3.8 Hydrology and Water Quality

This section describes the effects on hydrology and water quality that could be caused by the implementation of the proposed Transpacific Fiber-Optic Cables Project. The following discussion addresses the existing environmental conditions in the affected areas, identifies and analyzes environmental impacts for the proposed Project, and recommends mitigation measures to reduce or avoid adverse impacts anticipated from Project construction and operation. In addition, existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Project.

3.8.1 Environmental Setting

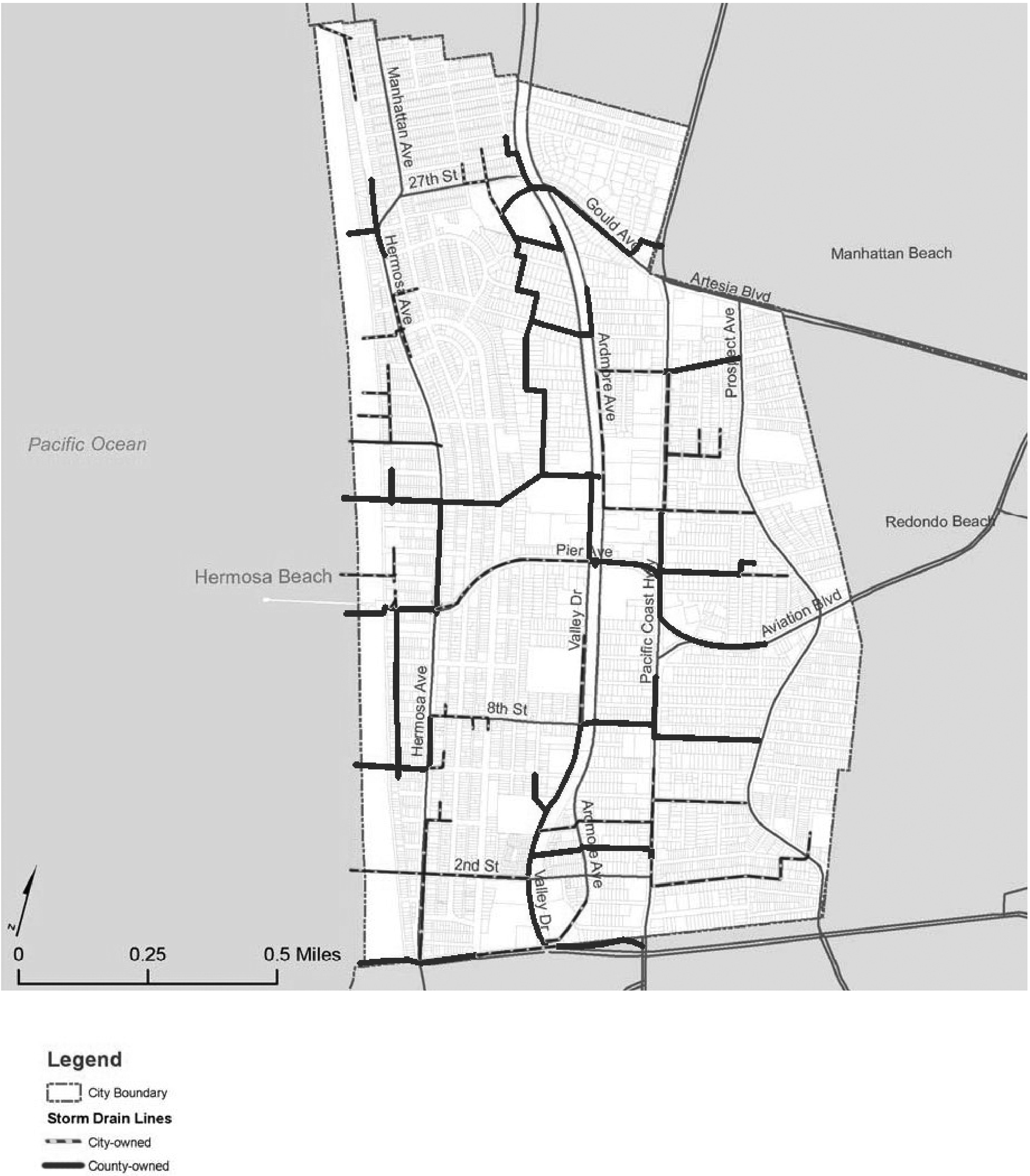
3.8.1.1 Physical Setting

The City of Hermosa Beach (The City) is located on the Santa Monica Bay, on the coastal plain of the Los Angeles Basin. The basin is bounded by Santa Monica Mountains to the northwest, the San Gabriel Mountains to the northeast, the Santa Ana Mountains to the east, and the Pacific Ocean to the south and west. The City is located 17 miles southwest of Los Angeles on the southern end of Santa Monica Bay. The City covers 1.43 square miles, and the elevation ranges from 0 to 200 feet above sea level.

Surface watersheds in California are divided into 10 hydrologic regions, as defined by the California Department of Water Resources. The City is located in the South Coast Hydrologic Region (HR) and is subject to the objectives and limits of the Water Quality Control Plan for the Los Angeles Region (Basin Plan) under the jurisdiction of the Los Angeles Regional Water Quality Control Board (LARWCB). Hydrologic Regions are subdivided into Hydrologic Units (HU), and further into Hydrologic Areas (HA). The study area is located in the Santa Monica Bay HU, and within the Lower Santa Monica Bay HA. The South Coast Hydrologic Region covers 11,000 square miles (approximately 7 percent) of the State's total land area and contains about 54 percent of the State's population.

No freshwater waterways or surface water bodies are located within the City. Approximately 1.8 miles of the western edge of the City abut the south end of the Santa Monica Bay. This area includes a 400-foot-wide sandy beach between the Pacific Ocean and urban development. For the purposes of analysis, the subareas categorized as inland, nearshore, and coastal waterways will be discussed individually based on their proximity to the proposed Project.

Urban runoff (stormwater) flows from inland locations through the City to the Pacific Ocean through a network of drainage lines identified in Figure 3.8-1. The network is a mixture of County-owned and City-owned lines that generally run east to west along major roads including 16th Street, Pier Avenue, and 2nd Street. The lines generally terminate through one of 11 outfalls at the west end of the City on the beach or in the Pacific Ocean. Offshore marine waters are part of the Santa Monica Bay, which generally extends south from Point Dume in Malibu to the Palos Verdes Peninsula. Prior to 1825, the primary drainage flowing into the bay was the Los Angeles River. However, a catastrophic flood event in 1825 diverted the Los Angeles River south of the Palos Verdes Peninsula. Ballona Creek is now the primary drainage feeding into the bay. Other waterways draining into the bay include Malibu Creek and Topanga Creek (City of Hermosa Beach, 2014).



Source: City of Hermosa Beach, Los Angeles County, November 2013

Figure 3.8-1
Stormwater Drainage Map

The West Coast subbasin of the Coastal Plain of the Los Angeles Groundwater Basin is adjudicated and is bounded on the north by the Ballona Escarpment, on the east by the Newport-Inglewood fault zone, and on the south and west by the Pacific Ocean and consolidated rocks of the Palos Verdes Hills (DWR, 2004). The water in underlying aquifers is confined throughout most of the basin. Table 3.8-1 identifies the principal aquifers in the West Coast subbasin of the Coastal Plain of the Los Angeles Groundwater Basin. The Los Angeles River crosses the southern surface of the subbasin through the Dominguez Gap, and the San Gabriel River crosses the subbasin through the Alamitos Gap. Both rivers then flow into San Pedro Bay (DWR, 2004).

Table 3.8-1. Principal Aquifers in the West Coast Subbasin

Aquifers/Aquiclude	Epoch	Formation	Lithology	Max. Thickness (Feet)
Semiperched	Holocene	Alluvium	Sand, silt, clay	60
Bellflower	Not Reported	Not Reported	Silty clay, clay	80
Gaspur	Not reported	Not reported	Coarse sand, gravel	120
Bellflower	Not reported	Not reported	Silty clay, clay	200
Gardena	Not reported	Not reported	Sand, gravel	160
Gage	Pleistocene	Lakewood Formation	Fine to coarse-grained sand and gravel	160
Lynwood	Lower Pleistocene	San Pedro Formation	Sand, gravel with small amount of clay	200
Silverado	Not reported	Not reported	Coarse sand and gravel	500
Unnamed	Not reported	Not reported	Coarse sand and gravel/silt and clay	500 to 700

Sources: Hermosa Beach, Existing Conditions Report, Table 11.1; DWR 2004

Water service in the study area is provided by the California Water Service Company, Hermosa-Redondo District (Cal Water) using groundwater, imported surface water, and recycled supplies. Groundwater extracted from the Silverado aquifer satisfies 10 to 15 percent of the District's water demand (City of Hermosa Beach, 2014). The Silverado aquifer is confined, underlies most of the basin, and is the most productive aquifer in the basin. It ranges from 100 to 500 feet thick and yields 80 to 90 percent of the groundwater extracted annually from the basin. The storage capacity of the Silverado aquifer is estimated to be 6.5 million acre feet (DWR, 2004). Cal Water's adjudicated right of the safe yield of the groundwater basin is 4,070 acre feet per year (AFY). However, Cal Water does not currently have the ability to sustain production and delivery of this quantity and normally produces approximately 2,000 AFY of groundwater. The remaining groundwater is either sold to other entities or left for basin recharge (City of Hermosa Beach, 2014).

Climate

The City's Mediterranean climate is typical of the coastal areas of the South Coast region. The climate is characterized by mild, wet winters and warm, dry summers. Approximately 75 percent of the region's precipitation typically occurs between December and March. Average precipitation can vary greatly within the South Coast region: from more than 40 inches annually in the mountains to less than 10 inches annually in the valleys (DWR, 2009). Average precipitation throughout the West Coast subbasin is 12 to 14 inches (DWR, 2004). Although the region is generally dry, monsoonal thunder-storms may inundate the eastern and southern portions in the late summer. These thunderstorms are the result of low-pressure cells in the southwest.

The region generally experiences substantial climactic variability, with periods of higher than normal precipitation followed by lower than normal precipitation and periodic drought conditions. For instance, the region experienced extremely dry conditions in 2013, with precipitation levels being the lowest on record. Conversely, above average precipitation was recorded in 2005, with the region experiencing approximately 254 percent of normal precipitation (DWR, 2009). The West Basin Municipal Water District's 2010 Urban Water Management Plan reports that the average annual rainfall in its service area (including Hermosa Beach) is 12.23 inches (WBMWD, 2010).

Flooding

The Federal Emergency Management Agency (FEMA) is the governing body that is responsible for delineating flood prone areas and identifying these areas in Flood Insurance Rate Maps (FIRMs). According to FEMA, the proposed Project is located within FIRM numbers 06037C1907F and 06037C15669F (FEMA, 2014). A FEMA-identified Special Flood Hazard Area is an area subject to flooding during the 100-year storm event (1 percent annual chance of flooding). Figure 3.8-2 shows FEMA-designated flood zones within the Project area. The beach area adjacent to the beach cable landing sites is mapped as a floodway area in Zone A according to FEMA. A floodway must be kept free of encroachment so that the 1 percent annual chance flood can be carried without substantial increases in flood heights.

