for Construction Activity, and a Statewide General Permit for Industrial Activity. The General Permit for Construction Activity (GCASP) requires all dischargers where construction activities disturb one acre or more to:

- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies BMPs that will prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off-site into receiving waters.
- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the United States.
- Perform inspections of all implemented BMPs.

In 2000, the provisions of the GCASP were modified to require permittees to implement specific sampling and analytical procedures to determine whether BMPs implemented on a construction site are:

- Preventing further impairment of sediment in storm waters discharged directly into water listed as impaired for sediment or silt.
- Eliminate unauthorized non-storm discharges.

- Conduct visual and analytical storm water discharge monitoring to indicate the effectiveness of the SWPPP in reducing or preventing pollutants in storm water discharges.

The City is covered under the Permit for Municipal Storm water and Urban Runoff Discharges within Los Angeles County (LARWQCB Order No. 01-182) and is obligated to incorporate provisions of this document in City permitting actions. The municipal permit incorporates requirements of the Standard Urban Storm Water Mitigation Plans (SUSMPs), which include implementation of treatment control BMPs for projects falling within certain development and redevelopment categories.

Porter-Cologne Act of 1972. The Porter-Cologne Act (California Water Code § 13000 et seq.) is the principal law governing water quality regulation in California and establishes a comprehensive program to protect water quality and the beneficial uses of State waters. The Act established the SWRCB and nine Regional Water Quality Control Boards (RWQCBs), which are charged with implementing its provisions and have primary responsibility for protecting water quality in California. The Porter-Cologne Act also implements many provisions of the federal Clean Water Act, such as the NPDES permitting program. Clean Water Act Section 401 gives the SWRCB the authority to review any proposed federally permitted or federally licensed activity that may impact water quality and to certify, condition, or deny the activity if it does not comply with State water quality standards. If the SWRCB imposes a condition on its certification, those conditions must be included in the federal permit or license. Additionally LARWQCB would issue waste discharge requirements (WDRs) under the Porter-Cologne Act.

Water Quality Control Plan. The Basin Plan for the Region was developed by the LARWQCB following the enactment of the Porter-Cologne Water Quality Control Act in 1969. The first interim plan was adopted in 1971 and has been amended over the years as required by the Porter-Cologne Act and Section 303(c) of the Clean Water Act. The primary objective of the Basin Plan is to preserve and enhance water quality and protect the beneficial uses of all regional waters. Beneficial uses of coastal and tidal waters in the harbor area as identified by the Basin Plan include industrial service supply, navigation, water contact recreation, non-contact water recreation, commercial and sport fishing, preservation of rare and endangered species, marine habitat and shell fish harvesting.

Total Maximum Daily Load (TMDL) Program. The TMDL program is being developed and implemented jointly by the LARWQCB, SWRCB and USEPA. The primary objective of the program is to develop and implement TMDLs for pollutant-impaired water segments to attain state water quality standards. A TMDL is a number that represents the assimilative capacity of receiving water to absorb a pollutant. Under Section 303(d) of the Clean Water Act, states are required to develop a list of water quality limited segments that do not meet water standards,

even after point sources of pollution have installed the minimum required levels of pollution control technology. Priority rankings for water bodies on the Section 303(d) lists, along with TMDL action plans are then required. As described in Section 3.13.3.2, a harbor TMDL program is being established. Designated beneficial uses on the Main Channel within the Port include industrial service supply, navigation, non-contact water recreation, commercial and sport fishing, marine habitat, rare, threatened or endangered species; water contact recreation and shellfish harvesting.

State Water Resources Control Board Stormwater Permits. The SWRCB has developed a statewide General Construction Activity Stormwater Permit and a General Industrial Activity Stormwater Permit for projects that do not require an individual permit for these activities. All construction activities that disturb one acre or more must prepare and implement a construction SWPPP that specifies Best Management Practices (BMPs) to prevent pollutants from contacting stormwater. The intent of the SWPPP and BMPs is to keep all products of erosion from moving offsite into receiving waters, eliminate or reduce nonstormwater discharges to storm sewer systems and other waters of the United States, and perform sampling and analytical monitoring to determine the effectiveness of BMPs in reducing or preventing pollutants (even if not visually detectable) in stormwater discharges from causing or contributing to violations of water quality objectives. The General Industrial Activities Stormwater Permit requires dischargers to develop and implement an SWPPP to reduce or prevent industrial pollutants in stormwater discharges, eliminate unauthorized nonstorm discharges, and conduct visual and analytical stormwater discharge monitoring to verify the effectiveness of the SWPPP.

SWRCB Standard Urban Stormwater Mitigation Plans. The City of Los Angeles is covered under the Permit for Municipal Stormwater and Urban Runoff Discharges in Los Angeles County (LARWQCB Order No. 01-182). This permit incorporates the requirements of the *Standard Urban Stormwater Mitigation Plan (SUSMP) for Los Angeles County and Cities of Los Angeles County*. The SUSMP includes implementation of treatment control BMPs for projects falling in certain development and redevelopment categories, such as 100,000 square foot commercial developments. The SUSMP "contains a list of the minimum required BMPs that must be used for a designated project. Additional BMPs may be required by ordinance or code adopted by the Permittee and applied generally or on a case-by-case basis. The Permittees are required to adopt the requirements set herein in their own SUSMP. Developers must incorporate appropriate SUSMP requirements into their project plans. Each Permittee will approve the project plan as part of the development plan approval process and prior to issuing building and grading permits for the projects covered by the SUSMP requirements."

California Toxics Rule. This rule establishes numeric criteria for priority toxic pollutants in inland waters, as well as enclosed bays and estuaries, to protect ambient aquatic life (23 priority toxics) and human health (57 priority toxics). The California Toxics Rule also includes provisions for compliance schedules to be issued for new or revised NPDES permit limits when certain conditions are met. The numeric criteria are the same as those recommended by the USEPA in its Clean Water Act Section 304(a) guidance.

Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. §§ 1401 et seq.). Section 102 of the Marine Protection, Research and Sanctuaries Act (MPRSA) allows for the siting of off-shore ocean disposal sites and use permits by the USEPA. In 2005, the USEPA redesignated two sites for limited disposal of suitable (nontoxic) dredge material off the Los Angeles/Orange County shore line, identified as LA-2 and LA-3, respectively. Prior to permit issuance by the USACE, pursuant to Section 103 of the MPRSA, the applicant must demonstrate a need of ocean disposal, have evaluated alternative beneficial reuse options and material must be deemed suitable in accordance with USEPA dumping criteria.

Spill Prevention, Control, and Countermeasure. The Oil Spill Prevention, Control, and Countermeasure (SPCC) regulations require that the Port have in place measures that help ensure oil spills do not occur, but if they do, that there are protocols in place to contain the spill, and neutralize the potential harmful impacts. An SPCC Plan would be prepared that would be reviewed and approved by the LARWQCB or the California Department of Fish and Game (CDFG) Office of Spill Prevention and Response, in consultation with other responsible agencies. The SPCC plans would detail and implement spill prevention and control measures to prevent oil spills from reaching navigable waters.

