

4.7 HYDROLOGY/WATER QUALITY

This section evaluates the potential for significant impacts on hydrology and water quality due to the proposed project. Consistent with the discussion in Section 4.0 (Introduction to the Analysis), based on a preliminary environmental analysis of the proposed project prepared prior to commencement of this EIR and analysis completed for the BECSP Program EIR, substantial additional analysis of hydrology and water quality impacts is not required. Rather, this section includes a discussion of the current environmental setting, the proposed project and its relationship to the BECSP, where applicable; a discussion of consistency with the environmental analysis prepared for the BECSP, where applicable; any new information or analysis pertinent to the current analysis and identification of impacts; identification of mitigation measures required to address potential impacts of the proposed project; and significance conclusions regarding the proposed project after mitigation incorporation. Mitigation measures included applicable measures from the BECSP EIR as well as any new or additional mitigation measures required to reduce potential impacts. All impacts are considered to be less severe than less than significant with incorporation of mitigation.

Data used to prepare this section were obtained from the BECSP EIR and City of Huntington Beach General Plan. Full bibliographic entries for all reference materials are provided in Section 4.7.5 (References) at the end of this section.

4.7.1 Environmental Setting

The proposed project site is relatively flat with no distinct changes in elevation. The site is almost entirely impervious, with the exception of the undeveloped portion of the project site located on the corner of Cypress Avenue and Elm Street that is currently graded. According to BECSP EIR Figure 4.7-1(a), the proposed project site currently drains via sheet flow to existing storm drains within Sycamore Avenue, Ash Street, and Beach Boulevard. From the project site, runoff travels north or northwesterly into the existing East Garden Grove-Wintersburg Channel, which parallels Warner Avenue to the north. The runoff is then conveyed via the East Garden Grove-Wintersburg Channel into Orange County Flood Control District (OCFCD) facilities.

The proposed project site was identified in the BECSP EIR as being located in an area with existing storm drains that require upgrading (BECSP EIR Figure 4.7-1a [Existing Project Site Drainage Characteristics and Capacity Constraints (Northern)]).

BECSP EIR Figure 4.7-2 [Flood Zones], Federal Emergency Management Agency (FEMA) flood control map identifies the project site as being located within an area subject to flooding during a 500-year flood event (0.2 percent chance of occurring in any given year).¹⁴ The project site is located within the inundation zone for failure of the Prado Dam.

¹⁴ Federal Emergency Management Agency, Digital Flood Insurance Rate Map (DFIRM) (2004).

Soil and Groundwater Conditions

The perched (shallow) water table is high throughout the entire City of Huntington Beach. Most of the soils also cause water to percolate very slowly downward into deeper layers so that any water entering the soil tends to remain near the surface or in local ponds.¹⁵ Figure EH-3 of the City of Huntington Beach General Plan shows that the depth to groundwater at the project site is approximately 10 to 30 feet below ground surface (bgs), consistent with the findings of a Foundation Investigation prepared for the proposed project site in 1981 by Lerdy Crandall and Associates, which encountered groundwater at depths of 19 to 27 feet bgs.¹⁶

Regional Hydrology and Drainage

The City of Huntington Beach is located within the Santa Ana River Basin (SARB), a 2,800-square-mile area located roughly between Los Angeles and San Diego. The SARB is a group of connected inland basins and open coastal basins drained by surface streams flowing generally southwestward to the Pacific Ocean. The SARB can be divided into an upper basin and a lower basin. The project site is located within the lower basin drainage and surface flows are dominated by the flood control dam at El Prado. The Santa Ana River canyon, which separates Chino Hills from the Santa Ana Mountains, is the major drainage of Orange County. The lower Santa Ana River has been channelized and modified so that in most years flow does not reach the Pacific Ocean, but is used to recharge groundwater instead.

The project site is located within the Talbert/Greenville Banning Channel Watershed of the SARB and covers 21.4 square miles. The Talbert/Greenville Banning Watershed straddles the mouth of the Santa Ana River and has two main tributaries that drain into it. On the western side, the Talbert and Huntington Beach Channels drain through the Talbert Marsh before emptying into the Pacific Ocean. On the eastern side, the Greenville Banning Channel empties into the Santa Ana River. The project site is within the Huntington Beach Channel drainage area of the Talbert/Greenville Banning Channel Watershed.