The Los Angeles County Tsunami Inundation Map for Emergency Planning, jointly produced by the California Emergency Management Agency, California Geological Survey, and University of Southern California – Tsunami Research Center, and dated March 1, 2009, shows the beach portion of the Project area as subject to inundation from tsunami (see Figure 3.8-3).

A combination of 100-year flood flows and tidal influence as well as projected sea level rise over a 50-year timespan (by 2065) could increase the risk of flooding in the Project vicinity. The City of Hermosa Beach experiences mixed semidiurnal tides, with two high and two low tides per day. Tides range from less than 1 foot (0.3 meter) to more than 7.5 feet (2.3 meters). The most common tidal range is between 4 and 4.5 feet (1.2 and 1.4 meters) (City of Hermosa Beach, 2012). The greatest difference in low and high tide occurs in spring and winter. The NOAA tidal data for the 1983 to 2001 period of record for Los Angeles tide gauge indicate the mean tidal range, defined as mean high water (MHW) minus mean low water (MLW) is 3.81 feet (1.61 meters), and the diurnal tidal range—defined as mean higher high water (MHHW) minus mean lower low water (MLLW)—is 5.49 feet (1.67 meters) (Phillip Williams Associates, 2006).

NOAA estimates indicate that local sea level has been rising at a rate of 0.52 feet (0.16 meter) per century at the Santa Monica tide gauge (1933–1999) and 0.28 feet (0.09 meter) per century at the Los Angeles gauge site (1924–1999).

Source: ICF

Figure 3.8-2

FEMA-Designated Flood Zones within the Project Area

Source: ICF

Figure 3.8-3

Tsunami Hazards within the Project Area

3.8.1.2 Water Quality

Off-shore and Marine Water Resources

Marine Hydrology

Santa Monica Bay is a semi-enclosed shelf centrally located in the Southern California Bight coastal watershed. The bay is a large, crescent-shaped indenture, with an open embayment bounded by rocky headlands at Point Dume to the north, Palos Verdes Point to the south, and onshore by the Santa Monica Mountains along the Malibu coast and the Los Angeles coastal plain between the Santa Monica Mountains and Palos Verdes (Brantley et al., 2005).

Santa Monica Bay is the submerged portion of the Los Angeles Coastal Plain, has a surface area of approximately 266 square miles (689 square kilometers), and receives surface water from the Santa Monica Bay Watershed. The watershed covers 414 square miles (1,072 square kilometers) and is bordered by the Santa Monica Mountains to the north from the Ventura-Los Angeles County line to Griffith Park, extending south and west across the Los Angeles coastal plain to include the area east of Ballona Creek and north of Baldwin Hills. The bay reaches depths of 1,640 feet (500 meters) and has 50 miles (80.5 kilometers) of coastline (California Environmental Protection Agency, Santa Monica Bay Restoration Commission, 2014). The Continental Shelf extends seaward to the shelf break about 265 feet (81 meters) underwater, then drops steeply to the Santa Monica Basin at about 2,630 feet (802 meters).

Nearshore Santa Monica Bay is defined by the California Ocean Plan as within a zone bounded by the shoreline and a distance of 1,000 feet (305 meters) from the shoreline or the 30-foot (9-meter) contour, whichever is farther from the shoreline. Offshore is defined as the waters between the nearshore zone and the limit of State waters. State waters, according to Section 13200 of the California Water Code, extend 3 nautical miles (5.6 kilometers) into the Pacific Ocean from the line of MLLW marking the seaward limits of inland waters and 3 nautical miles (5.6 kilometers) from the line of MLLW on the mainland and each offshore island.

That portion of the Southern California Bight in which Santa Monica Bay is located has currents that are more complex than those found elsewhere along the west coast due to the extremely complicated basin topography. Major topographic features within the Santa Monica Bay are two submarine canyons, the Santa Monica Canyon and Redondo Canyon, both of which have rapid and variable bottom currents.

Currents within the top 40 feet (12 meters) of water are predominantly tidal-driven, with flood flows from the north and ebb flow to the southeast. Currents on the shelf of the bay are primarily driven by offshore basin flows and secondarily by local winds. Offshore basin flows experience large seasonal fluctuations. Resuspension of sediments, including those that may contain existing contamination, occurs due to water current velocities and depends on factors such as the size distribution, shape, density of the particles; the amount consolidation of sediments; and the extent of the reworking by benthic organisms. Within the Southern California Bight, sediment movement is generally caused by wave action and transportation via subtidal currents. In the deeper portions of the offshore shelves where internal waves occur (near the shelf break of the Santa Monica Bay), sediment has been tracked moving offshore across the shelf breaks and depositing on the continental slopes (Lee et al, 2002). Within the Santa Monica Littoral Cell, sediment movement is generally down coast, though up-coast reversals as a result of seasonal variation are known to occur.

The net down-shore drift rate has been estimated at approximately 167,000 cubic meters/year (219,000 cubic yards/year) off Manhattan Beach and Hermosa Beach (Landrum-Brown, 1996). In addition, approximately 153,000 to 306,000 cubic meters/year (200,000 to 400,000 cubic yards/year) are estimated to be lost to Redondo Canyon (Gorsline, 1958).

At a depth of 134.5 feet (41 meters), median current velocities are 0.295 foot per second (0.089 meter per second). A study conducted by the Southern California Coastal Water Research Project (SCCWRP) found that current velocities required to initiate sediment movement off the Palos Verde Peninsula ranged from 0.13 to 0.36 foot per second (0.04 to 0.11 meters per second) and to re-suspend sediments from 0.164 to 0.784 foot per second (0.050 to 0.239 meters per second). (SCCWRP, 1976).

Marine Water Quality

Water quality in Santa Monica Bay is generally considered safe for water contact recreation except after storm events. Historically, beach closures have occurred due to urban runoff and sewer overflows, mostly during or after storm events. Two large sources of pollution to Santa Monica Bay are the treated wastewater from the Hyperion Treatment Plant (HTP) and the Joint Water Pollution Control Plant (JWPCP). HTP is a wastewater treatment plant located approximately 4 miles (6 kilometers) north of the northernmost cable landing spot. JWPCP discharges approximately 2 miles (3 kilometers) offshore of Palos Verde Peninsula. Other major point sources of pollution are the Chevron Refinery in El Segundo, El Segundo and Scattergood Generating Stations, and Redondo Beach LLC Generating Station. Urban runoff is the largest nonpoint source of pollution (Brantley et al., 2005). The pollutants generated by these sources that impair Santa Monica Bay are listed below (Table 3.8-2). The California Regional Water Quality Control Board Waste Discharge Requirements for the site list constituents to be expected in effluent (CRWQCB, 2010). One item not on the list that is prevalent in treated wastewater and urban runoff is bacteria, which is documented to occur in Santa Monica Bay after storm flow events. (Heal the Bay, 2015).

Table 3.8-2. 303(d) Impairments for Santa Monica Bay Offshore

Pollutant/Stressor	Source	TMDL Completion Date (estimated)
DDT	Urban runoff/storm sewers	2019
Debris	Construction/land development Urban runoff/storm sewers	2019
Fish consumption advisory	Atmospheric deposition Municipal point sources Urban runoff/storm sewers	2019
PCBs	Construction/land development Urban runoff/storm sewers	2019
Sediment toxicity	Urban runoff/storm sewers	2019

Source: California 303(d) List and TMDL Priority Schedule (California Environmental Protection Agency, State Water Resources Control Board, 2011)

Turbidity off coastal waters is generally high due to nearshore turbulence, which causes sediment and plankton to be re-suspended. Light penetration is generally limited to less than 20 feet (6.1 meters) 1 mile (1.6 kilometers) off Hermosa Beach.

Another potential source of contaminants is hazardous materials emanating from past U.S. Navy (Navy) chemical and weapons dumping grounds. The cable route would avoid areas within the dumping grounds used for Navy operations. The Navy also tests and fires ammunition within areas of

Santa Monica referred to as the “sea range.” The Navy has released a list of the types of hazardous materials contained in missiles fired within the sea range that include, but are not limited to, PBX-N high explosive components, arcite propellant grain, JP-10 jet fuel, lithium-chloride batteries, and potassium-hydroxide batteries. (City of Hermosa Beach, 2001).

The Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties specifies additional objectives applicable to all ocean waters, including: “(1) the mean annual dissolved oxygen concentration shall not be less than 7.0 milligrams per liter (mg/L), nor shall the minimum dissolved oxygen concentration be reduced below 5.0 mg/L at any time; and (2) the pH value shall not be depressed below 7.0, nor raised above 8.5.”

Sediment offshore of Hermosa Beach consists of sands and gravels, clayey sand, and sandy clay. Sediment contamination in Santa Monica Bay is considered to be higher than in other parts of the Southern California Bight. Offshore, contaminated sediments are present at the outfall locations of HTP and JWPCP. These sediments are likely re-suspended and deposited throughout the Santa Monica Bay Shelf and Palos Verde Bay Shelf. Some studies have found DDT and PCBs to be present in more than 90 percent of sediment samples, and approximately 50 percent of sediment samples have been found to exceed sediment toxicity screening levels. The highest levels of DDT, PCBs, and metals have been found directly adjacent to the HTP outfall. (City of Hermosa Beach, 2001)

Inland and Nearshore Surface Water

There are no potable surface water resources in the Project area. The closest inland surface water to the proposed Project identified in the basin plan is Malaga Canyon, a stream located in the Palos Verdes Peninsula. Malaga Canyon is located outside the Project area and discharges into the Pacific Ocean, approximately 3.6 miles south of the southern tip of the proposed Project. According to the basin plan prepared by the LARWQCB, “Coastal waters in the Region include bays, estuaries, lagoons, harbors, beaches, and ocean waters. Beneficial uses for these coastal waters provide habitat for marine life and are used extensively for recreation, boating, shipping, and commercial and sport fishing” (LARWQCB, 2011). The surface water sources within the region have their beneficial use designated by the LARWQCB. Beneficial uses and water quality objectives form the water quality standards for all water bodies within the State under the California Water code. The Los Angeles County Basin Plan has designated beneficial uses for Hermosa Beach and the nearshore zone. The Basin Plan has also designated beneficial uses for the beaches directly adjacent to the Project area, Redondo Beach, and Manhattan Beach. Table 3.8-3 below outlines the beneficial uses for these areas.

