IV. Environmental Impact Analysis

G. Hydrology and Water Quality

1. Introduction

This section provides an analysis of the Project’s potential impacts with regard to hydrology, water quality, and groundwater. This analysis is based on the Drainage Report prepared for the Project by Psomas, dated April 5, 2017; the Standard Urban Stormwater Mitigation Plan (SUSMP Report) also prepared for the Project by Psomas, dated March 21, 2017; and the Hydrology and Water Quality Technical Report (Water Resources Report), previously prepared for the Project Site by Incledon Consulting Group, dated October 2013. These reports are included as Appendices L, M, and N of this Draft EIR, respectively.

2. Environmental Setting

   a. Regulatory Framework

      (1) Federal

         (a) Clean Water Act

         The Clean Water Act (CWA) was first introduced in 1948 as the Water Pollution Control Act. The CWA authorizes federal, state, and local entities to cooperatively create comprehensive programs for eliminating or reducing the pollution of state waters and tributaries. The primary goals of the CWA are to restore and maintain the chemical, physical, and biological integrity of the nation’s waters and to make all surface waters fishable and swimmable. As such, the CWA forms the basic national framework for the management of water quality and the control of pollutant discharges. The CWA sets forth a number of objectives in order to achieve the above-mentioned goals, including regulating pollutant and toxic pollutant discharges; providing for water quality that protects and fosters the propagation of fish, shellfish and wildlife; developing waste treatment management plans; and developing and implementing programs for the control of non-point sources of pollution.1 The State Water Resources Control Board (SWRCB) and the Regional Water

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1 Non–point sources of pollution are carried through the environment via elements such as wind, rain, or stormwater and are generated by diffuse land use activities (such as runoff from streets and sidewalks or agricultural activities) rather than from an identifiable or discrete facility.
Quality Control Board (RWQCB) are the primary state agencies responsible for implementing the CWA and regulating the activities and factors that affect or have the potential to affect water quality in the State.

The CWA provides the legal framework for several water quality regulations including the National Pollutant Discharge Elimination System (NPDES), effluent limitations, water quality standards, pre-treatment standards, anti-degradation policy, non-point source discharge programs, and wetlands protection. An NPDES permit is required for all discharges of pollutants to waters of the United States from any point source. Federal regulations issued in November 1990 and revised in 2003 expanded the original scope of the NPDES program to include the permitting of stormwater discharges from construction sites that disturb areas larger than 1 acre. Stormwater discharges from construction sites with a disturbed area of 1 or more acres require either an individual NPDES permit or coverage under the Construction General Permit, which is discussed in greater detail below. The latter is accomplished by completing a construction site risk assessment to determine the appropriate coverage level; preparing a Stormwater Pollution Prevention Plan (SWPPP), including site maps, a Construction Site Monitoring Program (CSMP), and sediment basin design calculations; for projects located outside of a Phase I or Phase II permit area, completing a post-construction water balance calculation for hydromodification controls; and completing a Notice of Intent (NOI). The primary objective of the SWPPP is to identify and apply proper construction, implementation, and maintenance of Best Management Practices (BMPs) to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site during construction. The SWPPP also outlines the monitoring and sampling program required for the construction site to verify compliance with discharge Numeric Action Levels (NALs) set by the Construction General Permit. In addition to regulating non-stormwater discharges, the CWA sets forth water quality standards based on a water body's designated beneficial uses (e.g., wildlife habitat, agricultural supply, fishing etc.), along with water quality criteria necessary to support those uses. Water quality criteria are either prescribed concentrations or levels of constituents such as lead, suspended sediment, and fecal coliform bacteria, or narrative statements which represent the quality of water that support a particular use.

When designated beneficial uses of a particular receiving water body are being compromised by water quality, Section 303(d) of the CWA requires identifying and listing that water body as “impaired.” Once a water body has been deemed impaired, a Total Maximum Daily Load (TMDL) must be established for the pollutant(s) or flows causing the impairment. A TMDL is an estimate of the total load of pollutants from point, non-point, and natural sources that a water body may receive without exceeding applicable water quality standards. Those facilities and activities that are discharging into the water body, collectively, must not exceed the TMDL. The United States Environmental Protection
Agency (USEPA) oversees the 303(d) program, and either the USEPA or the SWRCB establishes the TMDL schedule for individual constituents.

In addition to trash and debris, common pollutants of concern that have the potential to affect water quality generally fall into one of the following seven categories: sediments, nutrients, bacteria/viruses, oil/grease, metals, organic compounds, and pesticides.

(b) Federal Anti-Degradation Policy

The federal Anti-Degradation Policy requires states to develop statewide anti-degradation policies and identify methods for implementing them. Pursuant to the Code of Federal Regulations (CFR), state anti-degradation policies and implementation methods must, at a minimum, protect and maintain: (1) existing in-stream water uses; (2) existing water quality where the quality of the waters exceeds levels necessary to support existing beneficial uses, unless the state finds that allowing lower water quality is necessary to accommodate economic and social development in the area; and (3) water quality in waters considered an outstanding national resource. State permitting actions must be consistent with the federal Anti-Degradation Policy.

(2) State

(a) Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (embodied in the California Water Code) established the principal California legal and regulatory framework for water quality control. The Porter-Cologne Water Quality Control Act includes provisions to address the requirements of the CWA, including NPDES permitting, dredge and fill programs, and civil and administrative penalties. Regulations promulgated as a result of the Porter-Cologne Act are codified in Sections 13000–14958 of the California Water Code. The Porter-Cologne Act is broad in scope and addresses issues relating to the conservation, control, and utilization of the water resources of the State. Under the Porter-Cologne Act, the quality of all the waters of the State (including groundwater and surface water) must be protected for the use and enjoyment by the people of the State.

Under the California Water Code, California is divided into nine regions governed by regional boards that, under the guidance and review of the SWRCB, implement and enforce provisions of the California Water Code and the CWA. The Project Site is located within Region 4, also known as the Los Angeles Region, and governed by the Los Angeles

\[2 \text{ 40 Code of Federal Regulations Section 131.12.}\]
RWQCB (LARWQCB). The SWRCB’s principal responsibility is the development and implementation of California water quality policy and development of programmatic water quality control procedures to be followed by the RWQCBs. Accordingly, each RWQCB is required to formulate and adopt a local water quality control plan or Basin Plan for its region, which is ultimately incorporated into the California Water Plan. This Basin Plan must adhere to the policies set forth in the California Water Code and established by the SWRCB. The RWQCB is also given authority to include within its regional plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.

Section 13050 of the California Water Code defines what is considered pollution, contamination, or nuisance. Briefly defined, pollution means an alteration of water quality such that it unreasonably affects the beneficial uses of water. Contamination means an impairment of water quality to the degree that it creates a hazard to the public health. Nuisance is defined as anything that is injurious to health, is offensive to the senses, or is an obstruction to property use, and which affects a considerable number of people.

(b) California Coastal Act

The California Coastal Commission was established in 1972 and is responsible for protecting, conserving, and restoring water quality in coastal environments as defined under Sections 30230 and 30231 of the California Coastal Act (Coastal Act). The California Coastal Commission also establishes specific policies that address issues such as shoreline public access and recreation, terrestrial and marine habitat protection, visual resources, public works, and other uses. The Coastal Act provides long-term protection of California’s 1,100 mile coastline for the benefit of current and future generations. In order to meet the requirements of Sections 30230 and 30231, the California Coastal Commission implements site design, source control, and treatment control BMPs.

As required by the California Coastal Commission, new development and redevelopment projects located within a coastal zone are required to apply for a Coastal Development Permit prior to construction. The Coastal Development Permit requires projects to demonstrate water quality protection through the implementation of site design, source control, and treatment control BMPs. The Project Site is located within the coastal zone and will be subject to a Coastal Development Permit.