The Orange County Flood Control District (OCFCD) is responsible for the design, construction, operation, and maintenance of regional flood control facilities. The County flood channels are maintained annually, and maintenance includes debris and vegetation removal. The existing storm drainage channels were originally designed to accommodate 25-year flood events or less, which was the standard at the time.¹⁷ However, when the channels were constructed, they were generally built to accommodate only 65 percent of the 25-year flood event. The channels were built with restrictive channel bottoms, which reduce the amount of water the channel can carry and slows the flow rate of runoff water. The County now uses 100-year flood event standards for new storm drain construction and drainage improvements, and portions of the existing channels have been improved to accommodate up to a 100-year flood event.

¹⁵ City of Huntington Beach, Hazards Chapter (Environmental Hazards), *City of Huntington Beach General Plan* (1996).

¹⁶ Lerdy Crandall and Associates, *Report on Foundation Investigation Proposed MOLA Office Complex* (April 14, 1981).

¹⁷ The 25-year flood event has a 4 percent chance of occurring in any given year. The 100-year flood event has a 1 percent chance of occurring in any given year.

Local Hydrology and Drainage

Drainage from within the City is conveyed through streets and gutters to City storm drain systems consisting of underground pipes, pump stations, and open channels, which ultimately route runoff into OCFCD facilities. The City owns and operates fifteen storm drainage channel pump stations that are generally located near principal Orange County drainage channels. Runoff is collected through the City's drainage facilities at each pump station, and then transferred to the nearest OCFCD channel, which ultimately conveys water to the Pacific Ocean. The City's channels, originally designed to accommodate up to 65 percent of the 25-year flood events, were typically constructed at ground level (or at-grade); however, the at-grade channels accelerate flooding potential because the amount of water that may be pumped into an at-grade channel is less than what can be pumped into a below-grade channel.

The Drainage Element of the *Citywide Urban Runoff Management Plan* (HB 2005a) incorporates a city-based Master Plan of Drainage (MPD), which is a comprehensive drainage study that identifies and creates an inventory of existing storm drain facilities; identifies those areas where system elements do not meet the latest goals established by the City; ranks the severity of the difference between existing capacity and the capacity needed to achieve those goals; prepares planning-level cost opinions for system upgrades; and recommends system improvements to initiate corrections as funding becomes available. The City then initiates individual drainage projects within its budgetary, political, and discretionary constraints. Hydrologic and hydraulic modeling has determined that several areas within the City's drainage system are undersized for the current storm flows and conveyance standards and are subject to potential flooding.

4.7.2 Regulatory Framework

Refer to Section 4.7.2 (Regulatory Framework) of the BECSP Program EIR, for applicable federal, state, and local regulations that would apply to the proposed project. No new regulations have been implemented since certification of the Program EIR.

The BECSP Development Code, which includes development standards, development regulations, and guidelines, governs all development actions with the BECSP area, including the proposed project site. The proposed project would be subject to development standards specific to the proposed project site's BECSP designation as a Neighborhood Center, included as BECSP Section 2.1.5 (Neighborhood Center).

■ General Plan and BECSP Consistency Analysis

Mitigation measures BECSP MM4.7-3 and BECSP MM4.7-4 would require implementation of an adequate stormwater conveyance system for development in accordance with the proposed project, consistent with General Plan Objective U3.1. Existing regulations for the prevention of pollutants in stormwater runoff during construction and operation of the proposed project including NPDES General Permit for Construction Activities and associated SWPPP; Municipal NPDES Permit and associated WQMP, DAMP, LIP; and, Municipal Code Chapter 17.05 Grading and Excavation Code would reduce the potential erosion within the project site, consistent with General Plan Objective 3.3.

Additionally, the City of Huntington Beach currently operates an Emergency Preparedness Program to prepare for and respond effectively to major emergencies. It establishes and maintains an Emergency Management System that coordinates preparedness, response, and recovery phases for natural disasters and homeland security emergencies. The City's comprehensive Emergency Management Program includes all elements necessary to respond quickly and effectively to major emergencies, including risks from dam failure inundation. Therefore, implementation of the proposed project would not conflict with applicable General Plan policies.