Table 3.8-3. Beneficial Uses in the Project Area

Water Body Name	Basin Plan Watershed	Existing Beneficial Use
Project Area		
Hermosa Beach	Los Angeles County Coastal Feature	REC-1 (Water Contact Recreation), REC-2 (Non-Contact Water Recreation), NAV (Navigation), COMM (Commercial and Sport Fishing), MAR (Marine Habitat), WILD (Wildlife Habitat), SPWN[1] (Spawning, Reproduction, and/or Early Development), SHELL (Shellfish Harvesting)
Nearshore Zone	Los Angeles County Coastal Feature	REC-1, REC-2, IND, NAV, COMM, MAR, WILD, BIO[2], RARE[3], MIGR[4], SPWN[4], SHELL[5]

Table 3.8-3. Beneficial Uses in the Project Area

Water Body Name	Basin Plan Watershed	Existing Beneficial Use
Nearby Surface Waters		
Manhattan Beach	Los Angeles County Coastal Feature	REC-1, REC-2, NAV, COMM, MAR, WILD, SPWN[P,] SHELL
Redondo Beach	Los Angeles County Coastal Feature	REC-1, REC-2, MUN (Municipal and Domestic Supply), NAV, COMM, MAR, WILD, RARE, MIGR, SPWN[1], SHELL

Source: LARWQCB 2011

[1] Most frequently used grunion spawning beaches. Other beaches may be used as well.

[2] Areas of Special Biological Significance (along coast from Latigo Point to Laguna Point) and Big Sycamore Canyon and Abalone Cove Ecological Reserves and Point Fermin Marine Life Refuge.

[3] One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

[4] Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

[5] Areas exhibiting large shellfish populations include Malibu, Point Dune, Point Fermin, White Point and Zuma Beach.

[P] Potential beneficial use.

However, Hermosa Beach and the Santa Monica Bay Nearshore and Offshore are designated as “water quality-limited” for impairments under federal Clean Water Act Section 303(d), indicating that these water bodies are not reasonably expected to attain or maintain water quality standards due to impairments without additional regulation. Table 3.8-4 identifies the listing category, pollutant, and pollutant type for Hermosa Beach and Santa Monica Bay.

Table 3.8-4. Impaired Surface Water Bodies in the Study Area

Water Body Name	Water Body Type	Listing Category	Pollutant	Pollutant Category
Hermosa Beach	Coastal & Bay Shoreline	4a	Indicator Bacteria	Pathogens
Santa Monica Bay Offshore / Nearshore	Bay & Harbor	4a	DDT (tissue & sediment)	Pesticides
			Debris	Trash
			PCBs	Other Organics
			Fish Consumption Advisory	Miscellaneous
			Sediment Toxicity	Toxicity
Manhattan Beach	Coastal & Bay Shoreline	4a	DDT (tissue)	Pesticides
Redondo Beach	Coastal & Bay Shoreline	5	Coliform Bacteria	Pathogens
		5	DDT	Pesticides
		5	PCBs	Other Organics

Note: Category 4a means the item on the 303(d) list is being addressed by an EPA approved TMDL
Source: Hermosa Beach, ECR, Table 11.2, LARWQCB 2010

Surface Watershed

As discussed above, the proposed Project lies within the South Coast Hydrologic Region, as a portion of the Santa Monica Bay Hydrologic Unit, within the Lower Santa Monica Bay Hydrologic Area. The site is also located within the Santa Monica Bay Watershed Management Area (WMA), which includes watersheds such as Malibu Creek to the northwest, and Ballona Creek to the north of the proposed Project.

Surface watersheds in California are divided into 10 hydrologic regions, as defined by the California Department of Water Resources. The proposed Project is located within the South Coast Hydrologic Region (HR), a large coastal watershed in southern California (CDF, 2004). The South Coast HR covers nearly seven million acres and is bounded on the west by the Pacific Ocean, on the north by the Transverse Ranges, on the east by the Colorado River HR, and on the south by the international boundary with Mexico (DWR, 2003). Hydrologic Regions are subdivided into Hydrologic Units (HUs), and further into Hydrologic Areas (HAs) and Hydrologic Subareas (HSAs). Within the South Coast HR, the proposed Project is contained within one Hydrologic Unit, the Santa Monica Bay HU (CDF, 2004).

The Hydrologic Unit that contains the proposed Project is subject to the jurisdiction of the LARWQCB. Within the Santa Monica HU, the proposed Project is located entirely within the Lower Santa Monica Bay Hydrologic Area (CDF, 2004).

Waters of the U.S.

Waters and/or wetlands which have been determined to be subject to the regulatory requirements of the Clean Water Act are known as "jurisdictional waters and wetlands." These waters fall under federal jurisdiction and are regulated by the U.S. Army Corps of Engineers. No jurisdictional features have been identified for the proposed Project. If a jurisdictional drainage is identified that would be affected by the proposed Project, the applicant will need to comply with all applicable rules and regulations.

Stormwater Runoff

Stormwater runoff into Santa Monica Bay is regulated primarily through four National Pollutant Discharge Elimination system (NPDES) permits:

- The municipal separate storm sewer system (MS4) NPDES permit issued to the 84 municipalities within the urbanized are of County of Los Angeles, except the City of Long Beach, which has its own MS4 NPDES permit.
- A separate statewide stormwater permit specifically for the California Department of Transportation (Caltrans).
- The statewide Construction Activities Stormwater General Permit.
- The statewide Industrial Activities Stormwater General Permit.

The NPDES permits program defines these discharges as point sources because the stormwater discharges from the end of a stormwater conveyance system. Since the industrial and construction stormwater discharges are enrolled under NPDES permits, these discharges are treated as point sources. The Los Angeles MS4 permit was first issued in 1990 and includes 85 co-permittees including Los Angeles County and the City of Hermosa Beach. The latest revision of the permit (Order No. R4-2012-0175) was issued on November 8, 2012.

Groundwater

As discussed above, the proposed Project is located above the coastal plain of Los Angeles County Groundwater basin, within the West Coast Subbasin of the South Coast Hydrologic Region. This basin is adjudicated and is commonly known as the "West Coast Basin." An adjudicated basin is one in which a legal process has been conducted to determine and/or better define the water rights of the various entities to utilize the groundwater basin. The adjudication process can be used to assign specific water rights to entities and also as a mechanism to enforce water use limits. The basin is bordered on the north by the Ballona Escarpment, the Newport-Inglewood Fault Zone to the East, the Pacific Ocean to the west, and the consolidated rocks of the Palos Verdes Hills to the south (DWR, 2004).

Within the west coast subbasin, the proposed Project is located above the Silverado aquifer, where the character of water varies considerably. Data from 45 public supply wells shows an average total dissolved solids (TDS) content of 720 mg/L and a range of 170 to 5,510 mg/L (City of Hermosa Beach, 2014).

The Silverado aquifer, which underlies most of the West Coast Basin, is the most productive aquifer in the region. It yields approximately 80 to 90 percent of the groundwater which is extracted annually (DWR, 2004). The storage capacity of the primary water producing aquifer, the Silverado aquifer, is estimated to be 6,500,000 af (DWR, 2004).

Seawater intrusion occurs in the Silverado aquifer along the Santa Monica Bay. Seawater intrusion into groundwater basins occurs due to both natural processes and human activities. One method of intrusion occurs when freshwater is extracted from a groundwater basin, the resulting change in the freshwater level allows for seawater to enter the basin. Two seawater barrier projects are currently in operation. The West Coast Basin Barrier Project runs from the Los Angeles Airport to the Palos Verde Hills, and the Dominguez Gap Barrier Project covers the area of the West Coast Basin bordering San Pedro Bay. Injection wells along these barriers create a groundwater ridge, which inhibits the inland flow of salt water into the subbasin to protect and maintain groundwater elevations (DWR, 2004). These two projects are operated by the Los Angeles Department of Public Works. Recent injection volumes have been increasing to 6,692.3 acre-feet during 2013-14.

Please see Table 3.8-1 above for a list of the principal aquifers present within the subbasin.

Geology

The groundwater-bearing regions of the subbasin include sediments from the Holocene, Pleistocene, and Pliocene ages. Groundwater discharge from the subbasin occurs primarily via pumping (DWR, 2004). The water-bearing regions of the subbasin are generally confined which doesn't not allow for percolation of surface water down into the deeper aquifer to replenish the basin. The Gage and Gardena aquifers are unconfined in certain areas and allow for surface water to recharge. These aquifers also merge in places with other adjacent aquifers, especially near Redondo Beach (DWR, 2004).

Beneficial Uses

The Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties lists the beneficial uses for groundwater within Table 2.2 of the beneficial use Section. According to the table, the West Coast Subbasin in the area of the proposed Project has beneficial uses for Municipal and Domestic Supply (MUN), Industrial Service Supply (IND), Industrial Process Supply (PROC), and Agricultural Supply (AGR). Along with the West Coast Subbasin, many other groundwater basins in the region have the Municipal and Domestic Supply (MUN) designation. This MUN designation indicates the use of groundwater as a source of drinking water in the region.

3.8.2 Regulatory Setting

3.8.2.1 Federal

Federal Clean Water Act

The Clean Water Act (CWA) of 1972 is the primary federal law that governs and authorizes the EPA and the states to implement activities to control water quality. The following sections outline the various elements of the CWA that apply to the proposed Project.

Water Quality Criteria and Standards

The EPA is the federal agency with primary authority for implementing regulations adopted under the CWA. The EPA has delegated to the State of California the authority to implement and oversee most of the programs authorized or adopted for CWA compliance through the State's Porter-Cologne Act, described below.

Under federal law, the EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of the designated beneficial uses of the water body in question and criteria that protect the designated uses. Section 304(a) requires the EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use.

Section 303: Impaired Water Bodies (303(d) list) and Total Maximum Daily Loads

Under Section 303(d) of the CWA, the SWRCB is required to develop a list of impaired water bodies that do not meet water quality standards (promulgated under the National Toxics Rule [NTR] or the California Toxics Rule [CTR]) after the minimum technology-based effluent limitations have been implemented for point sources. Lists are to be priority ranked for development of a total maximum daily load (TMDL). TMDL is a calculation of the total maximum amount of a pollutant that a water body can receive on a daily basis and still safely meet water quality standards. The California Regional Water Quality Control Board (RWQCB) and EPA are responsible for establishing TMDL waste-load allocations and incorporating improved load allocations into water quality control plans, NPDES permits, and waste discharge requirements, described further below under State regulations. Section 305(b) of the CWA requires that states assess the status of water quality conditions within the State in a report to be submitted every 2 years.

Section 311: Oil and Hazardous Substances Liability

Section 311 of the CWA contains the requirements and guidelines to prevent, prepare, and respond to an oil discharge. The requirements and guidelines aim to prevent oil from entering navigable waters as well as shorelines. The regulation requires the preparation and use of Spill Prevention, Control, and Countermeasure (SPCC) Plans and also sets forth the procedures, methods, and equipment requirements.