(c) California Anti-Degradation Policy

The California Antidegradation Policy, otherwise known as the Statement of Policy with Respect to Maintaining High Quality Water in California was adopted by the SWRCB (State Board Resolution No. 68-16) in 1968. Unlike the federal Anti-Degradation Policy, the California Antidegradation Policy applies to all waters of the State, not just surface waters. The policy states that whenever the existing quality of a water body is better than
the quality established in individual Basin Plans, such high quality shall be maintained and discharges to that water body shall not unreasonably affect present or anticipated beneficial use of such water resource.

(d) California Toxics Rule

The California Toxics Rule establishes water quality criteria for certain toxic substances to be applied to waters in the State. The California Toxics Rule establishes acute (i.e., short-term) and chronic (i.e., long-term) standards for bodies of water such as inland surface waters and enclosed bays and estuaries that are designated by the LARWQCB as having beneficial uses protective of aquatic life or human health.

(e) Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties

As required by the California Water Code, the LARWQCB has adopted a plan entitled Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties (Basin Plan). The Basin Plan designates beneficial uses for surface waters and groundwater, sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State’s Anti-Degradation Policy, and describes implementation programs to protect all waters in the Los Angeles Region. In addition, the Basin Plan incorporates (by reference) all applicable SWRCB and RWQCB plans and policies and other pertinent water quality policies and regulations. Those of other agencies are referenced in appropriate sections throughout the Basin Plan. The Basin Plan is a resource for the LARWQCB and others who use water and/or discharge wastewater in the Los Angeles Region. Other agencies and organizations involved in environmental permitting and resource management activities also use the Basin Plan. The Basin Plan also provides valuable information to the public about local water quality issues.

(f) National Pollutant Discharge Elimination System Permit Program

(i) Construction

As noted above, the CWA requires coverage under an NPDES construction permit for stormwater discharges to surface waters associated with various construction activities, except activities that result in disturbance of less than 1 acre of total land area which are not part of a larger common plan of development or sale. The SWRCB has issued a statewide NPDES Construction General Permit for stormwater discharges from

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construction sites (Water Quality Order No. 2009-0009-DWQ). Any project that disturbs an area of more than 1 acre, as well as linear underground/overhead projects disturbing over 1 acre, require a NOI to discharge under the Construction General Permit. The Construction General Permit includes three levels of risk for construction sites based on calculated project sediment and receiving water risk. The Construction General Permit includes measures to eliminate or reduce pollutant discharges through implementation of a SWPPP, which describes the implementation and maintenance of BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the site during construction. The Construction General Permit contains receiving water limitations that require stormwater discharges to not cause or contribute to a violation of any applicable water quality standard. The permit also requires implementation of programs for visual inspections and sampling for specified constituents (e.g., non-visible pollutants). In addition, based upon particular project risk levels, monitoring is required for stormwater discharges.

(ii) Operation

In accordance with CWA Section 402(p), municipal NPDES permits prohibit the discharge of non-stormwater except under certain conditions and require controls to reduce pollutants in discharges to the maximum extent practicable. Such controls include BMPs, as well as system, design, and engineering methods. A municipal NPDES permit has been issued to the County and 84 incorporated cities. Under the Los Angeles County Municipal NPDES Permit, permittees are required to implement a development planning program to address stormwater pollution. These programs require project applicants for certain types of projects to implement a Standard Urban Stormwater Mitigation Plan (SUSMP) throughout the operational life of the project. The purpose of the SUSMP is to reduce the discharge of pollutants in stormwater by outlining BMPs which must be incorporated into the design plans of new development and redevelopment. In combination, these treatment control BMPs must be sufficiently designed and constructed to treat or filter the first 0.75 inch of stormwater runoff from a storm event. The City of Long Beach (City) is subject to the Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the City of Long Beach (Permit No. 99-060, NPDES No. CAS004003/CI8052) (MS4 Permit). This is discussed in more detail below.

(3) Local

(a) County of Los Angeles Hydrology Manual

The City of Long Beach has adopted the Los Angeles County Department of Public Works’ Hydrology and Hydraulic Design Manual for storm drain planning and design calculations. The manual requires a storm drain conveyance system to be designed for a 25-year storm event, and the combined capacity of the storm drain and street flow shall be
able to convey a 50-year storm event. In areas with a sump condition, the conveyance system shall be designed for a 50-year storm event. All drainage improvements in the Project vicinity are subject to review and approval by the City of Long Beach Department of Public Works.

(b) City of Long Beach MS4 Permit

As discussed above City of Long Beach is subject to the requirements of its MS4 Permit. The City’s MS4 Permit specifies that the project designer and/or contractor of all new development and redevelopment projects that fall under specific “priority” project categories must develop a SUSMP. Certain categories of development are considered “priority” because the LARWQCB has determined they have the greatest potential to degrade water quality. The three categories of “priority” projects include: (1) ten or more home subdivisions; (2) 100,000 square feet or larger commercial developments; and (3) projects located adjacent to or directly discharging to environmentally sensitive areas. The Project includes more than 100,000 square feet of commercial development and is considered a “priority” project. To implement the requirements of the MS4 Permit, the City developed the Long Beach Stormwater Management Program, a comprehensive program of practices and activities aimed at reducing or eliminating stormwater pollutants from new development to the maximum extent practicable.

(c) City of Long Beach Stormwater Management Program

The Long Beach Stormwater Management Program was created in accordance with the CWA and the Porter-Cologne Water Quality Control Act. The objectives of the Program are to effectively prohibit non-stormwater discharges and to reduce the discharge of pollutants to the maximum extent practicable such that these discharges will not adversely impact the beneficial uses of receiving waters. The Long Beach Stormwater Management Program contains several elements, practices, and activities aimed at reducing or eliminating pollutants in stormwater, including a Development Planning/Construction Program and an Illicit Connection/Illicit Discharges Elimination Program.

The Program’s Management Program for Development Planning and Construction addresses the planning of development and construction projects that are not within the public street right-of-way. The intent of the management program is to have developers and owners consider stormwater quality management during a project’s planning phase, implemented during construction, and ultimately maintained throughout the life of the project. Implementation of the management program will effectively prohibit non-stormwater discharges and reduce the discharge of pollutants into the stormwater drainage system.
The Program’s Management Program for Illicit Discharges and Illicit Connections addresses procedures to identify, detect, and remove illicit discharges and improper disposal into the storm drain system. The objective of this program is to improve the quality of stormwater by effectively prohibiting non-stormwater discharges and by reducing the discharge of pollutants to the extent practicable through the implementation of the following programs and their components: illicit discharge elimination, illicit connection elimination, public reporting, and reporting hazardous substances entering the storm drain system.

(d) City of Long Beach Municipal Code

Long Beach Municipal Code (LBMC) Section 18.61 implements the NPDES requirements of the MS4 Permit and the subsequent requirements of the SUSMP, as mandated by the LARWQCB. LBMC Section 18.61 states that non-stormwater discharges into the storm drain systems or to receiving waters are prohibited except where such discharges are expressly permitted in the NPDES and SUSMP Regulations Manual. In addition, the LBMC provides that the NPDES and SUSMP regulations shall apply to new development and rehabilitation projects that are subject to the design and implementation of post-construction controls to mitigate stormwater pollution.

LBMC Chapter 18.74 requires the use of low impact development (LID) standards in the planning and construction of development projects, as contained in the LID Best Management Practices Design Manual. LID standards promote the goal of environmental sustainability by improving the quality of receiving water, protecting the Los Angeles and San Gabriel River watersheds, maintaining natural drainage paths, and protecting potable water supplies. A project’s LID Plan must demonstrate compliance with the requirements for infiltration, capture and reuse, evapotranspiration, and/or treatment on-site through the use of BMPs. On-site stormwater management BMPs must be properly sized, at a minimum, to infiltrate, evapotranspire, and/or store for use without any stormwater runoff leaving the site to the maximum extent feasible, for at least the volume of water produced by a 0.75-inch storm event, the 85th percentile 24-hour storm event, or the volume of annual runoff based on unit basin storage water quality volume to achieve 80 percent or more volume treatment.