4.7.3 Project Impacts and Mitigation

This section provides a discussion of impacts related to hydrology and water quality based on the Appendix G of the 2010 CEQA Guidelines thresholds of significance, as follows:

- 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 that 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 that 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 that would result in flooding on or off site
- Create or contribute runoff water that 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 that 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
- Expose people or structures to inundation by seiche, tsunami, or mudflow
- Potentially impact stormwater runoff from construction activities
- Potentially impact stormwater runoff from post-construction activities
- Result in a potential for discharge of stormwater pollutants from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas, loading docks, or other outdoor work areas
- Result in the potential for discharge of stormwater to affect the beneficial uses of the receiving waters
- Create or contribute significant increases in the flow velocity or volume of stormwater runoff to cause environmental harm
- Create or contribute significant increases in erosion of the project site or surrounding areas

■ Stormwater Drainage, Runoff, Erosion, and Water Quality

The proposed project site is relatively flat with no distinct changes in elevation. The site is almost entirely impervious, with the exception of the undeveloped portion of the project site located on the corner of Cypress Avenue and Elm Street. Pursuant to information in the BECSP EIR, the proposed project site currently drains via sheet flow to an existing storm drain within Sycamore Avenue which ultimately routes runoff into Orange County Flood Control District (OCFCD) facilities. From the project site, runoff travels northwesterly into the existing East Garden Grove-Wintersburg Channel.

According to the BECSP EIR, the storm drain system serving the proposed project site is currently constrained for build out of the City's General Plan and may be constrained for existing conditions. As such, the BECSP EIR concluded that future development in the vicinity of the project site would have potentially significant impacts on both existing and planned storm drain systems. To address this, mitigation measures modified BECSP MM4.7-3 and BECSP MM4.7-4 are required to assess the contribution of a project to potential system capacity constraints and provide for construction of necessary upgrades such that potential impacts to storm drain system capacities would not be substantial. As required by modified BECSP MM4.7-3, a project specific Hydrology and Hydraulic Study would be prepared to identify the effects of potential stormwater runoff from the proposed development on the existing storm drain system. The modified BECSP MM4.7-3 also requires that site drainage be designed so as to not increase peak storm event flows over existing conditions for the design storm events. Additionally, BECSP MM4.7-4 requires that adequate capacity in the storm drain system is demonstrated to accommodate discharge from the proposed project.

BECSP EIR Figure 4.7-2 (Flood Zones), the Federal Emergency Management Agency (FEMA) flood control map, identifies the project site as being located within an area subject to flooding during a 500-year flood event (0.2 percent chance of occurring in any given year).¹⁸ However, mitigation measure BECSP MM4.7-4 requires the preparation of a hydrology and hydraulic analysis in order to identify the effects of potential stormwater runoff from the project site on the existing storm drain flows for the 10-, 25-, and 100-year design storm events.

Based on the findings of this analysis, project site drainage shall be designed so as to not increase peak storm event flows over existing conditions. As such, implementation of mitigation measures modified BECSP MM4.7-3 and BECSP MM4.7-4 would ensure that storm drain capacity is not exceeded as a result of the proposed project and impacts would be *less than significant*.

Construction

The proposed project would be subject to all existing regulations associated with the protection of water quality. The applicable waste discharge requirements (WDRs), the NPDES General Permit for construction activities, De Minimus Threat General Permit, and Municipal National Pollution Discharge Elimination System (NPDES) Permit are considered protective of water quality during construction and would, therefore, prevent a substantial violation of water quality standards and minimize the potential for contributing additional sources of polluted runoff during construction of the proposed project. These existing regulations, programs, and policies would ensure that the potential for discharge of polluted

¹⁸ Federal Emergency Management Agency, Digital Flood Insurance Rate Map (DFIRM) (2004).

stormwater from construction sites to affect beneficial uses of receiving waters and water quality standards, where applicable, would not be substantial. Implementation of existing regulatory requirements would ensure that on-site erosion and siltation are minimized and that construction of the proposed project would not result in the exceedance of water quality standards during construction.

Operation

Operation of the proposed project is anticipated to result in an increase in the amount of impervious surface at the project site compared to existing conditions, as a result of development occurring on the portion of the project currently undeveloped at the corner of Cypress Avenue and Elm Street. As such, implementation of the proposed project could increase the amount and concentration of pollutants in the annual stormwater runoff leaving the site, as compared to existing conditions. However, according to the BECSP EIR, conversion of the existing commercial uses on the project site to multifamily residential would likely result in lower pollutant concentrations in stormwater runoff compared to fully retail or commercial uses. Regardless, the proposed project would be subject to the City's standard conditions of approval to protect receiving water quality from long-term impacts of new development and significant redevelopment.