3.13.3.2 Sediments

USACE. The USACE has statutory authority over dredging and disposal in navigable waters of the U.S., the discharge of dredged or fill material within waters of the U.S., and the transportation of dredged material by vessel for purposes of dumping in ocean waters, including the territorial seas. The USACE derives its authority from the following regulations:

- Section 404 of the Clean Water Act
- Section 10 of the River and Harbor Act
- Section 103 of the Marine Protection, Research and Sanctuaries Act

Section 404 of the Clean Water Act regulates the discharge of dredge or fill material into waters of the U.S. Under Section 401 of the Clean Water Act, the USACE may not issue a Section 404 permit until the applicant also receives a Section 401 Water Quality Certification from the

RWQCB. Section 401 of the Clean Water Act requires every applicant for a federal permit or license for any activity that may result in a discharge to obtain a certification that the proposed activity will comply with state water quality standards related to beneficial uses and water quality objectives.

Section 10 of the River and Harbor Act regulates all work and/or structures in or affecting navigable waters of the U.S. This includes temporary and permanent impacts, construction, dredging, disposal, and all structures within navigable waters.

Section 103 of the Marine Protection, Research and Sanctuaries Act (MPRSA) regulates the transport of dredged material for disposal in ocean waters where it is determined that the disposal will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities.

The disposal of Project-related sediment must meet the criteria established by the USEPA (40 C.F.R. 227 & 228). Procedures for evaluating the potential contaminant-related impacts of disposing dredged material in the ocean are contained in the "Evaluation of Dredged Material Proposed for Ocean Disposal -Testing Manual" (USEPA/COE-503/8-91/001). MPRSA Sections 103 (c) & (e) set procedures and time limits for the USEPA to review and concur with conditions, or nonconcur with a proposed permit by the USACE for ocean disposal. The Proposed Action cannot move forward if a "nonconcur" is issued. If a "concur with conditions" determination is made, the Proposed Action will include the specific conditions and require compliance.

Contaminated Sediments Task Force. The CSTF was established in 1997 under the requirements of SB 673. The CSTF is a multi-agency task force comprised of representatives from the USACE, USEPA, CCC, LARWQCB, CDFG, the Ports of Los Angeles and Long Beach, Cities of Los Angeles and Long Beach, Los Angeles County Beaches and Harbors, Heal the Bay, and other interested parties. The primary mission of the CSTF is to prepare a long-term management plan for the dredging and disposal of contaminated sediments from coastal waters of the Los Angeles region.

3.13.4 Methodology

This assessment of potential water quality and oceanography impacts includes qualitative assessments of project-related effects in the context of existing conditions within the Port. Information related to water quality and oceanographic conditions was obtained from available reports and publications. Additional information regarding potential water circulation and water quality impacts resulting from the Proposed Action was obtained from a report prepared by the

USACE entitled *Circulation and Water Quality Modeling in Support of Deepening the Port of Los Angeles: Alternative Disposal Sites (2008).*

Section 15125 of the CEQA Guidelines requires EIRs to include a description of the physical environmental conditions in the vicinity of the Proposed Action that exists at the time of the NOP. The LAHD issued the NOP in November 2004. At that time construction of the Channel Deepening Project was underway and included dredging activities in the Main Channel, installation of drainage structures at the Southwest Slip, fill activities at Pier 300, movement of surcharge at Pier 300, and dike construction at Pier 400. These activities included use of one dredge, eight barges, seven tugboats, and three survey boats.

CEQA / NEPA Baseline

The CEQA and NEPA Baseline for the Proposed Action comprises approximately 63 acres of open water areas at Berths 243-245, the Northwest Slip, and the CSWH; approximately 1,330 acres of open water at ocean disposal sites LA-2~~, as well as~~ and LA-3; and approximately 31 acres of land area at the ARSSS, which is currently used for soil storage. Additionally, due to the mobility of spilled/suspended hazardous substances, the immediate area surrounding the disposal sites (up to 0.25 mile) are also included.

3.13.5 Thresholds of Significance

The following criteria are based on the *L.A. CEQA Thresholds Guide* (City of Los Angeles, 2006) and provide specific thresholds of significance to evaluate potential water quality impacts resulting from both the construction and operation of a proposed project.

A project would normally have a significant impact on surface water quality if:

WQ-1 Discharges associated with the project would create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code. The California Water Code includes the following definitions:

- "Pollution" means an alteration of the quality of the waters of the State to a degree which unreasonably affects either of the following: 1) the water for beneficial uses or 2) facilities which serve these beneficial uses. "Pollution" may include "Contamination."
- "Contamination" means an impairment of the quality of the waters of the state by waste to a degree, which creates a hazard to the public health through poisoning or through the spread of disease. "Contamination" includes any equivalent effect resulting from the disposal of waste, whether or not waters of the state are affected.

- "Nuisance" means anything which meets all of the following requirements: 1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; 2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; and 3) occurs during, or as a result of, the treatment or disposal of wastes.

WQ-2 The project would cause regulatory standards to be violated, as defined in the applicable NPDES permit or Water Quality Control Plan for the receiving water body.

The following additional criteria provide specific thresholds of significance to evaluate potential water quality and oceanographic impacts resulting from both the construction and operation of a proposed project.

WQ-3 The project would cause creation of site conditions that may result in soil erosion and sediment runoff during construction or following project completion.

WQ-4 The project would result in permanent, adverse changes to the movement of surface water sufficient to produce a substantial change in currents or direction of water flow.

WQ-5 The project would substantially reduce or increase the amount of surface water in Los Angeles Harbor.

3.13.6 Impact Analysis and Mitigation Measures

The evaluation of the potential impacts related to water quality has assumed that each project component would be consistent with the following design measures and requirements. As per informal coordination with LARWQCB, the USACE and Port would submit a request to amend the existing CWA Section 401 Water Quality Certification (WQC) or Waste Water Discharge Requirement (WDR) permit with the ~~Draft~~ SEIS/SEIR. An amended WQC or WDR from the LARWQCB would be obtained for discharges of dredged or fill material in waters of the U.S. under USACE jurisdiction.

- Monitoring would be conducted to ensure that return water flow from the disposal of dredge material meets applicable LARWQCB requirements.
- Contaminated sediments would be placed and confined in proposed disposal sites in a manner that the contaminants cannot enter harbor waters after the fill is complete.
- Monitoring would be conducted to ensure that runoff from upland disposal sites meets applicable LARWQCB requirements.

3.13.6.1 Alternative 1: Port Development and Environmental Enhancement

Alternative 1, Port Development and Environmental Enhancement, would consist of disposing dredged material at the following disposal sites: Berths 243-245; Northwest Slip; CSWH Expansion Area; ~~Eelgrass Habitat Area;~~ and LA-2.

A Confined Disposal Facility (CDF) would be created at the Berths 243-245 disposal site and would be covered with clean surcharge to an elevation of approximately +30 feet MLLW, which would remain in place until a future geotechnical investigation/monitoring determines the fill has been consolidated. In the future if the Port decides to remove the surcharge material, an appropriate CEQA document would be prepared to analyze potential impacts of surcharge removal. Potential environmental impacts of future development of the new 5-acre land area at the Northwest Slip have been addressed in the Berth 136-147 Container Terminal Project Final EIS/EIR, which is summarized in Section 3.14.

Impact WQ-1: Alternative 1 would not result in discharges that create pollution, contamination, or a nuisance as defined in Section 13050 of the California Water Code.