(e) City of Long Beach Local Coastal Program

As required by the California Coastal Act (California Public Resources Code, Division 20, Sections 30000 et seq.), local governments lying wholly or partially within the

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Coastal Zone are required to prepare a Local Coastal Program for their portion of the Coastal Zone. The Local Coastal Program is used to implement policies and requirements of the Coastal Act by local governments and must be reviewed and certified by the California Coastal Commission prior to being implemented by the local government. The City of Long Beach Local Coastal Program was adopted and certified by the California Coastal Commission in 1980 and is contained in the General Plan.

b. Existing Conditions

(1) Surface Water Hydrology

(a) Regional

The Project Site is located within the Los Angeles-San Gabriel Hydrologic Unit, which covers the majority of Los Angeles County and drains an area of approximately 1,600 square miles. The major drainage systems in this area include the Los Angeles River, San Gabriel River, and Ballona Creek. The San Gabriel River is located southeast of the Project Site, and both the Los Angeles River and San Gabriel River run in a general north-south direction into the Pacific Ocean. The Project Site is located within the San Gabriel Watershed, which is bounded by the San Gabriel Mountains to the north, most of San Bernardino and Orange Counties to the east, the division of the Los Angeles River from the San Gabriel River to the west, and the Pacific Ocean to the south. The San Gabriel Watershed drains into the San Gabriel River from the San Gabriel Mountains and flows south until its confluence with the Pacific Ocean. The San Gabriel Watershed covers approximately 640 square miles and encompasses 35 cities. The land uses within the San Gabriel Watershed are approximately 26 percent residential, 15 percent commercial, 50 percent rural, and 9 percent categorized as other.\(^5\) The primary surface water bodies in the Project vicinity are Alamitos Bay, the San Gabriel River, Los Cerritos Channel, Los Cerritos Wetlands, and the Pacific Ocean. Several of these surface water bodies have been engineered and dredged substantially; however, portions of them are included in the U.S. Fish and Wildlife Service National Wetlands Inventory.

(b) On-Site

As described in the Water Resources Report, the topography in the Project vicinity generally slopes south towards Alamitos Bay. Under existing conditions, the Project Site is made up of approximately 78 percent impervious surfaces, consisting of buildings, internal driveways, and parking areas. Pervious surfaces on-site consist of landscaped areas

primarily located around the hotel structures and the perimeter of the Project Site. There are no surface water bodies or wetlands located on-site.

As shown in Figure IV.G-1 on page IV.G-11, the Project Site is comprised of six drainage subareas, which are determined by the stormwater drainage patterns and flow paths that are tributary to a common point or area. While the Project Site’s tributary watershed also includes eight off-site drainage subareas, the majority of surface runoff within the Project Site is generated on-site, with minimal surface flow entering from the adjacent off-site areas. As shown in Figure IV.G-1, runoff originating from the northeastern, eastern, and southern portions of the Project Site generally flow in an easterly direction to existing 24-inch and 30-inch City-owned storm drains along Pacific Coast Highway (PCH). These storm drains converge to a 36-inch reinforced concrete pipe that bisects the Project Site and ultimately discharges to Alamitos Bay southwest of the Project Site. The northwestern corner of the Project Site drains directly to this 36-inch drain via a catch basin within the site interior. In addition, runoff from the central portion of the Project Site is conveyed west via sheet flow toward Marina Drive, where it is intercepted by catch basins that connect to an existing 15-inch City-owned storm drain, which then discharges to Alamitos Bay at a separate outlet from the 36-inch drain. The off-site subareas drain to both the 36-inch storm drain at PCH and the 15-inch storm drain at Marina Drive (generally, the northern and eastern subareas drain to the east towards PCH, which the western subareas drain to the west towards Marina Drive). Under existing conditions, the area draining to the 36-inch storm drain that traverses the Project Site comprises approximately 15.26 acres, and the area draining to the 15-inch storm drain in Marina Drive comprises 8.44 acres. The existing laterals along PCH have sufficient capacity for 50-year flows, but the 15-inch lateral in Marina Drive is currently deficient in capacity.

Existing runoff flows for each of the on-site and off-site drainage subareas during a 50-year (24-hour) storm event are provided in Table IV.G-1 on page IV.G-12. As shown, surface water runoff from the on-site drainage subareas was estimated to have a total flow rate of 16.45 cubic feet per second (cfs) and a flow volume of 3.14 acre-feet (af). Surface water runoff from off-site drainage subareas was estimated to have a total flow rate of 18.42 cfs and a flow volume of 4.37 af. The 36-inch storm drain receives a peak flow of 24.12 cfs during a 50-year storm, and the 15-inch storm drain receives a peak flow of 10.75 cfs.

(2) Surface Water Quality

(a) Regional

As discussed above, the Project Site is located within the San Gabriel Watershed, and the Project Site ultimately drains to Alamitos Bay via a network of City storm drains.
Figure IV.G-1
Existing On-Site Hydrology

### Table IV.G-1
50-Year Storm Event Hydrology Summary—Existing Conditions

<table>
<thead>
<tr>
<th>Drainage Subarea</th>
<th>Area (acres)</th>
<th>Flow Rate (cfs)</th>
<th>Flow Volume (af)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>On-Site Subareas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area 1</td>
<td>0.78</td>
<td>1.51</td>
<td>0.28</td>
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<tr>
<td>Area 2</td>
<td>2.24</td>
<td>3.59</td>
<td>0.70</td>
</tr>
<tr>
<td>Area 3</td>
<td>2.79</td>
<td>4.69</td>
<td>0.93</td>
</tr>
<tr>
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<td>2.00</td>
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<td>0.44</td>
</tr>
<tr>
<td>Area 5</td>
<td>1.10</td>
<td>2.00</td>
<td>0.33</td>
</tr>
<tr>
<td>Area 6</td>
<td>1.98</td>
<td>2.17</td>
<td>0.46</td>
</tr>
<tr>
<td><strong>On-Site Total</strong></td>
<td>10.88(^a)</td>
<td>16.45</td>
<td>3.14</td>
</tr>
<tr>
<td><strong>Off-Site Subareas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area 20</td>
<td>1.12</td>
<td>1.87</td>
<td>0.39</td>
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<tr>
<td>Area 21</td>
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<td>0.16</td>
</tr>
<tr>
<td>Area 23</td>
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</tr>
<tr>
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<tr>
<td>Area 27</td>
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<td>1.06</td>
<td>0.20</td>
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<tr>
<td><strong>Off-Site Total</strong></td>
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<td>18.42</td>
<td>4.37</td>
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<tr>
<td><strong>Total</strong></td>
<td>23.71</td>
<td>34.87</td>
<td>7.51</td>
</tr>
<tr>
<td>15-Inch Storm Drain</td>
<td>8.44</td>
<td>10.75</td>
<td>—</td>
</tr>
<tr>
<td>36-Inch Storm Drain</td>
<td>15.26</td>
<td>24.12</td>
<td>—</td>
</tr>
</tbody>
</table>

\(^a\) The on-site total represents the “gross” Project Site, which includes easements. As noted in Section II, Project Description, of this Draft EIR, for development purposes, the Project Site comprises 10.77 (net) acres.