Section 312: Sewage Discharges and No Discharge Zones

Section 312 of the CWA contains the main regulations for domestic sewage discharges from vessels, and is enforced by both the U.S Environmental Protection Agency and the U.S Coast Guard. "Sewage" as defined under the CWA refers to “human body wastes and the waste from toilets and other receptacles intended to receive or retain body wastes” (EPA, 2012). Under this section, vessel sewage is generally controlled by regulating the equipment that treats or holds the sewage (marine sanitation devices), and through the establishment of areas in which the discharge of sewage from vessels is not allowed (no discharge zones).

Section 401: Water Quality Certification

Section 401 of the CWA requires that an applicant pursuing a federal permit to conduct an activity that may result in a discharge of a pollutant obtain a Water Quality Certification (or waiver). A Water Quality Certification requires the evaluation of water quality considerations associated with dredging or placement of fill materials into waters of the U.S. Water Quality Certifications are issued by one of the nine geographically separated RWQCBs in California. Under the CWA, the RWQCB must issue or waive a Section 401 Water Quality Certification for a project to be permitted under CWA Section 404.

Section 402: National Pollutant Discharge Elimination System Permits

Section 402(p) of the CWA was amended in 1987 to require the EPA to establish regulations for permitting of construction, municipal, and industrial storm water discharges under the NPDES permit program. The EPA published final regulations for industrial and municipal storm water discharges on November 16, 1990. The NPDES program requires all industrial facilities and municipalities of a certain size that discharge pollutants into waters of the U.S. to obtain a permit. Storm water discharges in California are commonly regulated through general and individual NPDES permits, which are adopted by the SWRCB or RWQCBs and are administered by the RWQCBs. Water quality criteria in NPDES permits for discharges to receiving waters are based on criteria specified in the NTR, the CTR, and Water Quality Control Plans (Basin Plans), discussed below under State regulations. The EPA requires NPDES permits to be revised to incorporate waste-load allocations for TMDLs when the TMDLs are approved (40 CFR 122).

Section 404: Discharge of Dredged or Fill Materials

Section 404 of the CWA regulates fill and disturbance of wetlands and waters of the U.S., specific activities that are regulated are fills for development (including physical alterations to drainages to accommodate storm drainage, stabilization, and flood control improvements), water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and conversion of wetlands to uplands for farming and forestry. The EPA and USACE have issued Section 404(b)(1) Guidelines (40 CFR 230) that regulate dredge and fill activities, including water quality aspects of such activities. Subpart C, Sections 230.20–230.25 contain water quality regulations applicable to dredge and fill activities. Among other topics, these guidelines address discharges that alter substrate elevation or contours, suspended particulates, water clarity, nutrients and chemical content, current patterns and water circulation, water fluctuations (including those that alter erosion or sediment rates), and salinity gradients.

Safe Drinking Water Act

Under the Safe Drinking Water Act (Public Law 93-523) passed in 1974, the EPA regulates contaminants of concern to domestic water supply. The act defines contaminants of concern as contaminants that pose a public health threat or alter the aesthetic acceptability (e.g., taste and odor, staining of laundry and porcelain fixtures) of the water. The EPA’s primary and secondary maximum contaminant levels (MCLs), which apply to treated water supplies delivered to the distribution system, regulate contaminants of concern. MCLs and the process for setting these standards are reviewed every 3 years. Amendments to the Safe Drinking Water Act enacted in 1986 and 1996 established an accelerated schedule for setting MCLs for drinking water.

The EPA has delegated the responsibility for administering California's drinking-water program to the California Department of Public Health (DPH). The DPH is accountable to the EPA for program implementation and for adopting standards and regulations that are at least as stringent as those developed by the EPA. The applicable State primary and secondary MCLs are set forth in Title 22, Division 4, Chapter 15, Article 4 of the California Code of Regulations (CCR), and described in "Title 22 Standards" below.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) is responsible for issuing permits for the placement of fill or discharge of material into waters of the United States. These permits are required under Sections 401 and 404 of the CWA. Water supply projects that involve stream construction, such as dams or other types of diversion structures, trigger the need for these permits and related environmental reviews by the USACE. The USACE also is responsible for flood control planning and assisting state and local agencies with the design and funding of local flood control projects.

Rivers and Harbors Act (33 USC 401)

Section 10 of the Rivers and Harbors Act limits the construction of structures and the discharge of fill into navigable waters of the U.S.

Oil Pollution Act of 1990 (33 USC 2712)

This act requires owners and operators of facilities that could cause substantial harm to the environment to prepare and submit plans for responding to worst-case discharges of oil and hazardous substances.

Executive Order 11988—Floodplain Management

Executive Order 11988 requires federal agencies to recognize the value of floodplains and to consider the public benefits of restoring and preserving floodplains. Under this order, USACE has the responsibility of reviewing flood protection projects that may affect navigable waters. USACE is required to take action and provide leadership to avoid development in the base floodplain; reduce the risk and hazard associated with floods; minimize the impact of floods on human health, welfare, and safety; and restore and preserve the beneficial and natural values of the base floodplain.

National Flood Insurance Act and Flood Disaster Protection Act

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 were enacted to reduce the need for flood protection structures and to limit disaster relief costs by restricting development in floodplains. The Federal Emergency Management Agency's (FEMA) duties include administering the National Floodplain Insurance Program (NFIP) and developing standards for fluvial and coastal floodplain delineation. The NFIP is a federal program enabling property owners in participating communities to purchase insurance as protection against flood losses in exchange for state and community floodplain management regulations that reduce future flood damages. A Flood Insurance Rate Map (FIRM) is the official map of a community prepared by FEMA to delineate both the special flood hazard areas and the flood risk premium zones applicable to the community.

3.8.2.2 State

California Coastal Act of 1976

The California Coastal Act of 1976 (Coastal Act) and the California Coastal Commission, the State's coastal protection and planning agency, were established by voter initiative in 1972 to plan for and regulate new development, and to protect public access to and along the shoreline. The Coastal Act considers water quality and water-related public safety concerns as issues of public importance.

To provide maximum public access to the coast and public recreation areas, the Coastal Act directs each local government located within the coastal zone to prepare a Local Coastal Program (LCP) consistent with Section 30501 of the Coastal Act, in consultation with the Coastal Commission and with public participation.

Until an LCP has been adopted by the local jurisdiction and certified compliant with the Coastal Act, the Coastal Commission retains permitting authority within the local jurisdiction. A coastal development permit (CDP) is required for development in the Coastal Zone that results in changes to the density or intensity of the use of land, changes in water use, and impacts to coastal access.

State Water Resources Control Board (SWRCB)

In California, the SWRCB has broad authority over issues related to controlling water quality for the State. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the State by the federal government under the CWA. Other State agencies with jurisdiction over water quality regulation in California include the DPH (for drinking water regulations), the California Department of Pesticide Regulation, the California Department of Fish and Wildlife, and the Office of Environmental Health and Hazard Assessment.

Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt basin plans for all areas in the region and establish water quality objectives in the plans. California water quality objectives (or "criteria" under the CWA) are found in the basin plans adopted by the SWRCB and each of the nine RWQCBs. The Los Angeles RWQCB is responsible for the study area and surrounding region.

In 2006, the SWRCB adopted Order Number 2006-003 establishing General Waste Discharge Requirements for all publicly owned or operated sanitary sewer systems in California. The Waste Discharge Requirements require owners and operators of sewer collection systems to report sanitary sewer overflows using the California Integrated Water Quality System, and to develop and implement a Sewer System Management Plan. The Hermosa Beach Sewer System Management Plan, adopted in 2009 and updated in 2011, requires periodic updates and details on sewer collection system operations, maintenance, repair, and funding.

Los Angeles Regional Water Quality Control Board Basin Plan

The study area is within the jurisdiction of the Los Angeles RWQCB, which is responsible for the preparation and implementation of the water quality control plan for the Los Angeles Region (Los Angeles RWQCB, 1995). The basin plan defines the beneficial uses, water quality objectives, implementation programs, and surveillance and monitoring programs for waters of the coastal drainages in the Los Angeles region between Rincon Point on the coast of western Ventura County and the eastern Los Angeles County line. The basin plan contains specific numeric water quality objectives that apply to certain water bodies or portions of water bodies. Objectives have been established for bacteria, dissolved oxygen, pH, pesticides, electrical conductivity, total dissolved solids, temperature, turbidity, and trace elements. Numerous narrative water quality objectives have also been established.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act is California's statutory authority for the protection of water quality. Under the act, the State must adopt water quality policies, plans, and objectives that protect the State's waters for the use and enjoyment of the people. The act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update basin plans. Basin plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The act also requires waste dischargers to notify the RWQCBs of their activities through the filing of reports of waste discharge and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDR), NPDES permits, Section 401 water quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to reports of waste discharge and/or WDRs for broad categories of "low threat" discharge activities that have minimal potential for adverse water quality effects when implemented according to prescribed terms and conditions.

California Ocean Plan

Section 13170.2 of the California Water Code directs the SWRCB to formulate and adopt a water quality control plan for ocean waters of California. The SWRCB first adopted this plan, known as the California Ocean Plan, in 1972. The California Water Code also requires a review of the California Ocean Plan at least every 3 years to guarantee that current standards are adequate and are not allowing degradation to indigenous marine species or posing a threat to human health. The current iteration of the California Ocean Plan (SWRCB, 2012) establishes water quality objectives for California's ocean waters and provides the basis for regulation of wastes discharged into the State's coastal waters.

California State Nondegradation Policy

In 1968, the SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that the disposal of wastes into State waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the State and to promote the peace, health, safety, and welfare of the people of the State. The policy provides as follows:

Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the State that would not unreasonably affect present and anticipated beneficial uses of such water

Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements, which would ensure (1) pollution or nuisance would not occur and (2) the highest water quality consistent with the maximum benefit to the people of the State would be maintained.

NPDES Permit System and Waste Discharge Requirements for Construction

The SWRCB and Los Angeles RWQCB have adopted specific NPDES permits for a variety of activities that have potential to discharge wastes to waters of the State. The SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-Division of Water Quality [DWQ]) applies to all land-disturbing construction activities that would affect one acre or more. The Los Angeles RWQCB has issued a general NPDES permit and general WDRs governing construction-related dewatering discharges within the Los Angeles RWQCB's jurisdictional area (Los Angeles RWQCB Order No. R4-2003-0111; NPDES No. CAG994004). This permit, known as the General Dewatering Permit, addresses discharges from temporary dewatering operations associated with construction and permanent dewatering operations associated with development. The discharge requirements include provisions mandating notification, sampling and analysis, and reporting of dewatering and testing-related discharges. The NPDES permits all involve similar processes including submittal of notices of intent to discharge to the Los Angeles RWQCB and implementation of best management practices (BMPs) to minimize those discharges. The Los Angeles RWQCB may also issue site-specific WDRs, or waivers to WDRs, for certain waste discharges to land or waters of the State.

Construction activities subject to the general construction activity permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. The permit also requires dischargers to install post-construction permanent BMPs that would remain in service to protect water quality throughout the life of the Project consistent with the planning and land development requirements of the MS4 Permit. Types of BMPs include source controls, treatment controls, and site planning measures.