Effects of Dredging. Dredging activities during construction of Alternative 1 would result in the resuspension of sediments. Field studies of sediment resuspension under a wide variety of dredge conditions have shown that in most cases, sediment concentrations:

- Are greater near the bottom as compared to higher in the water column.
- Rapidly decrease with distance from the dredge.
- Are greater when the particle size distribution is smaller (i.e., silt/clays compared to sand/gravels.
- Are greater when the ambient water currents are fast enough to mobilize the sediments being disturbed.

In almost all cases, the vast majority of resuspended sediments resettle close to the dredge within one hour, and only a small fraction takes longer to resettle (Anchor Environmental, 2003).

Construction of Alternative 1 would involve the use of hydraulic dredges with pipeline disposal and clamshell dredges. Hydraulic dredges would be used in areas that contain contaminated sediments. When using hydraulic dredges with pipeline disposal, the majority of sediment resuspension occurs near the point of sediment removal. Sediments are suctioned into the dredge and are carried away via pipeline; therefore, they cannot directly enter the middle and upper portions of the water column. When using a mechanical dredge, such as a clamshell dredge, sediments are moved to the water surface. This process allows for sediment resuspension in any

vertical point in the water column. The overall sediment resuspension rates for mechanical dredging are generally higher, but overlap with the ranges of resuspension rates for hydraulic dredging (Anchor Environmental, 2003). The water quality of Los Angeles Harbor would be temporarily impacted during dredging and disposal operations, including short-term increases in turbidity, decreases in DO and pH, increases in nutrients, and increases in contaminants in areas where contaminated sediments occur. Extensive water quality monitoring was conducted during dredging and placement of dredge materials at the Port Pier 400 project area. This monitoring was required by the LARWQCB and included weekly, monthly and quarterly activities. As recommended by protocols set forth in the CSTF's Los Angeles Regional Contaminated Sediment Long Term Management Strategy, monitoring stations were located 100 feet upcurrent, and 100 and 300 feet downcurrent of each dredge and disposal operation, as well as at fixed stations in the outer harbor (Anchor, Everest, and AMEC, 2005). Dissolved oxygen, light transmittance, temperature, pH and contaminants were monitored. This monitoring failed to detect any impacts to water quality in the outer harbor as a result of dredging or disposal activities (USACE, 2000). Therefore, temporary water quality impacts are not expected to occur more than approximately 300 feet from the project sites.

Turbidity. As a result of proposed construction activities, short-term increases in turbidity would occur in the vicinity of the project sites. The length of time it takes for the suspended material to settle, combined with current velocity, determines the size and duration of the turbidity plume. Settling rates are largely determined by the grain size of the suspended material, but are also affected by the chemistry of the particle and the receiving water. The plume durations are expected to be generally short with the concentration of solids returning to background levels within one to 24 hours after dredging stops (USACE, 2000). The impacts of turbidity on marine life were determined to be less than significant and are addressed in detail under discussion for Impact BIO-2 in Section 3.3.6.2, Biological Resources.

Dissolved Oxygen. Dissolved oxygen levels may be reduced by the introduction of high concentrations of suspended particulates, particularly if the particulates are from anaerobic sediments. Previous studies have indicated, however, that reductions in DO levels are typically brief (USACE, 2000). A study in New York Harbor measured a small reduction in DO concentrations near a dredge, but no reductions in DO levels 200 to 300 feet (61 to 91 m) away from the dredging operations (Lawler, Matusky, and Skelly 1983). These results are consistent with the findings and conclusions from studies of the potential environmental impacts of open water disposal of dredged material conducted as part of the USACE Dredged Material Research Program (Lee et al. 1978; Jones and Lee 1978). Therefore, reductions in DO levels below 5 mg/l associated with project construction and dredging activities are not expected to persist or cause detrimental effects to biological resources.

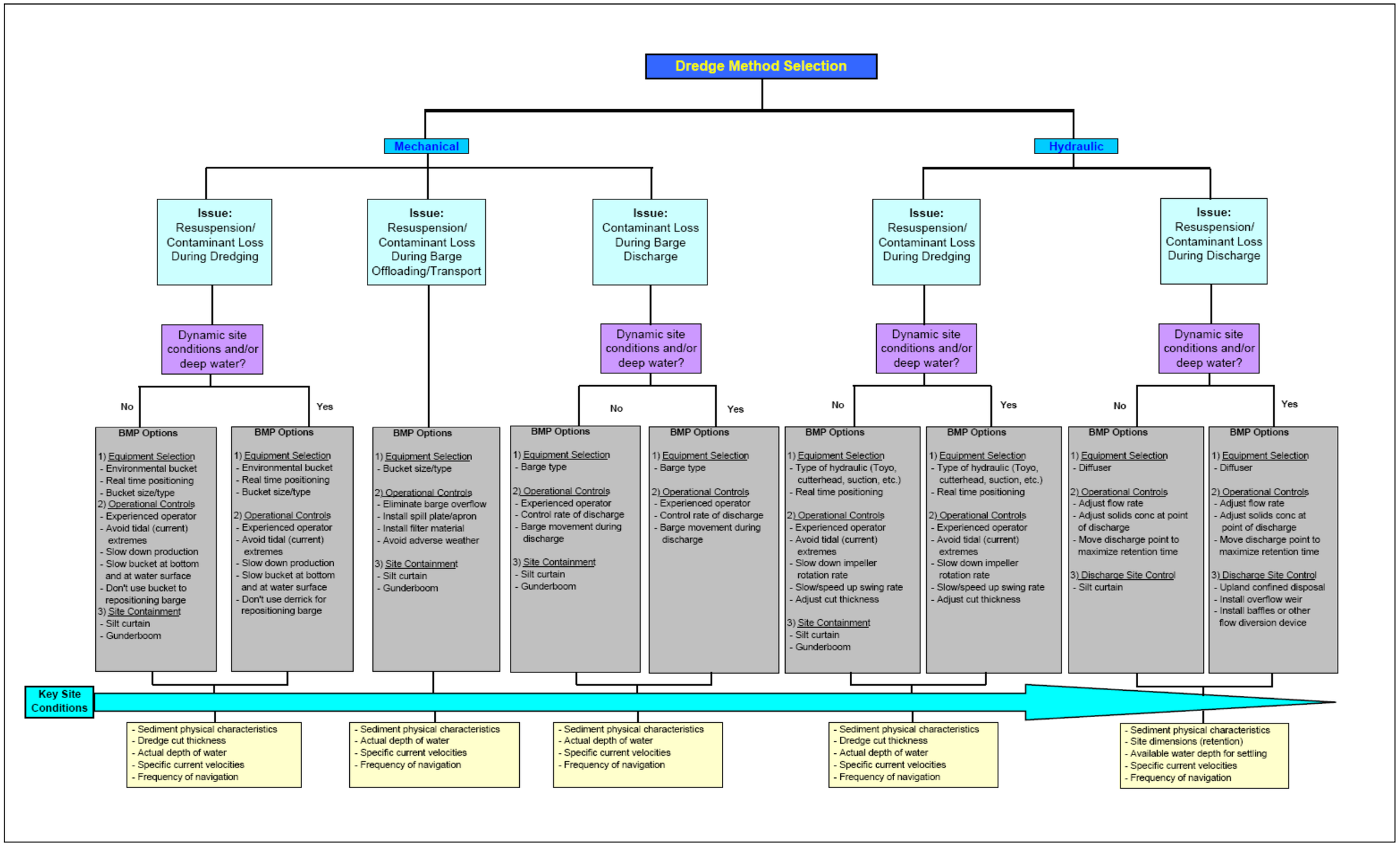
pH. The release of sediments to the water column has the potential to result in a reduction in pH levels in the immediate vicinity of dredging and disposal sites. Any measurable change in pH, however, would likely be brief and localized. No significant impacts to pH levels were detected during monitoring conducted for construction of Pier 400.