Water quality in the watershed is affected by urban uses and activities, including automobiles, landscaping practices, industrial activities, construction, non-stormwater connections to the drainage system, and accidental spills.
(i) Beneficial Uses of the San Gabriel Watershed

According to the Basin Plan, almost every defined beneficial use is identified in water bodies within the San Gabriel Watershed. Specifically, 20 beneficial uses for surface waters and three beneficial uses for ground waters in the San Gabriel Watershed are designated in the Basin Plan. The existing and potential beneficial uses for the waters within the San Gabriel Watershed include municipal and domestic supply; navigation; water contact and non-contact water recreation; commercial and sport fishing; warm freshwater habitat; estuarine habitat; wetland habitat; marine habitat; wildlife habitat; rare, threatened, or endangered species habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and shellfish harvesting. In addition, existing and potential beneficial uses for Alamitos Bay, where surface water flows from the Project Site ultimately discharge, include water contact recreation and non-contact water recreation.

(ii) Impairments and TMDLs in the San Gabriel Watershed

Pursuant to Section 303(d) of the federal CWA, the SWRCB and RWQCBs identify impaired bodies of water that do not meet water quality standards and prioritize and schedule them for development of TMDLs. A TMDL specifies the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Collectively, those facilities and activities that discharge into the water body must not exceed the TMDL. The USEPA approved the most recent Section 303(d) list (dated 2012) in July 2015. The 2012 303(d) list indicates impairment in the San Gabriel River Estuary (the river “reach” to which the Project Site drains) due to copper, dioxin, nickel, and dissolved oxygen.

(b) Local

In general, urban stormwater runoff occurs during and shortly following precipitation events. The volume of water ultimately directed into the drainage system depends on such things as the intensity and duration of the rainstorm and soil moisture. In addition to sediment, contaminants that may be found in stormwater from developed areas include

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trash, bacteria, metals, nutrients, and potentially, organics and pesticides. The source of contaminants is diffuse and includes all areas where precipitation falls, as well as the air it falls through. Therefore, contaminants on roads, maintenance areas, parking lots, and building tops, which are not usually contained in dry weather discharges, may be carried with rainfall drainage into the drainage system. The City conducts routine street cleaning operations as well as periodic cleaning and maintenance of catch basins to reduce stormwater pollution within the City.

Additionally, the City of Long Beach implements a receiving water monitoring program as part of the Long Beach Stormwater Management Program. The monitoring program includes: (1) mass emission monitoring during storm events; (2) monitoring of dry weather discharges; (3) receiving water monitoring; and (4) special studies. A pilot program conducted in 2002 to determine the impact of stormwater discharges to Alamitos Bay found that Los Cerritos Channel was the major source of stormwater entering the Bay. Results of the monitoring program also found that total metal concentrations increased with decreasing salinity and that dissolved metals showed similar patterns of stormwater influence. Monitoring of the stormwater plume in Alamitos Bay was discontinued after the 2007-2008 monitoring period.

(c) On-Site

In addition to existing catch basins within the Project Site, there are a range of non-structural BMPs and environmental water quality practices that are currently used at the Project Site to minimize the impact of pollutant sources. These include general housekeeping practices such as regular trash collection and street sweeping; proper storage of hazardous materials and wastes; and substituting environmentally friendly products for environmentally hazardous products, such as soaps, solvents, and pesticides. In addition, stormwater runoff from existing pervious surfaces such as landscaped areas and lawns is naturally treated to some extent by existing vegetation and the absorptive properties of the existing soils. Based on existing operations within the Project Site, the on-site runoff likely contains the following pollutants of concern: sediment, nutrients, pesticides, metals, pathogens, and oil and grease.

(3) Groundwater Hydrology

(a) Regional

Groundwater use for domestic water supply is a major beneficial use of groundwater basins in Los Angeles County. The coastal portion of the City overlies the Coastal Plain of Los Angeles Groundwater Basin, West Coast Subbasin. Groundwater flow in the Coastal Plain is generally south-southwesterly and may be restricted by natural geological features. Replenishment of groundwater basins occurs mainly by percolation of precipitation.
throughout the region via permeable surfaces, spreading grounds, and groundwater migration from adjacent basins, as well as injection wells designed to pump freshwater along specific seawater barriers to prevent the intrusion of salt water.

(b) Local

As noted above, the Project Site overlies the West Coast Subbasin within the Coastal Plain of Los Angeles Groundwater Basin. The West Coast Subbasin underlies 160 square miles in the southwestern part of Los Angeles County. The Subbasin extends southwesterly along the coast from the Newport-Inglewood fault zone to Santa Monica Bay and provides groundwater to 11 cities and unincorporated areas of Los Angeles County. The water-bearing deposits include unconsolidated and semi-consolidated marine and alluvial sediments of Holocene, Pleistocene, and Pliocene ages. Discharge of groundwater from the Subbasin occurs primarily by pumping.

(c) On-Site

According to the Geotechnical Report prepared for the Project by Leighton Consulting, Inc., the historic high groundwater at the Project Site is on the order of 10 feet below ground surface (bgs), and groundwater was encountered at depths of 15 and 18.5 feet bgs. Due to proximity to the coastal zone, the depth to groundwater is expected to be influenced by tidal fluctuations. Additionally, fluctuations in groundwater levels, localized zones of perched water, and increased soil moisture can occur during and following rainy seasons or periods of locally intense rainfall and stormwater runoff. Irrigation of landscaped areas and introduction of surface water may also cause localized fluctuations in groundwater levels. Groundwater beneath the Project Site generally flows towards the southeast, however tidal fluctuations can also cause changes in groundwater flow direction.


11 Leighton Consulting, Inc., Geotechnical Exploration Report, Proposed 2nd and PCH Retail Development, City of Long Beach, California, March 14, 2016; included as Appendix H of this Draft EIR.

12 Northgate Environmental Management, Inc., Phase II Environmental Assessment, May 3, 2016; included as Appendix K of this Draft EIR.
(4) Groundwater Quality

In general, due to historical activities and practices, groundwater quality in the Los Angeles region has been substantially degraded. The degradation of regional groundwater is a result of seepage into the subsurface of fertilizers and pesticides from agricultural uses, nitrogen and pathogenic bacteria from septic tanks, and various hazardous substances from leaking aboveground and underground storage tanks and industrial-type operations.

The primary groundwater quality concern in the West Coast Subbasin is seawater intrusion, which has caused groundwater quality to deteriorate over time. Two seawater barrier projects are currently operational. The West Coast Basin Barrier Project, which runs from Los Angeles International Airport to the Palos Verdes Hills, and the Dominguez Gap Barrier Project, which covers the area of the West Coast Subbasin bordering San Pedro Bay. Injection wells along these barriers create a groundwater ridge, which inhibits the inland flow of seawater intrusion into the subbasin to protect and maintain groundwater.

(5) Flood Hazard

Based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the Project Site, the Project Site is located within Zone X. Zone X is defined as areas located within a 500-year flood plain with a 0.2 percent chance of flooding in any given year; areas located within a 100-year floodplain with a 1 percent chance of flooding in any given year, with average depths of less than 1 foot or drainage areas less than 1 square mile in area; and areas located within a 100-year floodplain that are protected from flooding by levees.

Areas surrounding the Project Site are designated within a 100-year floodplain that is protected by “Provisionally Accredited” levees, as determined by the U.S. Army Corps of Engineers. A Provisionally Accredited Levee is a levee that FEMA has previously accredited with providing 1 percent annual chance protection on an effective FIRM.

(6) Seiche and Tsunami Risk

A seiche is an oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, storage tank, or lake. A tsunami is a great sea wave, commonly referred to as a tidal wave, produced by a significant undersea disturbance such as tectonic displacement associated with large, shallow earthquakes.

The Project Site is located within an area potentially affected by a tsunami or seiche as mapped in the City’s General Plan Seismic Safety Element.\textsuperscript{14} The Project Site is located in proximity to and up gradient from the Long Beach Harbor and associated water bodies near the mouth of the Los Angeles River. In addition, the Project Site is located approximately 300 feet east of Alamitos Bay.