Activities subject to the NPDES general permit for construction activity must develop and implement a stormwater pollution prevention plan (SWPPP). The SWPPP includes a site map and description of construction activities and identifies the BMPs that will be employed to prevent soil erosion and discharge of other construction-related pollutants, such as petroleum products, solvents, paints, and cement, that could contaminate nearby water resources. A monitoring program is generally required to ensure that BMPs are implemented according to the SWPPP and are effective at controlling discharges of pollutants that are related to stormwater.

<u>Construction General Permit</u>

Pursuant to CWA Section 402(p) and as related to the goals of the Porter-Cologne Water Quality Control Act, the SWRCB has issued a Statewide NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Order No. 2009-0009-DWQ, NPDES No. CAR000002) (Construction General Permit), adopted September 2, 2009. Every construction project that disturbs one or more acres of land surface or that is part of a common plan of development or sale that disturbs more than one acre of land surface would require coverage under this Construction General Permit. To obtain coverage under this Construction General Permit, the landowner or other applicable entity must file Permit Registration Documents prior to the commencement of construction activity, which include a Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP), and mail the appropriate permit fee to the SWRCB.

Construction activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as stockpiling or excavation, that result in soil disturbances of at least one acre of total land area. The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of storm water discharges; and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in storm water and non-storm water discharges. BMPs are intended to reduce impacts to the maximum extent practicable, which is a standard created by Congress to allow regulators the flexibility necessary to tailor programs to the site-specific nature of municipal stormwater discharges. Reducing impacts to the maximum extent practicable generally relies on BMPs that emphasize pollution prevention and source control, with additional structural controls as needed. The Construction General Permit requires that specific minimum BMPs are incorporated into the SWPPP, depending on the project's sediment risk to receiving waters based on the project's erosion potential and receiving water sensitivity to sediment.

There are three levels of risk: Risk Level 1 projects are subject to minimum BMP and visual monitoring requirements; Risk Level 2 projects are subject to Numeric Action Levels and some additional monitoring requirements; and Risk Level 3 projects are subject to Numeric Effluent Limitations and more rigorous monitoring requirements, such as receiving water monitoring and, in some cases, bioassessment. Discharge to a sediment-sensitive water body is automatically at least Risk Level 2. Although the Project site would ultimately discharge to receiving waters that are listed as impaired by sediment toxicity, these waters are not listed as impaired by sediment, and the proposed Project would not be automatically considered a Risk Level 2 project.

Municipal Stormwater Permit Program

The SWRCB Municipal Storm Water Permitting Program regulates stormwater discharges from MS4s. MS4 permits are issued in two phases. Under Phase I, which started in 1990, the RWQCBs adopted NPDES stormwater permits for large and medium municipalities (large MS4 systems serve populations of 250,000 or more people). Most of these permits are issued to a group of co-permittees encompassing an entire metropolitan area such as the Los Angeles County area. The current MS4 permit requires the discharger to develop and implement a stormwater management plan/program with the goal of reducing the discharge of pollutants in stormwater to the maximum extent practicable (MEP). The MEP is the performance standard specified in Section 402(p) of the CWA. The management programs specify what BMPs will be used to address certain program areas. The program areas include public education and outreach, illicit discharge detection and elimination, construction and post-construction, and good housekeeping for municipal operations.

In 2001, the Los Angeles RWQCB issued an MS4 permit (No. CAS004001, Order No. 01-182, as amended in 2012, by Order R4-2012-0175) to Los Angeles County, the Los Angeles County Flood Control District, and 84 co-permittee cities within the Los Angeles region, including the City of Hermosa Beach. Each co-permittee is required to comply only with the permit requirements applicable to discharges within its boundaries. Within its geographic jurisdiction, each co-permittee is required to:

- Prohibit non-storm water discharges through the MS4 to receiving waters, excepting certain conditions.
- Comply with the requirements of the Stormwater Quality Management Program (summarizes the program components the co-permittees will implement to comply with the MS4 permit and to reduce the discharges of pollutants in stormwater to the MEP), as described in Part VI.C of the MS4 permit.

- Comply with water quality-based effluent limitations consistent with the assumptions and requirements of all available TMDL waste load allocations assigned to discharges from the permittees' MS4s.
- Coordinate among its internal departments and agencies, as appropriate, to facilitate implementation of the requirements of the Stormwater Quality Management Program.
- Participate in intra-agency coordination (e.g., fire department, building and safety, code enforcement, public health) necessary to successfully implement the provisions of the permit and the Stormwater Quality Management Program.
- Prepare an annual budget summary of expenditures applied to the stormwater management program.
- Implement a Planning and Land Development Program pursuant to Part VI.D.7.b for all new development and redevelopment projects:
    - Lessen the water quality impacts of development by using smart growth practices.
    - Minimize the adverse impacts from stormwater runoff on the biological integrity of natural drainage systems and the beneficial uses of water bodies in accordance with requirements under the California Environmental Quality Act (CEQA) (Cal. Pub. Resources Code Section 21000 et seq.).
    - Minimize the percentage of impervious surfaces on land.
    - Maintain existing riparian buffers and enhance riparian buffers when possible.
    - Minimize pollutant loadings from impervious surfaces.
    - Control post-construction stormwater through properly selected, designed and maintained low-impact development (LID) and hydromodification control BMPs.
    - Prioritize the selection of BMPs to remove stormwater pollutants, reduce stormwater runoff volume, and beneficially use stormwater to support an integrated approach to protecting water quality and managing water resources in the following order of preference:
        - On-site infiltration, bioretention, and/or rainfall harvest and use.
        - On-site biofiltration, off-site ground water replenishment, and/or off-site retrofit.

California Ocean Plan

The California Ocean Plan establishes water quality objectives for California's ocean waters and provides the basis for regulation of wastes discharged into the State's ocean and coastal waters. The SWRCB prepares and adopts the Ocean Plan, which incorporates the State water quality standards that apply to all NPDES permits for discharges to ocean waters; the SWRCB and the six coastal RWQCBs implement and interpret the Ocean Plan. The Ocean Plan is not applicable to vessel wastes or the control of dredged material (Ocean Plan Introduction, Section C.2).

General Waste Discharge Requirements for Low-Threat Discharges to Surface Waters

Low-threat discharges are currently regulated by the Los Angeles RWQCB under a regional general permit, General Waste Discharge Requirements for Discharges of Groundwater From Construction and Project Dewatering to Surface Waters in Coastal areas of Los Angeles and Ventura Counties (General Dewatering Permit) (Order No. R4-2013-0095, NPDES No. CAG994004). An NOI and Report of Waste Discharge must be submitted to the Los Angeles RWQCB to comply with this General Dewatering Permit. Effluent limitations for all discharges are specified for total suspended solids, turbidity, biological oxygen demand, oil and grease, settleable solids, sulfides, phenols, residual chlorine, and methylene blue active substances. There are several other effluent limitations for specific compounds.

3.8.2.3 Local

Standard Urban Stormwater Mitigation Plan

The Standard Urban Storm Water Mitigation Plan (SUSMP) was developed as required in Part D.2 of the Los Angeles County MS4 permit to address stormwater pollution from new construction and redevelopment. The final SUSMP approved by the Los Angeles RWQCB in 2000 was updated in February 2002 and incorporated into Chapter 8.44 of the Hermosa Beach Municipal Code. The current regulations, when amended, will be superseded by the planning and land development provisions in the Los Angeles MS4 Permit, which requires the City to adopt a Low Impact Development Ordinance and Green Street Policy by May 2015.

City of Hermosa Beach Local Coastal Program (LCP)

Hermosa Beach's LCP, currently being developed as part of the City's General Plan Update, will consist of the Coastal Land Use Plan, which will be an element in the General Plan, and a Local Implementation Program (LIP), which will be incorporated into the City's coastal zoning code, zoning maps, and implementing ordinances. The Coastal Land Use Plan component adopted by the City and certified by the California Coastal Commission in 1981 addresses hydrology, water quality, and water-related public safety considerations of development within the coastal zone. The Coastal Development and Design chapter includes a policy to minimize risk to life and property in areas of high flood hazard. The Local Implementation Program (LIP) of the LCP has not yet been certified and, therefore, the Coastal Commission retains the authority to review and issue CDPs for development within the coastal zone.

City of Hermosa Beach Municipal Code

Chapter 8.44 Storm Water Management and Pollution Control Ordinance.

Chapter 8.44 of the Hermosa Beach Municipal Code seeks to ensure the future health, safety, and General welfare of the citizens of the city and the water quality of the receiving waters of the County of Los Angeles and surrounding coastal areas by:

- Reducing pollutants in storm water discharges to the maximum extent practicable.
- Regulating illicit connections and illicit discharges and thereby reducing the level of contamination of stormwater and urban runoff into the MS4.
- Regulating non-stormwater discharges to the MS4.
- Protecting and enhancing the quality of watercourses, water bodies, and wetlands in the city in a manner consistent with the federal Clean Water Act, the California Porter-Cologne Water Quality Control Act, and the Municipal NPDES Permit.

- Providing the City with the legal authority to implement and enforce the requirements in the Municipal NPDES Permit to the extent they are applicable to the City.
- Setting forth the requirements for the construction and operation of certain projects and other activities to ensure compliance with the storm water mitigation measures in the most recent version of the Municipal NPDES permit.

Chapter 8.44 specifically prohibits illicit connections to the municipal stormwater system, littering, and the discharge of certain kinds of untreated runoff into the stormwater system. Chapter 8.44 also requires that owners and occupants of property in the city implement BMPs to prevent or reduce the discharge of pollutants to the municipal stormwater system to the maximum extent practicable. Additionally, Chapter 8.44 provides runoff requirements for industrial/commercial and construction activities and standard urban stormwater mitigation plan requirements for new development and redevelopment.

3.8.3 Impact Analysis

This section describes environmental impacts of the proposed Project relevant to hydrology and water quality. The impact analysis is based on an assessment of baseline conditions relevant to the Project area climate, topography, watersheds and surface waters, groundwater, and floodplains, as described in Section 3.8.1. The Project activities were evaluated against the existing baseline conditions to determine the potential impacts that may result from Project activities exceeding the significance thresholds.

Potential impacts were then identified based on the predicted interaction between construction, operation, and maintenance activities with the affected environment. Impacts are described in terms of location, context, and intensity, and are identified as being either short or long term, and direct or indirect in nature. Beneficial as well as adverse impacts are identified, with a discussion of the effect and risk to water quality, public health and safety, and potential violation of environmental laws. Mitigation measures are developed to avoid or minimize impacts.

3.8.3.1 Methodology/Approach

Surface Water Hydrology

The surface water hydrology impact analysis considers changes in drainage patterns, stormwater volumes and capacity, new impervious surfaces, and nearby water bodies. Surface waterways with potential to be affected by the proposed Project include storm drains that lead to various off-site receiving waters downstream from the Project area.