In accordance with the Drainage Area Management Plan (DAMP), the MS4 Permit (adopted May 2009), the City's Municipal Code (Chapter 14.25), and City's Local Implementation Plan (LIP), as well as mitigation measure BECSP MM4.7-1, the proposed project is required to develop and implement a project-specific WQMP that addresses appropriate stormwater quality best management practices (BMPs) and water quality management practices. Furthermore, pursuant to the BECSP, the proposed project is defined as a priority project and would be required to include both source control and treatment control BMPs, as well as Site Design BMPs and Low Impact Development (LID) principles, where applicable and feasible. A project-specific WQMP would be reviewed and approved by the City prior to receiving a Precise Grading permit for the proposed project.

Compliance with the existing regulatory requirements described above, as well as implementation of mitigation measure BECSP MM4.7-1, would ensure that construction and operation of the proposed project would not result in the violation of water quality standards and minimize the potential for contributing additional sources of polluted runoff. This impact would be *less than significant*.

■ Deplete Groundwater Supplies or Interfere with Groundwater Recharge

As shown in Figure EH-3 of the City of Huntington Beach General Plan, depth to groundwater at the proposed project site is approximately 10 to 30 feet bgs, which is consistent with the findings of a Foundation Investigation prepared for the proposed project site in 1981 by Lerdy Crandall and Associates, which encountered groundwater was at depths of 19 to 27 feet bgs.¹⁹ As such, the proposed subterranean parking could be located below the local groundwater table. In the event that permanent dewatering activities are necessary on the project site, the proposed project would require coverage under the De Minimis Threat General Permit or an individual WDR/ NPDES Permit, and consequently

¹⁹ Lerdy Crandall and Associates, *Report on Foundation Investigation Proposed MOLA Office Complex* (April 14, 1981).

would be subject to discharge quantity limitations, groundwater dewatering, and surface drainage. Additionally, the proposed project would be subject to mitigation measure BECSP MM4.7-2, which requires the preparation of a Groundwater Hydrology Study to determine if dewatering activities would interfere with nearby water supplies. This study shall also include recommendations on whether permanent groundwater dewatering is feasible. Implementation of mitigation measure BECSP MM4.7-2 and compliance with existing regulatory requirements would ensure that permanent groundwater dewatering does not cause or contribute to a lowering of the local groundwater table that would affect nearby water supply wells, such that impacts would be *less than significant*.

The project site is neither a designated groundwater recharge area nor does the project site serve as a primary source of groundwater recharge. The City of Huntington Beach has two recharge facilities, the Talbert and Alamitos Barriers; neither of which would be impacted by the proposed project. Therefore, the potential for a reduction in groundwater recharge due to the proposed project would be negligible and would not affect City groundwater wells, resulting in a *less than significant* impact.

■ Alter Existing Drainage Patterns

Implementation of the proposed project would not substantially alter the existing drainage pattern of streams or rivers and would not result in off-site erosion hazards. The project site is located within an entirely urbanized area and would discharge to the City streets, underground storm drain systems, and ultimately to fully designed and improved open flood control channels. The project site is almost entirely developed with the exception of the undeveloped lot on the corner of Cypress Avenue and Elm Street. As such implementation of the proposed project would increase the amount of impervious surfaces on the project and potentially increase the amount of runoff. However, this potential impact would be addressed through implementation of mitigation measure BECSP MM4.7-4 that requires adequate storm drain capacity to be demonstrated and if capacity is not sufficient, corrective action would be taken. Although the proposed project would increase the amount of runoff from the site, there would be no increase in off-site erosion because the project site does not discharge to susceptible storm drainage features and would be considered substantially impervious, without the loss of topsoil. There would be no effect of increased flow rates or volumes on off-site erosion. This impact is considered *less than significant*.

■ Flood Hazard Areas and Flooding

The proposed project site is not located within a 100-year flood hazard area. As such, *no impact* associated with risks to people or structures from placement of housing or structures within a flood hazard area would occur.

The City of Huntington Beach is located in the lower basin of the Santa Ana River Basin. The lower basin is protected from flooding by Prado Dam, which is located 27 miles northeast of the City in Riverside County. The northern portion of the Corridor is located within the inundation area of the Prado Dam. Recently completed channel modifications along the Santa Ana River from Prado Dam to the Pacific Ocean would provide protection from inundation in the event of dam failure. Therefore, the possibility of significant risk of loss, injury, or death from flooding would be negligible and impacts would be *less than significant*.

■ Inundation by Seiche, Tsunami, or Mudflow

Tsunamis are large sea waves generated by submarine earthquakes, or similar large-scale, short-duration phenomena, such as volcanic eruptions, that can cause considerable damage to low-lying coastal areas. The proposed project site is not located in an identified tsunami run-up area.