3. Environmental Impacts

\textbf{a. Methodology}

The analysis of potential impacts to surface water hydrology and surface water quality is based in part on the Drainage Report and SUSMP, both prepared by Psomas, and the Water Resources Report, prepared by Incledon Consulting Group. These reports are provided in Appendices L, M, and N, respectively, of this Draft EIR.

The surface water hydrology analysis provided below evaluates the change in surface water runoff patterns and quantity associated with the Project and the impact of these changes on the existing stormwater system. As discussed in the Regulatory Framework section above, the City has adopted the Los Angeles County Department of Public Works’ Hydrology Manual as its basis for design of storm drainage facilities. The Hydrology Manual requires projects to have drainage facilities to meet the “Urban Flood” level of protection, which is defined as runoff from a 25-year frequency storm falling on a saturated watershed. To provide a conservative analysis of the ability of storm drain infrastructure to accommodate the demand generated by the Project, a larger 50-year storm event was considered.

The analysis of surface water quality impacts identifies the types of pollutants associated with construction and operation of the Project and considers their potential effects on surface water quality. As described above, Chapter 18.74 of the LBMC expands the applicability of SUSMP requirements by requiring the use of LID standards in the planning and construction of development projects. LID standards require rainwater from a 0.75-inch rainstorm to be captured, infiltrated and/or used on-site.

\textbf{b. Thresholds of Significance}

Appendix G of the CEQA Guidelines provides a set of screening questions that address impacts with regard to hydrology. These questions are as follows:

\begin{quote}
\textsuperscript{14} City of Long Beach General Plan, Seismic Safety Element, Plate 11, October 1988.
\end{quote}
Would the project:

- Violate any water quality standards or waste discharge requirements?

- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (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)?

- 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 or siltation on- or off-site?

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

- Otherwise substantially degrade water quality?

- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

- Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

- 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?

- Inundation by seiche, tsunami, or mudflow?

With regard to the above questions from Appendix G of the CEQA Guidelines, as discussed above and in the Initial Study included as Appendix A of this Draft EIR, the Project Site is not located within a 100-year flood hazard area designated by FEMA. In addition, the Project does not include residential uses. As such, the Project would not place housing or structures within a 100-year flood hazard area. Further, as described in the Initial Study, based on the City’s General Plan Public Safety Element, three flood control dams lie upstream of the City, including the Sepulveda Basin, Hansen Basin, and Whittier Narrows Basin. As provided in the Public Safety Element, due to the intervening
low and flat topography and the distance of the Sepulveda Basin and the Hansen Basin more than 30 miles upstream, any flooding resulting from a dam failure at either of these locations would be expected to dissipate prior to reaching the City. In addition, while flooding could occur along both sides of the San Gabriel River, which is located southeast of the Project Site, given the topography of the surrounding area and the location of the Whittier Narrows Basin relative to the Project Site, any flooding would be minimal. Further, dams in California are continually monitored by various governmental agencies (such as the State of California Division of Safety of Dams and the U.S. Army Corps of Engineers) to guard against the threat of dam failure. Current design and construction practices and ongoing programs of review, modification, or total reconstruction of existing dams are intended to ensure that all dams are capable of withstanding the maximum considered earthquake for the site. In addition, as discussed above, areas surrounding the Project Site are designated within a 100-year floodplain that are protected by “Provisionally Accredited” levees, as determined by the U.S. Army Corps of Engineers. A Provisionally Accredited Levee is one that FEMA has previously accredited with providing 1 percent annual chance protection on an effective FIRM. Therefore, as evaluated in the Initial Study, impacts regarding the potential for flooding would be less than significant.

Based on the above, no further analysis regarding flood hazards is provided below. The analysis below thus focuses on impacts related to water quality, groundwater supplies and recharge, drainage patterns and potential erosion impacts, surface runoff increases, and seiche and tsunami risks.

c. Project Design Features

The Project involves drainage improvements to serve the proposed development. These improvements would include relocation of the segment of the 36-inch storm drain that traverses the Project Site, which generally would align with proposed drive aisles within the site, as shown in Figure IV.G-2 on page IV.G-28 in the analysis below. The existing storm drains along PCH would remain and connect to the relocated 36-inch storm drain segment, and the existing storm drain infrastructure along Marina Drive also would remain. Following Project implementation, the Project Site would be comprised of nine drainage subareas, and the overall drainage patterns and discharge points would be maintained, although runoff from a portion of the Project Site would drain into laterals directly from the BMPs (discussed below) and connect to the 36-inch storm drain to reflect the existing flow pattern. This would allow runoff in Marina Drive to closely match existing conditions. Runoff collected from building roof drains and parking structures would be treated using raised filtration planter boxes, which would discharge into each respective adjacent street via parkway culverts before flowing into the existing catch basins in PCH and Marina Drive.
Current stormwater regulations require development projects to obtain permits for both construction and operation of proposed uses. The conditions associated with these permits include various requirements for controlling the amount or rate of stormwater discharged from a project site, as well as the generation and release of pollutants into stormwater flows. The requirements for stormwater management to be employed as part of the Project are set forth in the Project Design Features detailed below.

As previously discussed, a SUSMP has been prepared for the Project and is included as Appendix M of this Draft EIR. The SUSMP details the BMPs to be implemented during Project operations, in compliance with regulatory requirements and as set forth below:

**Project Design Feature G-1:** In accordance with National Pollutant Discharge Elimination System (NPDES) and City of Long Beach requirements, prior to the issuance of a grading permit, the Applicant shall provide evidence to the City of Long Beach Department of Public Works, as appropriate, that a Notice of Intent (NOI) has been filed with the State Water Resources Control Board (SWRCB) for coverage under the Construction General Permit and a certification that a Storm Water Pollution Prevention Plan (SWPPP) has been prepared. Such evidence shall consist of a copy of the NOI stamped by the SWRCB or Los Angeles Regional Water Quality Control Board (LARWQCB), or a letter from either agency stating that the NOI has been filed. The SWPPP shall include a menu of Best Management Practices (BMPs) to be selected and implemented based on each construction phase and weather conditions in order to effectively control erosion. BMPs to be implemented as part of the Project may include, but shall not be limited to, the following:

- **Erosion Control BMPs** to protect the soil surface and prevent soil particles from detaching. Selection of appropriate erosion control BMPs shall be based on minimizing areas of disturbance, stabilizing disturbed areas, and protecting slopes/channels;

- **Sediment Control BMPs,** which are treatment controls that trap soil particles that have been detached by water or wind. Selection of appropriate sediment control BMPs shall be based on keeping sediments on-site and controlling the site boundaries;

- **Wind Erosion Control BMPs,** which consist of applying water to prevent or minimize dust nuisance;

- **Tracking Control BMPs,** which consist of preventing or reducing the tracking of sediment off-site by vehicles leaving the construction area. These BMPs include street sweeping and vacuuming. The construction site shall have a stabilized
construction entrance to prevent off-site tracking of sediment and debris;

- **Non-Stormwater Management BMPs**, which are also referred to as “good housekeeping practices” involve keeping a clean, orderly construction site; and

- **Waste Management and Materials Pollution Control BMPs** consist of implementing procedural and structural BMPs for handling, storing, and disposing of wastes generated by a construction project to prevent the release of waste materials into stormwater runoff or discharges through the proper management of construction waste.