Groundwater Hydrology

Impacts on groundwater hydrology were analyzed by comparing existing groundwater conditions (i.e., sources of recharge, depth to groundwater) to Project-modified recharge capabilities. Potential impacts include changes in groundwater recharge due to an increase in impervious area, potential dewatering during utility work, and groundwater use.

Marine Hydrology

The marine hydrology impact analysis considers changes in ocean currents and tidal actions.

Water Quality

Impacts of the Project on surface and groundwater quality were analyzed using available information on potential existing sources of pollution and water quality conditions in the Project area. These conditions were then compared to potential Project-related sources of pollution during construction, such as sediments and other construction materials, and operation, such as operation and maintenance activities, trash, and storage of hazardous materials. The Project was analyzed for potential impacts on beneficial uses and water quality objectives (e.g., pollutants of concern) of receiving waters. Receiving waters with CWA Section 303(d) impaired water quality were identified, along with the impairment (pollutant/stressor) and an indication of whether the impairment has the potential to be further affected by the proposed Project.

Flood Hazards

The impact analysis for flood risk was conducted using FEMA mapping to determine the existing flood zone, information regarding historical flooding in the area, and information regarding changes in the drainage system and layout to characterize potential effects on flood risk. Figure 3.8-2 shows the FEMA-designated flood zones within the Project area. This section also analyzes potential impacts of flooding from a levee or dam failure.

3.8.3.2 Significance Thresholds

An impact related to hydrology or water quality would be considered significant if the proposed Project would:

- Violate any water quality standards or waste discharge requirements, create any substantial new sources of polluted runoff, or otherwise degrade water quality such that human health or biological communities could be adversely affected.
- Dispose of dredged sediments such that the following could occur: substantial adverse changes to water or sediment quality, increased toxicity or bioaccumulation of contaminants in aquatic biota, declines in marine wildlife habitat.
- Modify ocean circulation patterns to such a scale that degradation of marine water quality would occur.
- Substantially deplete groundwater supplies or interfere with groundwater recharge, such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
- Place within a watercourse or flood hazard area structures that would impede or redirect flood flows, or otherwise substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation, or other flood-related damage on or off site.
- Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site, or otherwise create or contribute to runoff water that would exceed the capacity of existing or planned stormwater drainage systems.
- Result in or be subject to damage from inundation by mudflow.
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

3.8.3.3 Impacts and Mitigation Measures

The impact discussions below address each of the significance thresholds listed above in Section 3.8.3.2.

Violation of Water Quality Standards

Impact HWQ-1: Terrestrial construction and Project operation could result in violations of water quality standards or waste discharge requirements as a result of spilled hazardous material, drilling fluid, or contaminated runoff entering the environment.

Construction activities have the potential to cause violations of water quality standards or waste discharge requirements due to ground-disturbing activities, stockpiling, equipment use and storage, and potential spills. Terrestrial construction activities would include delivery, temporary storage, and use of materials and equipment for marine directional bores; surface preparation; trenching; conduit placement and backfilling; trenchless installation; directional boring; conventional boring; manhole installation; and surface restoration. The applicant has proposed the use of three staging areas to support construction: a main staging area and two beach staging areas at the directional bore sites. The main staging area would be at the northern end of Redondo Beach in vacant lots beneath the overhead power transmission lines and would be used primarily to support terrestrial construction. The equipment and materials (e.g., backhoes, conduit, cable) would be transported to the individual work sites daily as needed. These activities could potentially violate water quality standards or waste discharge requirements if sediment- or contaminant-laden runoff from the disturbed work areas enters storm drains or other pathways leading to Santa Monica Bay or if fuel or other construction chemicals were accidentally spilled or leaked into the environment.

The Project would result in approximately 1.2 acres of ground disturbance on the beach. Therefore, the Project would be required to prepare and implement a SWPPP in compliance with a NPDES Construction General Permit under Clean Water Act Section 402 because the proposed Project would disturb more than one acre. The SWPPP must include the stormwater pollution mitigation measures to minimize or avoid adverse effects to water quality. The SWPPP will include a description of all construction activity, a description of the Best Management Practices that will be used to control discharge, and any other pollution prevention techniques that are necessary to minimize or avoid discharges to state or federal waters. The SWPPP must be prepared by a trained and licensed individual and implemented by the responsible entity during the Project. The SWPPP will account for factors such as the amount, frequency, intensity, and duration of precipitation on site, the slope lengths and other site features, and the timing of installation for all prevention and containment measures. All recordkeeping requirements and inspection records will be detailed within the SWPPP, and the requirements and procedures for terminating the permit coverage will be described. Any failure to comply with the required SWPPP would result in a violation of the Section 402 NPDES Permit.

Terrestrial activities that would require excavations or ground disturbance include boring, trenching, and manhole placement. Directional bore sites or pits from the beach would be approximately 4 feet (1.2 meters) deep, and new beach manholes would be approximately 9 feet (2.7 meters) deep. Project activities would take place near the shoreline where shallow groundwater may be encountered during excavation or during drilling operations in the beach area, and could require dewatering to allow for construction activities. Should dewatering to storm drains or to the Santa Monica Bay be conducted, a dewatering permit would be obtained from the LARWQCB (see the discussion of Impact HWQ-4 below).

Boring activities require the use of a non-toxic bentonite clay to lubricate the drill and carry cuttings, sand, and small rocks from the bore path. During boring operations, it is possible that fractures in the soils may result in the inadvertent release of bentonite clay into the environment. This event is described as a "frac-out" and typically occurs in highly fractured soils or if the bore path is extremely shallow. In the event of a frac-out, clean-up time would vary depending on the size of the potential release. For example, many frac-outs consist of a small release of fluid (e.g., less than 50 gallons of drilling fluid) that can be cleaned up quickly with minimal disturbance. In the event of such a release, boring operations would be immediately halted by the rig operators upon detection of the frac-out. In these circumstances, if the release point is on land, it would be surrounded with sand bags the material either hand removed or by the use of a vacuum hose. Any collected material would be recycled or disposed of at a permitted landfill. However, in most circumstances, the rig operator can adjust the drill and fluid pressure to alleviate or halt the release of drilling fluids.

A marine frac-out is not anticipated to occur due to the depth of bore path between the bore location and the seafloor. The proposed drill path would be approximately 25 to 50 feet (9.1 and 15.2 meters) below the seafloor and the soils are not expected to require excessive fluid pressure. Should a frac-out occur, the frac-out can be reduced or halted by modulating pressure in the mud motor, pulling back and altering the bore path to avoid release point, or utilizing non-toxic additives to seal the fracture.

To reduce potential impacts of a frac-out, the applicant would be required to implement Mitigation Measure HWQ-1a (*Frac-out Contingency Plan*). The plan would require the applicant to halt boring activities to control the release of drilling fluids and would contain a list of procedures that would be followed in the event of a frac-out. The plan would highlight the control of drilling fluids, cleanup activities and include notification requirements.

No routine maintenance is planned for the buried portions of the cable network besides ensuring that the power feed and transmission equipment in the PFE facility are in proper working order. PFE facilities would not be staffed, but they would require periodic service calls as needed and routine monthly testing. These activities are not anticipated to adversely affect water quality or utilize any hazardous materials. However, the diesel generator and the fuel (diesel) tank installed as a backup power source in each PFE facility represent potential sources of water contamination. If the fuel tanks or either a tank or generator were to leak, contaminants could seep into shallow groundwater. The diesel generator would be located on a curbed concrete pad or within a secondary containment structure to prevent leaks from running off the facility, and the underground tank would be double hulled. These conditions would be considered standard practice, and routine inspections would help identify potential leaks prior to causing discharges. The PFE facilities would also be located within existing structures further reducing the potential for a leak to make contact within shallow groundwater.

Upon retirement of the Project, it is anticipated that both the marine and terrestrial cable systems would be abandoned in place, meaning they would not be removed (see Section 2.7, *Retirement, Abandonment, or Removal of the Cable Systems*). It is possible that the terrestrial cable would be pulled out of the buried conduit via the existing manholes, leaving the conduit itself in place. This activity would not involve any ground disturbance and less equipment would be required compared to the installation of the terrestrial conduit. Impacts associated with abandonment and removal are anticipated to be similar to those of construction, but reduced.

While a frac-out could release a large quantity of the non-toxic hydrated bentonite drilling fluid into the environment, releases into the sea are not expected to be significant based on the area of impact relative to the greater Santa Monica Bay. The drilling mixture is water soluble and is expected to be diluted and distributed along the sea floor by natural hydraulic processes and wave action. Given compliance with applicable regulations including the Construction General Permit, General Dewatering Permit, Coastal Development Permit, City of Hermosa Beach Storm Water Management and Discharge Control Ordinance requirements, and with implementation of a frac-out contingency plan described in Mitigation Measure HWQ-1 and the BMPs described in the SWPPP to minimize potential impacts to the maximum extent practicable, potential impacts from terrestrial construction and the potential for violations of water quality standards or waste discharge requirements would not be significant after mitigation. (Class II).

Mitigation Measures

HWQ-1 **Frac-out Contingency Plan.** The applicant shall develop and adhere to a Frac-out Contingency Plan. The Frac-out Contingency Plan will establish the operational procedures and responsibilities for the prevention, containment, and clean-up of frac-outs associated with the Project's directional boring operation. Any frac-out shall be reported to the City within 4 hours. In addition to utilizing industry standard practices during boring, the plan shall specify which, if any, additives that are to be used in the boring process. These additives shall be industry standard and non-toxic. In the event of a suspected marine frac-out, divers and non-toxic tracking dye shall be utilized to locate and confirm the frac-out. If a marine frac-out does occur, cleanup activities shall be conducted consistent with safe working practices. If a frac-out persists for more than 48 hours after attempting to correct the discharge, the boring contractor shall remove the bore pipe as necessary and a new bore path shall be attempted. At the end of terrestrial construction activities the Applicant shall prepare a concise summary report detailing all frac-out-related activities including incidents, response, and cleanup activities. The summary report shall contain copies of the monitoring logs.

- The frac-out contingency plan shall specify a designated frac-out monitor who will observe the surface conditions as the drill head progresses and look for evidence of a frac-out. The frac-out monitor shall be required to maintain a separate log of all potential and actual frac-out events. The log shall contain the following information:
    - Details on the release
        - Estimate of the amount of bentonite released and size of the area impacted
        - Location, date, and time of release
        - Success of cleanup action
    - Name and telephone number of person reporting
    - How the release occurred
    - Type of activity surrounding the area of the frac-out
    - Description of methods used to clean up and secure the site
    - Listing of current permits obtained for the Project.

Impact HWQ-2: Marine construction vessels and marine construction equipment associated with cable laying and directional boring could potentially discharge fuel, fluids, bilge water, sewage waste, debris or ballast water into marine waters.

Marine construction activities include directional boring support, cable pulling, a pre-lay grapnel run, cable laying, post-lay burial of the nearshore portion of the cables, cable plowing, and ROV post-lay burial. Various marine vessels and equipment would be used during cable laying and directional boring.