Seiches are waves, also caused by large-scale, short-duration phenomena, that result from the oscillation of confined bodies of water (such as reservoirs and lakes) that also may damage low-lying adjacent areas, although not as severely as a tsunami. Due to the lack of the presence of enclosed bodies of water in the vicinity of the subject site, seiches are not considered to be a seismic hazard to the project site.

Mudflow hazards typically occur where unstable hillslopes are located above gradient, where site soils are unstable and subject to liquefaction, and when substantial rainfall saturates soils causing failure. The proposed project has no potential for slope instability. The surrounding area is relatively flat with no pronounced slopes, and there are no known landslides near the project site nor is the project site in the path of any known or potential landslides. Therefore, the proposed project would result in a less than significant impact due to seiche, tsunami, or mudflow.

As potentially significant impacts related to hydrology and water quality would be mitigated through implementation of mitigation measures BECSP MM4.7-1 through BECSP MM4.7-4 and all impacts were determined to be less than significant in this or the BECSP EIR analysis, impacts of the proposed project to hydrology and water quality would be *less than significant*.

Applicable Mitigation of the BECSP EIR

BECSP MM4.7-1 City of Huntington Beach shall require Applicants for new development and significant redevelopment projects within the Specific Plan area, including the proposed project, to prepare a project Water Quality Management Plan (WQMP) in accordance with the DAMP requirements and measures described below and with all current adopted permits. The WQMP shall be prepared by a Licensed Civil Engineer and submitted for review and acceptance prior to issuance of a Precise Grading or Building permit.

BMPs in the WQMP shall be designed in accordance with the Municipal NPDES Permit, Model WQMP, Technical Guidance Documents, DAMP, and City of Huntington Beach LIP. As noted in the Specific Plan, all development projects shall include site design and source control BMPs in the project WQMP. Additionally, new development or significant redevelopment projects and priority projects shall include LID principles to reduce runoff to a level consistent with the maximum extent practicable and treatment control BMPs in the WQMP.

If permanent dewatering is required and allowed by the City, the developer shall submit an application to RWQCB and follow the procedures as stated in Order No R8-2009-0003. The Applicant shall include a description of the dewatering technique, discharge location, discharge quantities, chemical characteristics of discharged water, operations and maintenance plan, and WDID number for proof of coverage under the De Minimus Threat General Permit or copy of the individual WDR in the WQMP. Additionally, the WQMP shall incorporate any additional BMPs as required by the City Public Works Department.

The WQMP shall include the following additional requirements:

Project and Site Characterization Requirements

- *Entitlement Application numbers and site address shall be included on the title sheet of the WQMP*
- *In the project description section, explain whether proposed use includes on-site food preparation, eating areas (if not please state), outdoor activities to be expected, vehicle maintenance, service, washing cleaning (if prohibited on-site, please state)*
- *All potential pollutants of concern for the proposed project land use type as per Table 7.II-1 of the Orange County Model Water Quality Management Plan shall be identified*
- *A narrative describing how all potential pollutants of concern will be addressed through the implementation of BMPs and describing how site design BMP concepts will be considered and incorporated into the project design shall be included*
- *Existing soil types and estimated percentages of perviousness for existing and proposed conditions shall be identified*
- *In Section I of the WQMP, state verbatim the Development Requirements from the Planning Department's letter to the Applicant*
- *A site plan showing the location of the selected treatment control BMPs and drainage areas shall be included in the WQMP*
- *A Geotechnical Report shall be submitted to address site conditions for determination of infiltration limitations and other pertinent characteristics.*

Project-Based Treatment Control BMPs

- *Infiltration-type BMPs shall not be used unless the Geotechnical Report states otherwise. Depth to seasonal high groundwater is determined to provide at least a 10-foot clearance between the bottom of the BMP and top of the water table.*
- *Wet swales and grassed channels shall not be used because of the slow infiltration rates of project site soils, the potentially shallow depth to groundwater, and water conservation needs*
- *If proprietary Structural Treatment Control devices are used, they shall be sited and designed in compliance with the manufacturers design criteria*
- *Surface exposed treatment control BMPs shall be selected such that standing water drains or evaporates within 24 hours or as required by the County's vector control*
- *Excess stormwater runoff shall bypass the treatment control BMPs unless they are designed to handle the flow rate or volume from a 100-year storm event without reducing effectiveness. Effectiveness of any treatment control BMP for removing the pollutants of concern shall be documented via analytical models or existing studies on effectiveness.*
- *The project WQMP shall incorporate water efficient landscaping using drought tolerant, native plants in accordance with Landscape and Irrigation Plans as set forth by the Applicant (see below)*
- *Pet waste stations (stations that provide waste pick-up bags and a convenient disposal container protected from precipitation) shall be provided and maintained*
- *Building materials shall minimize exposure of bare metals to stormwater. Copper or Zinc roofing materials, including downspouts, shall be prohibited. Bare metal surfaces shall be painted with non-lead-containing paint*