**Project Design Feature G-2**: In accordance with NPDES and City requirements, the Applicant has prepared and submitted for review and approval by the City of Long Beach Department of Public Works a Standard Urban Stormwater Mitigation Plan (SUSMP) that includes BMPs and demonstrates compliance with the City’s Low Impact Development (LID) requirements. Specific BMPs to be implemented as part of the SUSMP to manage post-construction stormwater runoff shall consist of bio-filtration, retention, and treatment BMPs in the form of flow-through planters, as described below:

- The flow-through planter BMP functions as a soil and plant-based filtration device that removes stormwater pollutants through a combination of overland flow through vegetation, surface detention, and filtration through soil. Pore spaces and organic material in the soils help to retain water in the form of soil moisture and to promote the adsorption of pollutants (i.e., dissolved metals and petroleum hydrocarbons) into the soil matrix. Adequate contact time between the surface and pollutant shall be provided for in the design of the system for this removal process to occur.

- Rainfall from rooftops and parking structures shall be directed to large flow-through planters adjacent to each building via downspouts. These planters shall provide biofiltration to the discharge from the roof downspouts and convey the flow through parkway culverts, which shall then discharge to the adjacent street. For any runoff collected and discharged into the infiltration planter box by the roof conveying system, the sediment capture chamber shall serve as a pre-treatment to the filtration process. The sediment capture chamber shall consist of baffle walls and perforations to allow drainage of standing water into the growing medium. This growing medium shall be composed of a minimum of 18 inches of sandy loam, with a minimum infiltration rate of 5 inches per hour. The sandy loam shall be underlain by a level
of gravel and subdrains connecting to the existing off-site storm drain system.

- Plant materials shall be tolerant of summer drought, ponding fluctuations, and saturated soil conditions for 48 hours. Native plant species and/or hardy cultivars that are not invasive and do not require chemical inputs shall be used to the maximum extent practicable.

- The proposed flow-through planters shall treat the peak mitigation flow rate or volume of runoff produced by a 0.75-inch 24-hour rainfall event. Based on the SUSMP calculations, the flow-through planters shall be designed and sized to treat, at a minimum, 1.65 cubic feet per second or 15,548 cubic feet of combined on-site runoff.

- Installation of grate inlet atrium drains, catch basins, roof drains, and surface parking drains to screen trash and debris.

- Common area landscape management that includes use of drought tolerant, native landscaping, minimizing fertilizer and pesticide application, use of slow-release fertilizers, maintenance activities, and providing education and training for employees on management of landscape materials and stormwater management.

- Installing and maintaining efficient irrigation systems designed to minimize water by eliminating overspray to hardscape areas, and setting irrigation timing and cycle lengths in accordance with water demands, given time of year, weather, and day and night temperatures.

- Stenciling of “No Dumping—Only Rain In Drain” or equally effective phrase on catch basins and/or area drains to alert the public as to the destination of pollutants discharged into the stormwater.

- Parking lot, walkway and driveway sweeping, and common area litter control.

- Compliance with SUSMP design requirements for outdoor trash and storage areas, loading docks, and storm drain stenciling. The trash enclosures will have screens or walls to minimize the transport of trash and litter by the wind or water; the drainage will be directed to vegetated areas where feasible; and runoff water from adjoining roofs and pavement will be directed around trash areas.

**Project Design Feature G-3:** The Project shall include the installation of new storm drain laterals, where appropriate, to capture and discharge stormwater generated on-site. Post-Project lateral flows to the
mainline shall match the existing tributary drainage areas. Site surface flows to the perimeter streets shall be maintained, where appropriate, to match existing runoff conditions and shall not affect the capacity of the existing local storm drain system.

Also refer to Section IV.F, Hazards and Hazardous Materials, of this Draft EIR for discussion of Project compliance with regulatory requirements related to the appropriate handling, storage, and disposal of hazardous materials, which would serve to minimize potential impacts to surface water quality.

d. Analysis of Project Impacts

(1) Construction Impacts

(a) Surface Water Hydrology

Project construction activities would include demolition of the existing SeaPort Marina Hotel and associated hardscape and landscape around the structures. These activities have the potential to temporarily alter existing surface drainage patterns and flows on-site by exposing the underlying soils, making the Project Site temporarily more permeable, and diverting existing surface flows. In accordance with the requirements of the Construction General Permit and based on implementation of Project Design Feature G-1, the Project would implement a SWPPP that would specify BMPs and erosion control measures to be used during construction to manage runoff flows. BMPs would be designed to reduce runoff during construction to the maximum extent feasible. In addition, the Applicant would be required to comply with all applicable City grading permit regulations, including implementation of appropriate measures, plans, and inspections to reduce sedimentation and erosion. Furthermore, BMPs such as sandbag barriers, earthen drainage dikes, swales, and/or sediment traps during construction would help ensure that existing drainage patterns are maintained. Thus, through compliance with all NPDES Construction General Permit requirements, including the preparation and implementation of a SWPPP, implementation of BMPs, and compliance with applicable City grading regulations, construction of the Project would not: (1) substantially alter the existing drainage patterns within the Project Site or surrounding area in a manner that would result in substantial erosion or siltation on- or off-site; (2) substantially increase the rate or amount of surface runoff in a manner that would result in flooding; or (3) create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems.

Based on the above, impacts to surface water hydrology during construction would be less than significant.
(b) Surface Water Quality

Construction activities such as earth moving, maintenance/operation of construction equipment, and the handling, storage, and disposal of construction materials could contribute to pollutant loading in stormwater runoff. On-site watering activities to reduce airborne dust also could contribute to pollutant loading in runoff. The main pollutant of concern during construction would be sediment or soil particles that could become detached by water and wind. However, as the construction site would be greater than 1 acre, Project construction activities would be regulated by the NPDES Construction General Permit. In accordance with the requirements of the Construction General Permit and per Project Design Feature G-1, the Project Applicant would prepare and implement a SWPPP that would specify BMPs to target pollutants of concern and reduce or eliminate pollutants in stormwater discharges.

Through compliance with NPDES requirements and local regulations, including the implementation of BMPs, construction of the Project would not result in discharges that would: (1) violate any water quality standards or waste discharge requirements; (2) create or contribute runoff water that would provide substantial additional sources of polluted runoff; or (3) otherwise substantially degrade water quality. As such, construction-related impacts to surface water quality would be less than significant.

(c) Groundwater Hydrology

The Project Site currently consists of 78 percent impervious surfaces. However, historic high groundwater is relatively close to the surface (within 10 feet) and subject to rainfall and tidal influence due to its proximity to Alamitos Bay and the Pacific Ocean. The Project Site is not located in an aquifer recharge area, and there are no groundwater wells or pumping activities within the Project Site. Therefore, construction activities are not anticipated to interfere with groundwater recharge or production.

Groundwater was encountered at depths of 15 and 18.5 feet below ground surface in borings completed as part of the Project’s geotechnical investigation. While this is deeper than historic levels, as noted above, groundwater under the Project Site is subject to rainfall and tidal influences, so the level can be variable. Additionally, the Project would include excavations to a maximum depth of approximately 11.5 feet below ground surface for building footings and foundations. As such, temporary dewatering may be required within the Project Site in the event excavation for building footings encounters groundwater, as well as for on-site mainline storm drain relocation. Any temporary dewatering system(s) would extract, treat, and discharge groundwater to the public storm drain system, as authorized by a General NPDES Permit issued by the LARWQCB and a storm drain connection permit issued by the jurisdictional storm drain agency. Any discharge of groundwater during construction of the Project would occur pursuant to, and comply with,
the applicable permit requirements of the General NPDES Permit. Therefore, if dewatering is necessary, operation of the temporary system would not be anticipated to adversely impact the flow rate or direction of groundwater. Furthermore, as noted above, the Project Site is not located within an aquifer recharge area. Therefore, Project construction would not change potable water levels sufficiently to reduce the ability of a water utility to use the groundwater basin for public water supplies, reduce yields in adjacent wells, deplete groundwater supplies, result in a demonstrable and sustained reduction of groundwater recharge capacity, or interfere with groundwater recharge. As such, impacts would be less than significant, and no mitigation measures are required.