It is possible that marine vessels could accidentally discharge fuel or other fluids into marine waters. Accidental petroleum discharge or other spills from vessels may be significant depending on the quantity of the release, although a large release is unlikely. Without confinement and recovery plans, the effects of petroleum and/or other vessel discharge could be significant. By implementing the mitigation measures outlined below, the likelihood of all releases would be reduced through the implementation of preventative measures such as BMPs, and the likelihood of a large release would be further reduced.

Marine vessels could also accidentally discharge sewage waste, bilge water, debris, or ballast water. These discharges could result in an increase in organic suspended solids and alter biological oxygen demand and dissolved oxygen levels in the water column. To prevent these impacts, all vessels would be equipped to collect, contain, and treat waste products. All of the vessels to be utilized as part of the Project would be required to comply with Vessel General Permits as required by the Clean Water Act Section 402. These permits impose strict limits on incidental discharges, including those from lubricants, for all vessels which operate within three nautical miles of the U.S. coastline. These permits require the use of environmentally acceptable lubricants and other preventative measures (USEPA, 2012). If any ballast water is discharged, the location and volume would be documented and all debris falling into the water must be documented by time, date, and location.

When the Project is retired and taken out of service, it is possible that the Coastal Commission would require removal of the cable from State waters. The cable removal operation would involve the use of marine vessels that could accidentally discharge of fuel, sewage, or other fluids as described above for cable installation. The permits requirements that would be in place at that time are not known, but are expected to be similar to or more restrictive than current requirements.

Conduit and cables would be installed between the landing manhole onshore to a point beyond the surf zone approximately 4,000 feet (1,219 meters) offshore. These conduits would be installed using directional boring. A drilling fluid (typically a non-toxic solution of bentonite clay and water) would be circulated into the bore hole to prevent it from caving in and to coat the wall of the bore hole to minimize fluid losses to permeable rock and soil types. To minimize the potential for release of silty material into the marine environment, the last section of the bore hole would be drilled using potable water as a drilling fluid. Spent drilling fluids (except for those lost to the surrounding subsurface material) and cuttings would be collected and disposed of at a permitted landfill. Any drilling fluids released to the marine environment through subsurface fractures would likely be dispersed rapidly by currents and wave-induced turbulence.

Through required compliance with the applicable permits, and with implementation of Mitigation Measures HWQ-2a, HWQ-2b, and HWQ-2c, potential impacts on hydrology and water quality would be reduced to a less-than-significant level. The mitigation measures have been designed to anticipate and prevent the potential impacts on hydrology and water quality that could result from discharges into the environment due to construction of the proposed Project. (Class II).

Mitigation Measures

HWQ-2a **Spill Prevention Plan.** The Project shall include a spill prevention plan to ensure fuel, oils, and fluids used for equipment operation and maintenance are prevented from entering the environment. This plan shall also include the procedures for reporting all spills to the relevant agencies, and a report, to be prepared by the applicant and submitted to the City at the end of each construction phase documenting all incidents during each phase. All of the vessels that are expected to be utilized as part of the proposed Project would be required to maintain compliance with the Vessel General Permits as required by the Clean Water Act Section 402. These permits impose strict limits on incidental discharges, including those from lubricants, for all vessels which operate within three nautical miles of the U.S. coastline. These permits require the use of environmentally acceptable lubricants and other preventative measures (USEPA, 2012). Failure to comply with the requirements of the vessel permits would result in a violation of the Clean Water Act Section 402 Permit.

HWQ-2b **Vessel Waste Management Plan.** Require all vessels to be equipped to collect, contain, and treat waste products. If any ballast water is discharged, the location and volume would be documented and all debris falling into the water must be documented by time, date, and location. All documented incidents shall be reported to the City and other relevant agencies at the end of each phase.

HWQ-2c **Shipboard Oil Pollution Emergency Plan**. The vessels contracted by the Applicant will have shipboard oil pollution emergency plans (SOPEPs) prepared for the installation, repair, and monitoring of the Project. The SOPEPs will be prepared to be compliant with the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex I and V. This plan will contain the preventative measures and the procedures which will be followed in the event of a spill in the nearshore or offshore environment and will include at a minimum:

- Purpose and need for the plan
- Assessment of the potential hazards
- Spill Prevention and Containment
- Emergency Response Procedures
- Reporting Procedures to the City and other relevant agencies
- Closing of the spill incident, and
- A Spill notification contact list

Impact HWQ-3: Marine construction activities and marine construction equipment associated with cable laying and directional boring could potentially re-suspend contaminated sediments into marine waters.

Laying cable has the potential to re-suspend sediment and temporarily increase turbidity. Offshore construction activities may result in re-suspension of fine-grained mineral particles, usually smaller than silt, in the water column. Fish and invertebrate habitat may be adversely affected by elevated levels of suspended particles, which can result in both lethal and sub-lethal impacts on marine organisms. The level of increase in turbidity would depend on the equipment used, sediment grain size and settling rates, and bottom currents. However, the turbidity effects are expected to be local, short-term, and less than significant, with the re-suspended sediments settling onto the seafloor shortly after the disturbance. The finer fractions could remain suspended for several minutes to hours, but would be dispersed away from the cable by bottom currents. The associated turbidity spike would not last longer than 48 hours after Project completion because all sediments would settle out of the water column within one day of any one activity or would be dispersed more rapidly by ocean currents. More information on soil disturbances associated with these activities is provided in Section 3.5, *Geology and Soils*.

Sediments along the floor of Santa Monica Bay are contaminated with DDT, PCBs, and metals. Sediments could redeposit on benthic organisms following re-suspension. Santa Monica Bay sediments are known to have high sediment toxicity levels that can be lethal to benthic organisms. The marine cable routes have been aligned to avoid all areas of known heavily contaminated sediment; however, it is possible that areas of undocumented contamination may be encountered. Although re-suspension of these contaminants may effect water quality or harm benthic organisms, potential effects would be minimal because potential contaminants would be dispersed and diluted by existing and ongoing ocean floor currents and would re-settle within 48 hours of suspension. Sediments are naturally re-suspended and dispersed by wave action and ocean floor currents throughout Santa Monica Bay. As discussed above, the volume of sediments suspended and dispersed via natural processes is much greater than the amount anticipated to be caused by Project construction activities. The proposed Project would avoid heavily contaminated areas and re-suspended sediment in areas of cable laying would be similar to re-suspended sediment from natural processes that would occur in these areas. More information on potential impacts associated with contaminated soil is provided in Section 3.7, *Hazardous Materials*. Given the information provided above regarding the annual volumes of down-shore sediment drift and loss to Redondo Canyon, the phased construction of the proposed Project is anticipated to suspend a small percentage of sediment relative to the natural processes at work within the Santa Monica Bay, both as down-shore drift as well as the movement of sediment offshore and loss to Redondo Canyon. It is anticipated the majority of the sediment disturbed through construction of the proposed Project would rapidly resettle within 48 hours in the local vicinity.

Fiber-optic cables are inert and do not normally require maintenance, resulting in no impact on water quality under normal conditions. If emergency repairs are needed at some time during the life of the Project, the effects would be similar to those occurring during cable installation, and would consist of turbidity-related effects associated with the excavation, recovery, and re-burying of the cable following repairs. Potential effects associated with increases in turbidity would be temporary and local, with the re-suspended sediments settling onto the seafloor shortly after the disturbance..

Therefore, avoidance of heavily contaminated areas and the potential generation of a small disturbed area in comparison to annual and ongoing natural disturbances occurring throughout Santa Monica Bay along with implementation and adherence to mitigation measure HWQ-2a would minimize potential effects associated with temporary re-suspension of sediment along the ocean floor due to cable laying and any resulting impacts would not be significant (Class II).

Mitigation Measures

HWQ-2a **Spill Prevention Plan.** See above for the full text of the mitigation measure.

Disposal of Dredged Sediments

The terrestrial portions of the proposed Project would not contain dredging activities, and thus would not result in the creation of dredged sediments that would affect water quality.

The marine construction activities dredging component is limited to cable burial and does not propose the disposal of dredged sediments. Dredging activities are limited to a narrow area along the proposed cable route and a majority of the dredged material is expected to naturally fall back into place under the weight of the sediments or, if suspended, resettle in the vicinity of cable-laying activities. Dredged material would not be removed from the seafloor and disposed of in the terrestrial environment. The marine construction activities include direction boring support, cable pulling, a pre-lay grapnel run, cable laying, post-lay burial of the nearshore portion of the cables, cable plowing, and ROV post-lay burial. Various marine vessels and equipment would be used during cable laying and directional boring.

At the directional boring exit, the drilling conditions would be monitored to determine the exact location of the drill head in relation to the exit point. In order to achieve a mud free exit and minimize the potential release of large quantities of bentonite on the ocean floor, the drilling mud would be circulated out of the system by flushing the drill string with fresh water. The exact distance and time from the exit point that fresh water would be introduced into the drill string would be based on drilling conditions and not a predetermined distance. The actual bore exit would be identified by the drill crew when the bottom-hole assembly is no longer supported by the soil and the angle of the drill string changes dramatically. A marine support crew would be dispatched to dive on the exit to verify the exit point. Once the exit has been verified, an on-site inspector would be given the true offshore exit coordinate for approval. Spent drilling fluids (except for those potentially lost to the surrounding subsurface material) and cuttings would be collected and disposed of at a permitted landfill. Any drilling fluids released to the marine environment through subsurface fractures would likely be dispersed rapidly by currents and wave-induced turbulence.

During construction, a pre-lay grapnel run will be performed to clear debris, such as discarded fishing gear, from the seafloor along the corridors where the cables are to be buried. To accomplish this, a grapnel would be dragged along the cable routes before cable installation. The grapnel would be attached to a length of chain to ensure contact with the bottom and towed by the main cable ship or a workboat similar to the *Dock Express 20* at a speed of approximately 0.12 miles per hour (approximately 0.1 knot or 0.19 kilometer per hour). The arms of the grapnel are designed to hook debris lying on the seafloor or shallowly buried to approximately 1.3 feet (0.4 meter). If debris is hooked and towing tension increases, then towing would cease and the grapnel would be retrieved by winch. Any debris recovered during the operation would be stowed on the vessel for subsequent disposal in port.

The construction dredging activities do not propose the disposal of any sediments; therefore, no impact would occur.

Modification of Ocean Circulation Patterns

The terrestrial portions of the proposed Project which extend out into the ocean would be constructed entirely underground through the use of horizontal direction drilling as described in

Chapter 2 (Project Description) and no changes to the surface would take place which could potentially modify ocean circulation patterns.