Nutrients. Dredge and disposal operations have the potential to release nutrients into the water column that may promote the growth of phytoplankton if operations occur during warm water conditions. Algal blooms have been observed in the past during the spring while dredging was underway, however, there is no evidence to indicate the dredging caused or exacerbated the bloom.

Contaminants. Contaminants may be released as a result of the disturbance of sediments during dredging and disposal operations. The majority of suspended sediments will settle close to the dredge within a short period of time, such as the one hour time period reported by Anchor (2003), and only a small fraction of the sediments take longer to settle. Consequently, the majority of the contaminants in resuspended sediments may not have time to desorb into the water column before they resettle into the sediment bed (Anchor Environmental, 2003). Previous water quality monitoring efforts associated with dredge and disposal operations at the Port have shown that substantial resuspension of contaminated sediments does not occur (USACE, 2000).

Each proposed dredge and sediment disposal site would be required to comply with the applicable federal, state and local requirements presented in Section 3.13.3.2 that would minimize the potential for project-related water quality impacts. Compliance with applicable regulatory programs is evaluated under water quality impact WQ-2. In addition, the Port would implement various best management practices (BMPs) when conducting dredging operations, including dredging operations in areas that contain contaminated sediments. The specific BMPs that would be implemented would be dependent upon site conditions, location, dredging equipment and volume of sediments to be dredged. Examples of contaminated sediment BMPs are provided from the CSTF's Long Term Management Strategy. BMPs for contaminated sediment dredging operations identified by the report are provided on Figure 3.13-1 and in Appendix G.

Figure 3.13-1 Contaminated Sediment Best Management Practice Selection Flow Chart



Page 2 for Figure 3.13-1

11 x 17

Berths 243-245. The development of the Berths 243-245 disposal site would require dredging approximately 0.09 mcy of sediment to construct a sediment containment dike foundation trench. A clamshell dredge would be used to dig the trench, and excavated sediment would be bottom dumped into the disposal site footprint area. The slips at Berths 243-245 contain contaminated sediments from past shipyard operations. Concentrations of the following compounds have been detected in surface and subsurface sediments within Berths 243-245 at concentrations above the Effects Range-Median (ER-M)[3]: mercury, lead, zinc, polychlorinated biphenyls (PCBs), tributyltin (TBT) and polynuclear aromatic hydrocarbons (PAHs) (Kinnetic Labs & Fugro, 2007). The levels of contaminants in the existing sediments at the Berths 243-245 project site are well below State of California Title 22 Total Threshold Limit Concentrations (TTLC), and are not considered a hazardous waste under state or federal regulatory standards. However, the presence of these contaminants makes these sediments unsuitable for open water disposal. A contaminated sediment management plan would be developed in cooperation with the CSTF and other State and Federal agencies prior to moving and disposing of the contaminated sediments at the project site.

Due to the presence of contaminants at the project site, and the configuration of the site (confined by existing land on the north, south and east sides), the Berths 243-245 site would be designed as a CDF for disposal of approximately 0.080 mcy of contaminated sediments that are unsuitable for open water disposal. These sediments would be dredged from the Main Channel and berths that remain to be dredged in the vicinity of Berths 127-131 and Berths 136-140 (Kinnetic Labs & Fugro, 2007).

The CDF at the Berths 243-245 site would be developed by dredging a trench and developing a dike constructed of quarry rock material across the western end of the project site. The western side of the dike would be lined with armour rock and the eastern side of the dike would be lined with sand fill. Sediments generated from the construction of the rock dike trench would be placed at the bottom of the CDF area. Contaminated sediments would then be placed at the bottom the CDF facility and the remainder of the facility would be filled with non-contaminated sediment. Upon the completion of sediment disposal operations, the CDF would be provided with a five-foot cap to contain the disposed sediments. The general design of Berths 243-245 CDF is depicted on Figure 2-14.

[3] ER-M is part of the Effects Range sediment quality guidelines established by the National Oceanic and Atmospheric Administration. The guidelines were developed to identify concentrations of contaminants associated with biological effects in laboratory, field, or modeling studies. The ER-M is the concentration equivalent to the fiftieth percentile of the compiled study data. Sediment concentrations above the ER-M are "frequently" associated with adverse effects.

Dredging of material (which may contain low levels of contaminants) to construct the Berths 243-245 sediment containment dike foundation trench and proposed sediment disposal operations would result in the resuspension of sediments and other associated water quality impacts, similar to the water quality effects described above. The implementation of dredging BMPs would reduce sediment disturbance and minimize the effects of dredging operations. The majority of the contaminated and non-contaminated sediment discharged into the Berths 243-245 CDF would settle to the bottom within a period of several hours. Although some redistribution of suspended particles by tidal currents would occur, the amount of redistributed sediment would be small and only a localized area adjacent to the project site would be affected. Therefore, it is not anticipated that the sediment would have a substantial short-term effect on water quality.

With implementation of Alternative 1, approximately 0.080 mcy of contaminated sediments would be removed from the Main Channel and capped within the CDF at Berths 243-245 with contaminated sediments that already exist at this site. Isolating and capping these contaminated sediments would minimize the potential for storm flows to resuspend the sediments, and reduce the potential for the sediments to be redistributed to other areas of the Port, which would be a beneficial long-term effect on water quality within the POLA.

Northwest Slip. The development of the Northwest Slip site would require dredging of approximately 0.05 mcy to construct a sediment containment dike foundation trench. A clamshell dredge would be used to dig the trench, and excavated sediment would be bottom dumped into the disposal site footprint area. The general design of the Northwest Slip sediment disposal site is depicted on Figure 2-15. Sediments from the Channel Deepening Project, including surcharge from the Southwest Slip at Berth 100 and coarse grained material from the main channel, would be transported to the Northwest Slip site by either pumping from a hydraulic dredge or by a clamshell dredge with a hopper barge. Approximately 0.128 mcy of sediment would be disposed of at the project site.

Dredging to construct the Northwest Slip sediment containment dike foundation trench and proposed sediment disposal operations would result in the resuspension of sediments and other associated water quality impacts. Potential impacts would be similar to the water quality effects described above. These effects would be short in duration, would only affect the area adjacent to the project site, and would terminate after the completion of proposed dredge and sediment disposal operations. Therefore, proposed dredge and sediment disposal operations would not result in significant short-term pollution- or nuisance-related water quality impacts. The Northwest Slip would not be used for the disposal of contaminated sediments.

CSWH Expansion Area. The CSWH Expansion Area would provide approximately 1.70 mcy of sediment disposal capacity. The general design of the CSWH Expansion Area disposal site is depicted on Figure 2-16.