(d) Groundwater Quality

As discussed above, the Project would include excavations at a maximum depth of 11.5 feet below ground surface for building footings and foundations, and the Project would also result in a net export of soil materials.

As discussed further in Section IV.F, Hazards and Hazardous Materials, of this Draft EIR, a groundwater remediation program is currently being implemented on the Project Site under the oversight of the LARWQCB to address existing contamination associated with historic gas station operations both on- and off-site. Upon completion of remedial activities to the satisfaction of the LARWQCB, this contamination will no longer be considered a threat to groundwater quality, and no further impacts to local groundwater resources would occur.

As noted above, although unlikely, temporary dewatering may be required during construction. However, discharges from any temporary dewatering system would be subject to NPDES permit requirements and, therefore, would not result in increased groundwater contamination.

During on-site grading and building construction, hazardous materials, such as fuels, paints, solvents, and concrete additives, could be used and would therefore require proper management and, in some cases, disposal. The management of any resultant hazardous wastes could increase the opportunity for hazardous materials releases into groundwater. Compliance with all applicable federal, state, and local requirements concerning the handling, storage, and disposal of hazardous waste would reduce the potential for Project construction to release contaminants into groundwater, expand the area or increase the level of groundwater contamination, or cause a violation of regulatory water quality standards at an existing production well. Further, as there are no groundwater production wells or public water supply wells within 1 mile of the Project Site, construction activities would not be anticipated to affect existing wells. Therefore, the Project would not result in
any substantial increase in groundwater contamination through hazardous materials releases, and impacts on groundwater quality would be less than significant.

(2) Operational Impacts

(a) Surface Water Hydrology

As previously discussed, the Project Site is currently comprised of approximately 78 percent impervious surfaces, consisting of the SeaPort Marina Hotel, internal driveways, and parking areas. Pervious surfaces on-site consist of landscaped areas primarily located around the hotel structures and the perimeter of the Project Site. The Project would include the development of new buildings, paved areas, and landscaped areas. With implementation of the Project, the amount of impervious surfaces would increase to approximately 85 percent.

Runoff flows for each of the on-site and off-site drainage subareas during a 50-year, 24-hour storm event under post-Project conditions are summarized in Table IV.G-2 on page IV.G-27. Figure IV.G-2 on page IV.G-28 shows the post-Project boundaries of the nine on-site drainage subareas and eight off-site drainage subareas that would make up the Project Site’s tributary watershed under post-Project conditions, along with the proposed alignment of the relocated 36-inch storm drain segment.

As shown in Table IV.G-1 on page IV.G-12, under existing conditions runoff from the on-site drainage subareas has a total flow rate of approximately 16.45 cfs and a flow volume of 3.14 af. As shown in Table IV.G-2, the flow rate from the on-site drainage subareas during a 50-year storm event would increase to 18.41 cfs, with a corresponding increase in flow volume to 3.35 af. Given that the 15-inch lateral in Marina Drive exceeds capacity under existing conditions, the Project would increase the area draining to the 36-inch storm drain that traverses the Project Site. Under post-Project conditions, the area draining to the 36-inch storm drain would increase from 15.26 acres to 15.75 acres, and the peak flow rate would increase from 24.12 cfs to 25.40 cfs during a 50-year storm. The 36-inch storm drain would have sufficient capacity to handle this increase in flow rate of 1.28 cfs, and the 24- and 30-inch laterals in PCH would continue to have sufficient capacity under post-development conditions. The area draining to the 15-inch lateral in Marina Drive would decrease from 8.44 acres to 7.67 acres, and peak flow rates would decrease from 10.75 cfs to 10.32 cfs.

With respect to drainage improvements, as described in the Drainage Report included in Appendix L of this Draft EIR and as illustrated in Figure IV.G-2, the portion of the existing 36-inch storm drain located within the Project Site would be relocated to accommodate the proposed buildings. The existing storm drains along PCH would remain
### Table IV.G-2

#### 50-Year Storm Event Hydrology Summary—Project Conditions

<table>
<thead>
<tr>
<th>Drainage Subarea</th>
<th>Area (acres)</th>
<th>Flow Rate (cfs)</th>
<th>Flow Volume (af)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>On-Site Subareas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subarea 1</td>
<td>1.31</td>
<td>2.27</td>
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<tr>
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</tr>
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<td>3.35</td>
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<td><strong>Off-Site Subareas</strong></td>
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<td></td>
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<td>7.50</td>
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</tbody>
</table>

- **15-Inch Storm Drain**: 7.67 10.32 —
- **36-Inch Storm Drain**: 15.75 25.40 —

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**cfs = cubic feet per second**

**af = acre-feet**

\(a\) As noted in Section II, Project Description, of this Draft EIR, for development purposes, the Project Site comprises 10.77 (net) acres. The “gross” Project Site including easements comprises 10.88 acres, as listed in Table IV.G-1.

**Source:** Psomas, Drainage Report, April 5, 2017; see Appendix L of this Draft EIR.

and connect to the relocated 36-inch storm drain segment, and the existing storm drain infrastructure at Marina Drive also would remain, although on-site drainage patterns would be altered slightly to minimize exacerbating conditions in the 15-inch Marina Drive lateral. Overall on-site drainage patterns would be similar to existing conditions. Additionally, the
Figure IV.G-2
Proposed On-Site Hydrology

on-site stormwater conveyance system would be adequately sized to prevent flooding and nuisance water within the Project Site. As described in Project Design Feature G-2 above, as part of the SUSMMP for the Project, operational phase stormwater runoff would be managed via implementation of bio-filtration, retention, and treatment BMPs in the form of flow-through planters. Proposed roof drains, also described in Project Design Feature G-2, would collect roof runoff from the new buildings and parking structures and connect to the storm drain system.

Based on the above, through compliance with all NPDES requirements, including implementation of the SUSMMP and associated BMPs, as well as installation of necessary stormwater infrastructure improvements, the Project would not: (1) substantially alter existing drainage patterns within the Project Site and surrounding area in a manner that would result in substantial erosion or siltation on- or off-site; (2) substantially increase the rate or amount of surface runoff in a manner that would result in flooding; or (3) create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. As such, impacts on surface water hydrology during operation of the Project would be less than significant.

(b) Surface Water Quality

As is typical of most urban developments, stormwater runoff from the Project Site has the potential to introduce pollutants into the stormwater system. As previously described, pursuant to Project Design Feature G-2, the Applicant would be required to implement SUSMMP and LID requirements throughout the operational life of the Project. The Applicant has prepared a SUSMMP, provided in Appendix M of this Draft EIR, which outlines the post-construction BMPs proposed to control pollutants of concern associated with storm events up to the 0.75-inch precipitation level. Given the underlying soil conditions and the fact that proposed development will cover nearly the entire Project Site, infiltration and stormwater reuse were not considered a viable option for stormwater treatment. Accordingly, flow-through planters were selected to serve as bio-filtration, retention, and treatment BMPs. The flow-through planters would remove stormwater pollutants through a combination of overland flow through vegetation, surface detention, and filtration through soil. Rainfall from the rooftop and parking structures on-site would be directed to large flow-through planters located adjacent to the buildings via downspouts. These planters would provide biofiltration to the discharge from the roof downspouts and convey the flow through culverts to be discharged to the adjacent street. As previously described, the Project’s BMPs are required to treat the runoff from a 0.75-inch storm event. Based on this requirement, the Project would require a total treatment volume of 15,548 cubic feet of stormwater at a rate of 1.65 cfs, which can be effectively met through the use of the flow-through planters. Additionally, for runoff that is collected and discharged into the infiltration planter box by the roof conveying system, the sediment capture chamber would serve as pre-treatment to the filtration process. The sediment capture chamber
would consist of baffle walls and perforations to allow drainage of standing water into the growing medium. Implementation of the proposed flow-through planters in combination with the additional BMPs listed in Project Design Feature G-2 would minimize pollutants within surface water runoff from the Project Site.