There are no expected impacts that would modify ocean circulation patterns to such a scale that degradation of marine water quality would occur. Marine construction would occur under the sand in the form of directional bores. Beyond this, cable would be buried 3 to 4 feet (1 to 1.2 meters) beneath the seafloor up to a water depth of 3,037 feet (1,200 meters). Cables would be less than 2 inches (5 centimeters) in diameter, unburied cable occurring either temporarily during construction and maintenance or in water depths greater than 3,037 feet (1,200 meters) would not modify ocean circulation patterns. With a majority of the cable being buried and the nominal size of any exposed portion there would be no impact to ocean circulation patterns.

Depletion of Groundwater Supplies or Interference with Groundwater Recharge

Impact HWQ-4: The Project could encounter and discharge shallow contaminated groundwater during construction.

Construction activities would likely encounter shallow groundwater. Given the Project's proximity to the ocean, shallow groundwater beneath the beach landing sites is likely saline and is not currently considered potable water, nor would it likely be considered a potable or beneficial water source in the future. In addition, dewatering activities would be temporary, removing only small quantities that would not greatly impact groundwater volumes, and shallow groundwater removed from the beach would likely be replenished by water from the bay soon thereafter. Should dewatering to storm drains or to the Santa Monica Bay be conducted, a dewatering permit would be obtained from the LA RWQCB.

There are no expected Project activities that would substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. During construction, the proposed Project would require a water supply, primarily to create the drilling mud used as part of the boring process. A small amount of water would also be used for dust control and other incidental purposes. It is estimated that a total of 500,000 gallons of water would be used for the Project; this equates to approximately 1.5 acre-feet. This water would be provided by an existing water purveyor anticipated to be provided via municipal fire hydrant(s) in the City of Hermosa Beach. This water consumption would be temporary and would not affect long-term supplies. The Project would not require a supply of local groundwater that would contribute to the lowering of the local groundwater table. There would not be any groundwater wells drilled for the Project and the Project would not introduce impervious areas that would interfere with groundwater recharge. Aquifer volume and the level of local groundwater would not be affected by construction or operation of the proposed Project. As discussed above, any dewatering or shallow groundwater encountered by the proposed Project would be collected and disposed according to the SWPPP and a dewatering permit, and any resulting impacts would not be significant (Class III).

Alteration of Existing Drainage Patterns Resulting in Erosion, Siltation, or Flood Damage

Although Hermosa Beach is within the 100-year floodplain, no Project components that could impede or redirect flood flows would be permanently installed within the floodplain. Cables would cross the floodplain underground and would not affect the floodway. The PFE facilities would be installed either within previously existing structures, or within the City of Hermosa Beach maintenance yard which has pre-existing structures on all sides.

The proposed Project does not propose to place within a watercourse or flood hazard area structures that would impede or redirect flood flows, or otherwise substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation, or other flood-related damage on or off site. There are no streams or rivers within the Project area. The proposed Project is not anticipated to alter the drainage pattern of the Project area in any substantial way due to the majority of construction either taking place underground, or within pre-existing structures. No impact on existing drainage patterns would occur.

Increases in the Rate or Amount of Surface Runoff

Construction activities would be temporary and would not alter drainage to the extent that they would displace a large enough volume of water to increase storm flows. No new impervious area would be constructed and the Project is not expected to increase storm runoff volumes and flows and, therefore, would not affect the capacity of existing stormwater drainage systems. In addition, no storm drains would be installed or relocated during construction, and construction work would not be conducted during a rain event. In a rain event, equipment and materials would be properly contained in compliance with the SWPPP permit and appropriate BMPs would be utilized, which would further minimize the potential for effects on the system from storm runoff.

The proposed PFE facilities would be constructed either within existing commercial facilities or within the City of Hermosa Beach maintenance yard, neither of which would introduce new impermeable surfaces that could affect drainage. There are no expected impacts that would substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site, or otherwise create or contribute to runoff water which would exceed the capacity of existing or planned storm water drainage systems. No impact on surface runoff would occur.

Damage from Inundation by Mudflow

There are no aspects of the proposed Project that would result in or be subject to damage from inundation by mudflow. Mudflows are unlikely because there are no unsecured slopes or hillsides in the Project area. The City of Hermosa Beach is entirely urbanized and developed. The proposed Project would be constructed largely within existing City streets, or within existing structures, and would not introduce an additional mudflow hazard to the surrounding area. Marine construction would occur beneath the beach and along the sea floor where damage from mudflow is unlikely and would affect people or structures. No impact would occur.

Exposure of People or Structures to Flooding

There are no aspects of the proposed Project that would expose people or structures to a risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. The proposed Project would not involve introduction of people or habitable structures into a flood zone, and Project components would not contribute flooding on or off site. According to the City's General Plan Safety Element, the City is not at risk from flooding due to dam failure, and there are no levees within the Project area. No impact would occur.

3.8.3.4 Cumulative Effects

Introduction

The geographic scope for the cumulative analysis includes the water resources that would be affected by the proposed Project, as well as any downstream receiving water and upland contributing area related to those water resources. Table 3-1 lists other proposed or recently approved projects in Hermosa Beach and Manhattan Beach.

The marine segments of the cable systems are located in Santa Monica Bay between the MHW line and the outer limit of the Continental Shelf—that is, areas where seawater depth is no greater than approximately 5,904 feet (1,800 meters). Santa Monica Bay is a semi-enclosed shelf centrally located in the Southern California Bight.

Over the last 100 years, the onshore areas bordering the Santa Monica Bay have undergone rapid and extensive development. This development has resulted in dramatic alteration of the marine environment, and have resulted in impacts to the marine environment. Contaminated runoff, discharge, and sediments associated with storm drains, as well as the Ballona Creek discharge and the existing contamination at the Palos Verdes Shelf have altered the pre-existing conditions within the Santa Monica Bay over the last 100 years. The Santa Monica Bay has also been used to store and dispose of hazardous material such as explosives and used by the military for dumping. The Bay has also had similar marine construction of cables occur throughout its waters. As stated above, marine construction will occur within water areas within Santa Monica Bay. All projects listed in Table 3-1 are terrestrial and not within the water areas of Santa Monica Bay, thereby limiting their relevance to the marine segments of the proposed Project.

Project Contribution to Cumulative Impacts - Terrestrial

Construction and operation of past and present projects within the study area have resulted in substantial changes to the physical hydrology and water quality of the region. Although groundwater levels fluctuate over time, due in part to the amount of recharge entering the basin, residential and municipal water use has generally led to reduced groundwater storage and availability. Floodplain functions have been impaired through the placement of structures (such as housing) within floodplains and through the deliberate alteration of floodplain hydrology (including construction of dams, levees, and engineered channels). The creation of vast areas of impervious surface (including parking lots, roadways, and rooftops) has altered the rate and amount of surface water runoff in the study area. Improper handling, storage, and disposal of hazardous materials have led to contamination of various surface water and groundwater resources.

The current and reasonably foreseeable projects (Table 3-1) would affect water resources in the cumulative analysis study area in a similar manner to past activities. Earth movement and grading could lead to increased erosion and sedimentation. Many of the cumulative projects would involve the storage or use of hazardous materials, which could contaminate surface water and groundwater. Some of the cumulative projects could place structures in floodplains or require alteration of the floodplain. Construction and operation of the proposed Project would not result in significant impacts to hydrology and water quality because it would not increase water supply demand and groundwater use, place structures in watercourses or flood hazard areas, or increase erosion and sedimentation from ground disturbance. The accidental spill or release of hazardous materials is possible, but unlikely.

The construction and operation of individual projects would likely result in adverse impacts to water resources that could combine with the similar impacts from construction and operation of other projects in the area, potentially resulting in a significant cumulative adverse impacts to water resources. However, the incremental contribution of the proposed Project to this cumulative impact would not be cumulatively considerable. Construction and operation of the proposed Project would result in minor adverse impacts related the accidental spill or release of hazardous materials. As described in Section 3.8.3, ground disturbance associated with the proposed Project is expected to result in little risk to water quality. Due to the urban environment and with the use of BMPs as required by the various permits and regulations, any hazardous material spills could be easily cleaned up prior to the hazardous material entering the stormwater system.

For groundwater use, the impacts from construction and operation of cumulative projects in the area could result in a cumulative impact to water resources. The cumulative impact of groundwater extraction in the Los Angeles County groundwater basin, and the West Coast subbasin, for construction and operation of all of the cumulative projects in the region would be considerable given the urban environment and the ongoing construction. However, the incremental contribution of the proposed Project to this significant cumulative adverse impact would be less than cumulatively considerable. The largest amount of water use for the Project would be during construction, which would be short-term and temporary. In addition, the applicant would purchase water from an existing purveyor via a municipal connection. By purchasing water from an existing purveyor, discharge and recharge requirements necessary for the basin would be followed. The amount of water that would be supplied to the applicant by the nearby municipal connection would be substantially less than the long-term historic water use within the municipal system. The short-term construction water use for the Project is not anticipated to lead to a disruption or impairment in the use of nearby water supply or groundwater levels.

Project Contribution to Cumulative Impacts - Marine

The nature of the marine portion of the Project separates it by distance from the terrestrial projects listed in Table 3-1 and, therefore, cumulative effects with these projects would not occur. Any impacts caused by the Project would be limited to the immediate Project area and would not contribute to a cumulative impact condition. The limited scale of disturbance and temporary nature of impacts indicates that cumulative impacts are not likely. Any disturbances to the seafloor during construction would not be significant, as the temporary and localized conditions are characteristic of natural processes where re-suspended sediments settling onto the seafloor shortly after construction activity. With a majority of the cable being buried and the nominal size of any exposed portion, there is no expected cumulative contribution by the proposed cables.

3.8.3.5 Summary of Impacts, Mitigation Measures, and Significance Conclusions

Table 3.8-5, below, provides a summary of the Project’s significant impacts (Class I or Class II) related to hydrology and water quality. The table also indicates the mitigation measures proposed to reduce these significant impacts.

Table 3.8-5. Summary of Hydrology and Water Quality Impacts, Mitigation Measures, and Significance Conclusions

Impact	Mitigation Measures	Significance Conclusion
HWQ-1: Terrestrial construction and Project operation could result in violations of water quality standards or waste discharge requirements as a result of spilled hazardous material, drilling fluid, or contaminated runoff entering the environment.	HWQ-1: Frac-out Contingency Plan.	Class II
HWQ-2: Marine construction vessels and marine construction equipment associated with cable laying and directional boring could potentially discharge fuel, fluids, bilge water, sewage waste, debris or ballast water into marine waters	HWQ-2a: Spill Prevention Plan. HWQ-2b: Vessel Waste Management Plan. HWQ-2c: Shipboard Oil Pollution Emergency Plan.	Class II

Class I: **Significant impact; cannot be mitigated to a level that is not significant.** A Class I impact is a significant adverse effect that cannot be mitigated below a level of significance through the application of feasible mitigation measures. Class I impacts are significant and unavoidable.

Class II: **Significant impact; can be mitigated to a level that is not significant.** A Class II impact is a significant adverse effect that can be reduced to a less-than-significant level through the application of feasible mitigation measures presented in this EIR.