Sediments would be transported to the site by either pumping from a hydraulic dredge or by a clamshell dredge with a hopper barge. Disposed sediments would be stabilized by a stone dike and approximately 0.04 mcy of dredging would be required to construct the dike. Dredging activities required to construct the proposed stone containment dike and the proposed sediment disposal operations would occur for approximately 160 days over an approximate one-year period and would result in the resuspension of sediments and other associated water quality impacts. Potential impacts would be similar to the water quality effects described in the "Effects of Dredging" subsection provided above. These effects would be short in duration, would only affect the area adjacent to the project site, and would terminate after the completion of proposed dredge and sediment disposal operations. Therefore, proposed sediment disposal operations would not result in significant short-term pollution- or nuisance-related water quality impacts. The CSWH Expansion Area would not be used for the disposal of contaminated sediments.

~~**Eelgrass Habitat Area.** The Eelgrass Habitat Area project would provide approximately 0.80 mcy of sediment disposal capacity. Sediments would be transported to the site by either pumping from a hydraulic dredge or by a clamshell dredge with a hopper barge, and disposed sediments would be stabilized by a stone dike. No dredging would be required at this site prior to the construction of the dike. The general design of the Eelgrass Habitat Area disposal site is depicted on Figure 2-17.~~

~~Proposed sediment disposal operations would result in the resuspension of sediments and other associated water quality impacts. These effects would occur for approximately 80 days over approximately 10 months, would be relatively short in duration, would only affect the area adjacent to the project site, and would terminate after the completion of proposed dredge and sediment disposal operations. Therefore, proposed sediment disposal operations would not result in significant short-term pollution- or nuisance-related water quality impacts. The Eelgrass Habitat Area would not be used for disposal of contaminated sediments.~~

LA-2. Alternative 1 would result in the placement of approximately 0.804~~004~~ mcy of sediment at LA-2. This site would not be used for disposal of contaminated sediments. The use of LA-2 for the disposal of Project-related sediments would result in the short-term resuspension of sediment. This effect would terminate soon after the completion of disposal operations. The use of this existing site would not substantially change its operating characteristics and all disposal site operations would be required to comply with the site's existing management plan.

Water Circulation

Potential long-term effects on the quality of water within the Port that have the potential to result from land configuration changes caused by the proposed and alternative sediment disposal sites were evaluated in a report prepared by the USACE (USACE, 2008). The report was completed in 2008 but was begun in 2005. Conditions in 2005 are considered to be representative of 2004 baseline conditions because no new features (such as new fill areas or dikes) that would have substantially affected water circulation had been constructed since release of the November 2004 NOI/NOP.

The report provides the results of hydrodynamic (water current characteristics) computer modeling of existing conditions within the Port, and hydrodynamic conditions that would exist after the implementation of Alternative 1. The hydrodynamic data was then input into a water quality computer model. Existing water quality conditions were compared to post-project conditions to determine if significant changes in water quality would have the potential to occur. Water quality parameters considered by the study included biological oxygen demand, chlorophyll, dissolved inorganic phosphorous, DO, ammonium, nitrate and temperature. Potential changes to water quality conditions within the Port were estimated at eight locations distributed throughout the harbor area.

Water quality differences between existing conditions within the Port and conditions that would exist after implementation of Alternative 1 were usually less than a one percent maximum change at most of the eight water quality modeling stations. A key constituent in estimating harmful changes in water quality is DO concentration as aquatic life can be jeopardized if DO levels are decreased below 4 mg/L. The water quality modeling for Alternative 1 indicated that within the Port, DO concentrations would not decrease more than about five percent relative to existing conditions, which would result in DO concentrations of approximately 6.0 to 7.4 mg/l in bottom and surface waters. This small decrease in DO concentrations is not significant, would not pose a threat to aquatic life, and DO levels would remain above the 5 mg/l standard established by the USEPA and the LARWQCB (USACE, 2008).

Water quality impacts due to changes in currents in the Berths 243-245 and Northwest Slip project areas caused by proposed landfills were determined to be minor, isolated and less than significant. Increases in chlorophyll, biological oxygen demand and nitrate concentrations are predicted to occur in the CSWH Expansion Area due to increased bottom elevations. This change would occur because shallower water would allow more light penetration and changes in nutrient distribution would occur~~. In the Eelgrass Habitat Area, DO levels are predicted to decline by approximately four percent when compared to baseline conditions due to detrtial~~

~~buildup of dead eelgrass and restricted water exchange within the area.~~ All of the predicted water quality changes are considered to be minimal compared to baseline conditions and would not result in significant impacts to water quality (USACE, 2008).

Impact Determination

Dredging and sediment disposal operations would disturb and resuspend bottom sediments, including contaminated sediments. Project-related operations would result in temporary and isolated decreases in DO concentrations; however, these conditions would not persist following the completion of the dredging or sediment disposal operations. Temporary disturbances of contaminated sediment would not result in a substantial redistribution of those sediments. Additionally, isolating and capping existing contaminated sediments from within the Main Channel and berthing areas would minimize the potential for storm flows to resuspend the sediments, thereby reducing the potential for the contaminants to be redistributed to other areas of the Port, which would be a beneficial long-term effect on water quality within the POLA. Therefore, sediment dredge and disposal activities associated with implementation of Alternative 1 would not result in discharges that create pollution, contamination, or a nuisance as defined in Section 13050 of the California Water Code. Compliance with applicable water quality regulations and the implementation of BMPs for the dredging of contaminated sediments would ensure that potential water quality impacts would be less than significant.

Mitigation Measures. Under Alternative 1, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for implementation of Alternative 1 are required. Therefore, no significant residual impacts would occur.

Impact WQ-2: Alternative 1 would not result in discharges that violate standards defined in the applicable NPDES permit or Water Quality Control Plan for the receiving water body.

All construction activities at the Berths 243-245 disposal site, Northwest Slip, CSWH Expansion Area, ~~Eelgrass Habitat Area,~~ and LA-2 would be required to comply with applicable requirements of the USEPA (NPDES), USACE (Clean Water Act Section 404, MPRSA Section 103) and LARWQCB (Section 401 and General Construction Activities Storm Water Permit).

The City and the Port have developed programs to implement requirements of the State Water Resources Control Board General Construction Activities Storm Water Permit, including the Permit's requirements for the development and implementation of a SWPPP that describes applicable BMPs to be implemented at the project sites. Construction projects would also be

required to implement applicable BMPs required by the SUSMP for Los Angeles County and Cities of Los Angeles County. Existing implementation and enforcement programs adopted by the City and the Port would be adequate to reduce potential water quality impacts of Alternative 1 to a less than significant level. No additional mitigation measures are required.

Impact Determination

Proposed site development activities at Berths 243-245, the Northwest Slip, CSWH Expansion Area, ~~Eelgrass Habitat Area,~~ and LA-2 would be required to comply with applicable construction and water quality regulations. Compliance with existing regulatory requirements would be adequate to prevent discharges that violate standards defined in the applicable NPDES permit or Water Quality Control Plan for the receiving water body. Compliance with applicable regulations would be adequate to reduce potential water quality impacts to a less than significant level.

Mitigation Measures. Under Alternative 1, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for implementation of Alternative 1 are required. Therefore, no residual impacts would occur.

Impact WQ-3: Alternative 1 would not result in the creation of site conditions that may result in soil erosion and sediment runoff during construction or following project completion.

The CSWH Expansion Area and LA-2 disposal sites would not achieve an elevation above water level and would not become a source of erosion. ~~A rock dike that would be developed as part of the proposed Eelgrass Habitat Area would extend above the water surface, however, the dike would not be a potential source of future erosion-related impacts.~~ After the proposed CDF at Berths 243-245 and the new land area at the Northwest Slip achieve elevations above water level, the exposed sediments could be affected by erosion and sedimentation processes, which would have the potential to result in increased turbidity and other related water quality impacts.