Through compliance with NPDES requirements and local regulations, including the implementation of appropriate BMPs ensured via implementation of Project Design Feature G-2, Project operation would not result in discharges that would: (1) violate any water quality standards or water discharge requirements; (2) create or contribute runoff water which would provide substantial additional sources of polluted runoff; or (3) otherwise substantially degrade water quality. Therefore, impacts to surface water quality associated with operation of the Project would be less than significant.

(c) Groundwater Hydrology

The Project Site is 78 percent impervious under existing conditions and would increase to 85 percent under the Project. However, as noted above, the Project Site is not located in an aquifer recharge area, and there are no groundwater wells or pumping activities within the Project Site. Therefore, the Project would not affect production levels of groundwater supply wells or groundwater recharge in the vicinity.

As discussed above, due to the maximum depth of excavation associated with the Project and variable groundwater levels, groundwater may be encountered. To account for this, the Project’s foundations would be designed in a manner as to support the proposed structure in saturated soil conditions. This foundation design would result in only minor impacts to the top of the groundwater table (when such levels rise), and in any case would not affect any supply wells. Therefore, operation of the Project would result in less than significant impacts to groundwater hydrology.

(d) Groundwater Quality

Surface contaminants have the potential to adversely impact the quality of groundwater. However, as described above, the Project’s proposed flow-through planters would treat stormwater runoff to minimize, if not avoid, potential impacts to groundwater.

In addition, as discussed in Section IV.F, Hazards and Hazardous Materials, of this Draft EIR, operation of the Project would involve the limited use of potentially hazardous materials typical of those used in commercial developments, including cleaning agents, paints, pesticides, and other materials used for landscaping. The management of any resultant hazardous wastes could increase the opportunity for hazardous materials to be released into the groundwater. However, all potentially hazardous materials would be
used, stored, and disposed of in accordance with manufacturers' specifications and handled in compliance with applicable standards and regulations. Compliance with all applicable federal, state, and local requirements concerning the handling, storage, and disposal of hazardous waste would reduce the potential for Project operation to release contaminants into the groundwater, expand the area or increase the level of groundwater contamination, cause a violation of regulatory water quality standards at an existing production well, or otherwise substantially degrade groundwater quality. Accordingly, Project impacts on groundwater quality would be less than significant, and no mitigation measures are required.

(e) Seiche and Tsunami Risk

As previously described, the Project Site is located within an area potentially affected by a tsunami or seiche as mapped in the City’s General Plan Seismic Safety Element. The Project Site is located in proximity to and up gradient from Long Beach Harbor and associated water bodies near the mouth of the Los Angeles River. In addition, the Project Site is located approximately 300 feet east of Alamitos Bay. However, tsunami warning systems are in place, such as the seismic Sea-Wave Warning System for the Pacific Ocean operated by a cooperative program of nations around the Pacific Rim, and the Alaska Tsunami Warning Center operated by the National Weather Service, and evacuation plans are in place to minimize hazards from tsunamis. In addition, the presence of the harbor breakwater and intervening urban development would limit potential effects from a seiche or tsunami on the Project Site. Therefore, impacts related to a potential seiche or tsunami would be less than significant.

4. Cumulative Impacts

a. Surface Water Hydrology

The geographic context for the cumulative impact analysis of surface water hydrology is the San Gabriel Watershed. The Project in conjunction with cumulative growth in the watershed (inclusive of the related projects) would cumulatively increase stormwater runoff flows, potentially resulting in cumulative impacts to surface water hydrology. However, as described above, in accordance with NPDES and City requirements, related projects and other future development projects would be required to implement BMPs to manage stormwater runoff. Furthermore, the City of Long Beach Department of Public Works would review each future development project on a case-by-case basis to ensure sufficient local and regional drainage capacity is available to accommodate stormwater runoff. For projects located within the City, all future drainage facilities would be designed for either the 50-year capital storm or the 25-year urban design storm pursuant to City requirements. Similarly, other cities located within the boundaries of the San Gabriel Watershed would require projects to implement BMPs to reduce runoff flows and ensure
drainage capacity is available to accommodate stormwater runoff from the respective sites. Therefore, the Project’s cumulative impacts related to surface water hydrology would not be cumulatively considerable, and cumulative impacts on surface water hydrology would be less than significant.

b. Surface Water Quality

The geographic context for the cumulative impact analysis of surface water quality is the San Gabriel Watershed and Alamitos Bay. As with the Project, cumulative growth in the San Gabriel Watershed and Alamitos Bay (inclusive of the related projects) would be subject to NPDES requirements regarding water quality during both construction and operation. In addition, it is anticipated that the related projects and other future development projects would be subject to SWPPP, SUSMP, and LID requirements. Furthermore, increases in regional controls associated with other elements of the MS4 Permit would improve regional water quality over time. With implementation of the Project, new BMPs for the treatment of stormwater runoff would be installed, thus minimizing impacts to the surface water quality of runoff from the Project Site. Overall, with compliance with all applicable laws, rules, and regulations, cumulative impacts to surface water quality would be less than significant.

c. Groundwater Hydrology

The geographic context for the cumulative impact analysis of groundwater is the Coastal Plain of Los Angeles Groundwater Basin, West Coast Subbasin. Cumulative groundwater hydrology impacts could result from the overall utilization of land above the West Coast Subbasin. In addition, interruptions to existing groundwater flows by dewatering operations would have the potential to affect groundwater levels. As with the Project, any related project would be required to evaluate its individual impacts to groundwater hydrology due to temporary or permanent dewatering operations. However, any calculation of the extent to which the related projects would extract or otherwise directly use groundwater would be speculative.

As previously discussed, the Project’s discharges to groundwater, both during construction and post-development, would comply with adopted regulatory requirements designed by the LARWQCB to assure that regional development does not adversely affect water quality. These requirements include MS4 Permit and LID requirements; Construction General Permit requirements; General Dewatering Permit requirements; and Basin Plan benchmark groundwater quality objectives. Any future urban development occurring in the watershed also must comply with these requirements.
In addition, if necessary, related projects within the groundwater basin would incorporate structural designs for subterranean levels that are able to withstand hydrostatic forces and incorporate comprehensive waterproofing systems in accordance with current industry standards and construction methods. Should excavation associated with other projects extend beneath the groundwater level, temporary groundwater dewatering systems would be designed and implemented in accordance with the applicable General NPDES Permit issued by the LARWQCB and a storm drain connection permit issued by the jurisdictional storm drain agency for discharge to the public storm drain system. Similarly, if any of the related projects require permanent dewatering systems, such systems would be regulated by SWRCB permit requirements. Therefore, based on compliance with adopted regulatory requirements designed to protect the beneficial uses of water bodies, and with the incorporation of appropriate engineering solutions, cumulative groundwater impacts would be less than significant.

d. Groundwater Quality

As described above, compliance with applicable regulations would prevent the Project from affecting or expanding any potential areas affected by existing contamination, increasing the level of contamination, or causing regulatory water quality standards to be violated. As with the Project, the related projects would be unlikely to cause or increase groundwater contamination because compliance with existing statutes and regulations would prevent the related projects from affecting or expanding any potential areas affected by contamination, or increasing the level of contamination, or causing regulatory water quality standards at an existing production well to be violated. Therefore, cumulative impacts to groundwater quality would be less than significant.

5. Mitigation Measures

Impacts to surface water hydrology, water quality, and groundwater during construction and operation of the Project would be less than significant. No mitigation measures are required.

6. Level of Significance After Mitigation

As evaluated above, surface water hydrology, water quality, and groundwater impacts would be less than significant.