Potential short-term construction-related erosion and sedimentation impacts from sediment disposal at the Berths 243-245 and Northwest Slip areas would be minimized by implementing existing regulatory requirements, including preparation and implementation of a SWPPP and the ~~implementation of applicable~~ erosion/sedimentation control BMPs identified by the Plan. Long-term erosion-related water quality impacts would also have the potential to occur at the Berths 243-245 disposal site resulting from the placement of clean surcharge material over the sediment disposal area. Potential erosion-related impacts that may be caused by the surcharge material

would be minimized by implementing appropriate ~~SWPPP and~~ BMP measures identified by the SWPPP. Thus, implementation of these requirements at the proposed disposal locations would reduce potential water quality impacts to a less than significant level.

Proposed sediment disposal areas would be used to accept sediment that is presently stockpiled at the Southwest Slip. Existing erosion control measures provided at the Southwest Slip site currently prevent the stockpile from being a substantial source of sediment. Although the existing sediment stockpile at the Southwest Slip is not a substantial source or erosion and sediment, removing it would eliminate a potential source of sedimentation, therefore resulting in a beneficial impact.

Impact Determination

Proposed site development activities associated with implementation of Alternative 1 would be required to comply with applicable erosion control regulations. Compliance with existing regulatory requirements would be adequate to prevent significant soil erosion and sediment runoff impacts during construction. Adherence to existing erosion control regulations would prevent long-term impacts that may result from surcharge soil placed at the Berths 243-245 and Northwest Slip project sites. The CSWH Expansion Area~~, Eelgrass Habitat Area~~ and LA-2 would be underwater sites and would not have the potential to be sources of sedimentation or erosion. Therefore, impacts would be less than significant.

Mitigation Measures. Under Alternative 1, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for implementation of Alternative 1 are required. Therefore, no residual impacts would occur.

Impact WQ-4: Alternative 1 would not result in permanent adverse changes to the movement of surface water or produce a substantial change in currents or direction of water flow.

Potential long-term effects on water circulation within the Port that have the potential to result from land configuration changes at the proposed and alternative sediment disposal sites were evaluated in a report prepared by the USACE (USACE, 2008). The report provides the results of hydrodynamic (water current characteristics) computer modeling of existing conditions within the Port, and hydrodynamic conditions that would exist after the implementation of Alternative 1.

The evaluation of water circulation impacts resulting from the development of sediment disposal sites under Alternative 1 determined that the Berths 243-245 and Northwest Slip disposal sites

would have effects that are very small and localized. Therefore, these project components would not result in adverse impacts to water circulation.

The water circulation report prepared for Alternative 1 (USACE, 2008) evaluated the development of the proposed CSWH Expansion Area ~~and Eelgrass Habitat Area~~. The report concluded that ~~water velocities would be lowered inside the Eelgrass Habitat Area because it would be enclosed on three sides by a rock dike (which would be constructed to +12 feet MLLW to +14 feet MLLW to protect eelgrass area from erosion from storm waves). Increased~~ increased bottom current velocities and the formation of an eddy would occur immediately to the west of the CSWH Expansion Area in the vicinity of the Inner Cabrillo Beach (USACE, 2008~~) Increases in bottom~~). Most changes in residual ~~velocity to the west of the Eelgrass Habitat Area~~ currents would be on the order of ~~approximately 10~~0.1 cm/sec~~, which may result in increased erosion depending on the character of the bottom material and the values of instantaneous currents. However,~~ Due to the localized and small changes in current velocities when compared to baseline conditions, ~~none of~~ the predicted changes in water movement were considered to be less than significant and impacts to the overall circulation system ~~impacts to~~in the POLA would not produce a substantial change in currents or direction of water flow ~~be significant~~ (USACE, 2008).

LA-2 is a deep water disposal site located in the open ocean approximately 5.8 miles offshore southwest of the breakwater at San Pedro and approximately 20 miles northwest of the Newport Harbor entrance. The site is near the top edge of the continental slope in approximately 360 to 1,115 feet of water (USEPA and USACE, 2004). Potential water circulation impacts at this site were not evaluated by the USACE circulation study as the disposal of 0. 804~~004~~ mcy of dredge material would not have a substantial effect on water circulation at the site, and any minor changes that may occur would not adversely effect surrounding open ocean areas.

Impact Determination

Proposed site development activities associated with implementation of Alternative 1 would result in only small and isolated changes in current velocity conditions when compared to base conditions, which are not considered to be significant, and would not result in permanent adverse impacts to water circulation. Impacts would be less than significant.

Mitigation Measures. Under Alternative 1, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for implementation of Alternative 1 are required. Therefore, no residual impacts would occur.

Impact WQ-5: Alternative 1 would not substantially reduce or increase the amount of surface water in Los Angeles Harbor.

Implementation of Alternative 1 would result in an approximately eight-acre CDF at Berths 243-245 and a new five-acre land area at the Northwest Slip. The Port currently consists of approximately 3,300 acres of water area. The 13 acres of water area that would be displaced by these disposal options would represent an approximately 0.4 percent reduction in surface water area at the Port. As described above in the analysis of Impacts WQ-1 and WQ-4, use of Berths 243-245 and the Northwest Slip as disposal sites would not result in significant changes to the water quality or water circulation that presently exists within the harbor.

~~A rock dike that would be developed as part of the proposed Eelgrass Habitat Area would extend above the water surface in the outer harbor area and would displace approximately~~The CSWH Expansion Area and LA-2 sediment disposal sites would not result in the development of new land. Therefore, Alternative 1~~.7 acres (0.7 ha) of water. Due to the small area of the dike that would extend above the surface of the water, this feature~~ would not result in a ~~significant~~ reduction in ~~surface water area at the Port. The CSWH Expansion Area and LA-2 sediment disposal sites would not result in the development of new land, and would therefore not reduce~~ the amount of surface water at these locations.

Impact Determination

The implementation of Alternative 1 would not substantially reduce the amount of surface water within the harbor. Impacts would be less than significant.

Mitigation Measures. Under Alternative 1, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for implementation of Alternative 1 are required. Therefore, no residual impacts would occur.

3.13.6.2 Alternative 2: Environmental Enhancement and Ocean Disposal

Alternative 2, Environmental Enhancement and Ocean Disposal, consists of placing dredge material at the following locations: CSWH Expansion Area, ~~Eelgrass Habitat Area,~~ the ARSSS, LA-2 and LA-3~~2~~. No new land would be created under Alternative 2.

Implementation of Alternative 2 would result in the same type and extent of development at the CSWH Expansion Area ~~and the Eelgrass Habitat Area disposal locations~~ as described for Alternative 1. Alternative 2 would also result in the same type and extent of disposal activities at LA-2~~, although more sediment~~ as would ~~be disposed of~~ occur under Alternative ~~2 (0.420 mcy)~~

~~than Alternative 1 (0.004 mcy), which would result in a longer duration of disposal activities but would not adversely affect water quality because the LA-2 facility would continue to be operated as a deep water sediment disposal site consistent with previously approved operation permits. Alternative 2 would result in identical less than significant impacts as described for Alternative 1 at the CSWH Expansion Area, the Eelgrass Habitat Area, and LA-2. Therefore, the impact discussion for Alternative 2 will focus on the ARSSS disposal site, which was not included or discussed~~. Alternative 2 would result in identical less than significant impacts as described for Alternative 1 at the CSWH Expansion Area and LA-2. Therefore, the impact discussion for Alternative 2 will focus on the ARSSS disposal site and LA-3, which were not evaluated under Alternative 1.

Impact WQ-1: Alternative 2 would not result in discharges that create pollution, contamination, or a nuisance as defined in Section 13050 of the California Water Code.

Alternative 2 would result in the placement of approximately 0.080 mcy of contaminated sediments at the ARSSS, which is an upland soil storage site that has been approved by the LARWQCB for disposal of dredge materials that are unsuitable for open water disposal. The site encompasses approximately 31 acres and was modified for use as a soil storage facility in the early 1990s. The dredge material deposited at this site is material that after testing has been found to be unsuitable for open water disposal but is not classified as hazardous waste.

Project-related sediments to be placed in the ARSSS would be placed in barges and shipped to an offloading site at Shore Road. The material would be transferred from the barge to a temporary bermed holding area and subsequently transferred to trucks for transport to the ARSSS, approximately 0.15 miles away, across Shore Road. Because dredged material has a high water content when first disposed, the Port implements various best management practices to prevent the material from spilling onto the road during transport, including only partially filling the trucks, sealing the backs of trucks to prevent leakage, washing truck tires before they leave the offloading site, and sweeping the roads on a regular basis.

Proposed disposal operations at the ARSSS would be required to comply with the facility's existing NPDES permit requirements to minimize potential water quality impacts. The use of the previously permitted ARSSS, consistent with existing operating permits and requirements, would not result in significant short-term pollution- or nuisance-related water quality impacts.

Alternative 2 would also result in the placement of approximately 0.416 mcy of sediment at LA -3. The LA-3 disposal site would not be used for disposal of contaminated sediments. The use of

this existing site would not substantially change its operating characteristics and all disposal site operations would be required to comply with the site's existing management plan.

Under this alternative, the existing contaminants within Berths 243-245 would remain in place. Concentrations of the following compounds have been detected in surface and subsurface sediments within Berths 243-245 at concentrations above ER-M: mercury, lead, zinc, polychlorinated biphenyls (PCBs), tributyltin (TBT) and polynuclear aromatic hydrocarbons (PAHs) (Weston 2005). These materials would not be capped under this alternative and would therefore have the potential to be resuspended during storm events, resulting in future degradations to water quality. However, this existing contamination does not meet the definitions of pollution, contamination, or a nuisance as defined in Section 13050 of the California Water Code.

Impact Determination

Sediment transport and disposal under Alternative 2 would not result in discharges that create pollution, contamination, or a nuisance as defined in Section 13050 of the California Water Code. Additionally, placement ~~in the ARSSS~~ of ~~contaminants from within the Main Channel and berthing areas and~~ contaminated dredge material in the ARSSS would minimize the potential for storm flows to resuspend the sediments, thereby reducing the potential for the contaminants to be redistributed to other areas of the Port, which would be a beneficial long-term effect on water quality within the POLA. Although the existing contaminated sediments within Berths 243-245 would not be capped under this alternative, impacts would be less than significant because the existing contaminants do not meet the definitions of pollution, contamination, or a nuisance as defined in Section 13050 of the California Water Code and presented above in Section 3.13.5. Compliance with applicable NPDES regulations and proposed site operation BMPs would be adequate to reduce potential water quality impacts to a less than significant level.

Mitigation Measures. Under Alternative 2, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for implementation of Alternative 2 are required. Therefore, no residual impacts would occur.

Impact WQ-2: Alternative 2 would not result in discharges that violate standards defined in the applicable NPDES permit or Water Quality Control Plan for the receiving water body.

All site operation activities at the ARSSS would be required to comply with existing permits approved for those facilities, as well as applicable requirements of the USEPA (NPDES) and LARWQCB (WQC and General Construction Activities Storm Water Permit).

The City and the Port have developed programs to implement requirements of the General Construction Activities Storm Water Permit, including the development and implementation of a SWPPP that describes applicable BMPs to be implemented at the project sites. Existing implementation and enforcement programs adopted by the City and the Port would be adequate to reduce potential water quality impacts of Alternative 2 to a less than significant level.

Impact Determination

Proposed construction activities at the CSWH Expansion Area, ~~Eelgrass Habitat Area,~~ ARSSS, LA-2, and LA-3~~2~~ would be required to comply with applicable construction and water quality regulations. Compliance with existing regulatory requirements would be adequate to prevent discharges that violate standards defined in the applicable NPDES permit or Water Quality Control Plan for the receiving water body. Impacts would be less than significant.

Mitigation Measures. Under Alternative 2, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for implementation of Alternative 2 are required. Therefore, no residual impacts would occur.

Impact WQ-3: Alternative 2 would not result in the creation of site conditions that may result in soil erosion and sediment runoff during construction or following project completion.

Potential short-term erosion and sedimentation impacts from sediment disposal at the ARSSS would be minimized by adherence to existing regulatory requirements, including continued implementation of the project site's SWPPP, and implementation of applicable erosion/ sedimentation control BMPs. Implementation of existing operating requirements at the ARSSS would reduce potential water quality impacts to a less than significant level. The LA-3 disposal site would not achieve an elevation above water level and would not be source of erosion.

Impact Determination

Proposed sediment disposal activities at the CSWH Expansion Area, ~~Eelgrass Habitat Area,~~ and ARSSS~~, and LA-2~~ would be required to comply with applicable erosion control regulations. Impacts would be less than significant.

Mitigation Measures. Under Alternative 2, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for implementation of Alternative 2 are required. Therefore, no residual impacts would occur.

Impact WQ-4: Alternative 2 would not result in permanent adverse changes to the movement of surface water or produce a substantial change in currents or direction of water flow.

The ARSSS is an upland facility and does not have the potential to result in adverse impacts to water circulation in the Port.

The LA-3 disposal site is located in the open ocean approximately five miles southwest of the Newport Harbor entrance, and is approximately 1,600 feet below the water surface. Potential water circulation impacts at this site were not evaluated by the USACE circulation study as the disposal of 0.416 mcy of dredge material would not have a substantial effect on water circulation at the site, and any minor changes that may occur would not adversely effect surrounding open ocean areas. The LA-2 site is located approximately 20 miles northwest of the Newport Harbor entrance. Due to the large distance between the LA-2 and LA-3 sites, even simultaneous use of both sites for disposal of project-related dredge material would not result in significant water circulation impacts in the open ocean.

Impact Determination

Proposed sediment disposal site development activities at the CSWH Expansion Area, ~~Eelgrass Habitat Area, and LA-2~~ would result in identical water circulation impacts as described for ~~these locations under~~ Alternative 1. The use of the ARSSS and LA-3 would not result in permanent adverse impacts to water circulation. Impacts would be less than significant.

Mitigation Measures. Under Alternative 2, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for implementation of Alternative 2 are required. Therefore, no residual impacts would occur.

Impact WQ-5: Alternative 2 would not substantially reduce or increase the amount of surface water in Los Angeles Harbor.

No new land area would be created as a result of Alternative 2. ~~As described above for Alternative 1, the rock dike that would be developed as part of the Eelgrass Habitat Area would displace approximately 1.7 acres of water surface in the outer harbor area but would not result in a significant reduction in surface water area at the Port.~~ Therefore, Alternative 2 would not result in a substantial reduction of surface water at the Port.

Impact Determination

~~Displacement of 1.7 acres of surface water would not represent a substantial reduction of surface water within Los Angeles Harbor. Impacts would be less than significant.~~

No new land area would be created as a result of Alternative 2 and surface water reduction impacts would not occur.

Mitigation Measures. Under Alternative 2, no ~~potentially~~ significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for implementation of Alternative 2 are required. Therefore, no residual impacts would occur.

3.13.6.3 Alternative 3: No Action

Under the No Action Alternative, no construction activities related to the Proposed Action would occur. No new landfills or new shallow water areas would be created. Since all approved disposal sites have been completed, no further dredging would take place and the Channel Deepening Project would not be completed. Existing environmental conditions at the Proposed Action disposal sites would continue to exist. Approximately 1.025 mcy of material within the federally-authorized channel and 0.675 mcy of berth dredging would remain to be dredged and disposed. In addition the 0.815 mcy of surcharge on the Southwest Slip Area would remain to be removed and disposed.

Under Alternative 3 approximately 0.080 mcy of contaminated dredge material would remain within the Main Channel of the Port. Removing contaminated sediments from harbor channels and placing them in a CDF would minimize the potential for storm flows to resuspend the sediments, and reduce the potential for the sediments to be redistributed to other areas of the port. The beneficial effects of removing contaminated sediments would not occur under Alternative 3.

Impact WQ-1: Alternative 3 would not result in discharges that create pollution, contamination, or a nuisance as defined in Section 13050 of the California Water Code.

Construction activities associated with the Proposed Action would not occur under Alternative 3. Selection of this alternative would minimize the potential for short- and long-term water quality impacts at the Proposed Action sites. However, since dredging and disposal activities would not occur, the 0.080 mcy of contaminated sediments would remain in the Main Channel and berthing areas and would have the potential to be resuspended during storm events, resulting in future degradations to water quality. Additionally, the existing contaminants within sediments at Berths 243-245 would not be capped and the potential for them to be resuspended during a storm event would remain. However, Alternative 3 would not result in any discharges into the Harbor.

Impact Determination

No additional sediment disposal activities would occur under Alternative 3. Therefore, this alternative would not result in discharges that create pollution, contamination, or a nuisance as defined in Section 13050 of the California Water Code. No impact would occur.

Mitigation Measures. Under Alternative 3, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for selection of Alternative 3 are required. Therefore, no residual impacts would occur.

Impact WQ-2: Alternative 3 would not result in discharges that violate standards defined in the applicable NPDES permit or Water Quality Control Plan for the receiving water body.

Construction activities associated with the Proposed Action would not occur under Alternative 3 and there would be no change in the potential for water quality impacts at the Proposed Action sites.

Impact Determination

No additional sediment dredge or disposal activities would occur under Alternative 3. Therefore, this alternative would not have the potential to result in discharges that violate standards defined in the applicable NPDES permit or Water Quality Control Plan for the receiving water body. No impacts would occur.

Mitigation Measures. Under Alternative 3, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for Alternative 3 are required. Therefore, no residual impacts would occur.

Impact WQ-3: Alternative 3 would not result in the creation of site conditions that may result in soil erosion and sediment runoff during construction or following project completion.

Direct impacts due to dredge and disposal activities associated with the Proposed Action would not occur under Alternative 3. Selection of this alternative would minimize the potential for short- and long-term erosion impacts at the proposed upland project sites. However, selection of Alternative 3 is not required to minimize the less than significant water quality impacts of the Proposed Action.

Impact Determination

Alternative 3 would not result in soil erosion or sediment runoff in the Port area, and no impacts would occur.

Mitigation Measures. Under Alternative 3, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for selection of Alternative 3 are required. Therefore, no residual impacts would occur.

Impact WQ-4: Alternative 3 would not result in permanent adverse changes to the movement of surface water or produce a substantial change in currents or direction of water flow.

No new sediment disposal sites would be developed under Alternative 3. Selection of this alternative would minimize the potential for water circulation impacts; however, selection of Alternative 3 is not required to reduce the less than significant water circulation impacts of the Proposed Action.

Impact Determination

Selection of Alternative 3 would result in no permanent adverse impacts to water circulation.

Mitigation Measures. Under Alternative 3, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for selection of Alternative 3 are required. Therefore, no residual impacts would occur.

Impact WQ-5: Alternative 3 would not substantially reduce or increase the amount of surface water in Los Angeles Harbor.

No new land would be created under Alternative 3. Alternative 3 would not result in an increase or decrease in the amount of surface water at the harbor.

Impact Determination

Alternative 3 would result not substantially reduce or increase the amount of surface water in Los Angeles Harbor. No impacts would occur.

Mitigation Measures. Under Alternative 3, no significant adverse impacts would occur; therefore, no mitigation measures are required.

Residual Impacts. No mitigation measures for selection of Alternative 3 are required. Therefore, no residual impacts would occur.

3.13.7 Impact Summary

This section summarizes the conclusions of the impact analysis presented above in Section 3.13.6. Table 3.13-2 lists each impact identified for each Alternative of the Proposed Action, along with the significance of each impact.

Table 3.13-2 Impact Summary

Impact	Alternative 1	Alternative 2	Alternative 3
WQ-1. Discharges that create pollution, contamination, or a nuisance as defined in Section 13050 of the California Water Code would not occur.	LTS	LTS	NI
WQ-2. Discharges that violate standards defined in the applicable NPDES permit or Water Quality Control Plan for the receiving water body would not occur.	LTS	LTS	NI
WQ-3. The creation of site conditions that may result in soil erosion and sediment runoff during construction or following project completion would not occur.	LTS	LTS	NI
WQ-4. Permanent adverse impacts to water circulation would not occur.	LTS	LTS	NI
WQ-5. The amount of surface water in Los Angeles Harbor would not substantially reduce or increase.	LTS	NI	NI

S&U = Significant and Unavoidable SM = Significant but Mitigated
LTS = Less than Significant NI = No Impact

Implementation of Alternative 1 or Alternative 2 would result in less than significant impacts with regard to discharges related to pollution, contamination, or nuisances; violate regulatory standards; changes in surface water, and erosion and sedimentation. Alternative 1 would also have the beneficial impact of capping existing contaminants at Berths 243-245 within a new CDF which prevent potential future redistribution of contaminated sediments within the Port. Under Alternative 2, the existing contaminants within sediments at Berths 243-245 would not be

capped and the potential for them to be resuspended during a storm event would remain. Selection of Alternative 3 would result in no direct impacts to water quality or circulation, however, the contaminated sediments that would be removed under Alternative 1 and Alternative 2 would remain within the Harbor and would have the potential to be resuspended during storm events, resulting in future degradations to water quality.

3.13.8 Mitigation Measures

No significant water quality impacts would result from the Proposed Action; therefore, no mitigation measures are required.

3.13.9 Significant Unavoidable Adverse Impacts

No significant unavoidable impacts would occur.

3.13.10 Mitigation Monitoring Plan

Since no mitigation measures are required for water quality impacts, a mitigation monitoring plan is not required.