The following BMPs shall not be used because they have not been shown to be effective in many situations. Therefore, unless sufficient objective studies and review are available and supplied with the WQMP to correctly size devices and to document expected pollutant removal rates the WQMP shall not include:

- *Hydrodynamic separator type devices as a BMP for removing any pollutant except trash and gross particulates*
- *Oil and Grit separators*

Any Applicant proposing development in the Specific Plan Area is encouraged to consider the following BMPs:

- *Sand filters or other filters (including media filters) for rooftop runoff*
- *Dry swales. A dry swale treatment system could be used if sufficient area, slope gradient, and length of swale could be incorporated into the project design. Dry swales could remove substantial amounts of nutrients, suspended solids, metals, and petroleum hydrocarbons*
- *Other proprietary treatment devices (if supporting documentation is provided)*

Nonstructural BMPs

The WQMP shall include the following operations and maintenance BMPs under the management of an applicant or property manager, where applicable. The Applicant shall fund and implement an operational and maintenance program that includes the following:

- *The Applicant shall dictate minimum landscape maintenance standards and tree trimming requirements for the total project site. Landscape maintenance shall be performed by a qualified landscape maintenance company or individual in accordance with a Chemical Management Plan detailing chemical application methods, chemical handling procedures, and worker training. Pesticide application shall be performed by a certified applicator. No chemicals shall be stored on-site unless in a covered and contained area and in accordance with an approved Materials Management Plan. Application rates shall not exceed labeled rates for pesticides, and shall not exceed soil test rates for nutrients. Slow release fertilizers shall be used to prevent excessive nutrients in stormwater or irrigation runoff.*
- *The Applicant or property manager shall have the power and duty to establish, oversee, guide, and require proper maintenance and tree trimming procedures per the ANSI A-300 Standards as established by the International Society of Arborist. The Applicant or property manager shall require that all trees be trimmed by or under the direct observation/ direction of a licensed/ certified Arborist for the entire area. The Applicant shall establish minimum standards for maintenance for the total community, and establish enforcement thereof for the total community. The property manager shall rectify problems arising from incorrect tree trimming, chemical applications, and other maintenance within the total community.*
- *Landscape irrigation shall be performed in accordance with an Irrigation Management Plan to minimize excess irrigation contributing to dry- and wet-weather runoff. Automated sprinklers shall be used and be inspected at least quarterly and adjusted yearly to minimize potential excess irrigation flows. Landscape irrigation maintenance shall be performed in accordance with the approved irrigation plans, the City Water Ordinance and per the City Arboricultural and Landscape Standards and Specifications.*
- *Proprietary stormwater treatment systems maintenance shall be in accordance with the manufacturer's recommendations. If a nonproprietary treatment system is used, maintenance shall be in accordance with standard practices as identified in the current CASQA (2003)*

handbooks, operations and maintenance procedures outlined in the approved WQMP, City BMP guidelines, or other City-accepted guidance.

- Signage, enforcement of pet waste controls, and public education would improve use and compliance, and therefore, effectiveness of the program, and reduce the potential for hazardous materials and other pollution in stormwater runoff. The Applicant shall prepare and install appropriate signage, disseminate information to residents and retail businesses, and include pet waste controls (e.g., requirements for pet waste cleanup, pet activity area restrictions, pet waste disposal restrictions) in the any agreement, tenant lease (regarding rental property) or Conditions, Covenants, and Restrictions (regarding for-sale property).
- Street sweeping shall be performed at an adequate frequency to prevent build up of pollutants (see <http://www.fhwa.dot.gov/environment/ultraurb/uubmp3p7.htm> / for street sweeping effectiveness).
- The Applicant shall develop a maintenance plan for BMPs and facilities identifying responsible parties and maintenance schedules and appropriate BMPs to minimize discharges of contaminants to storm drain systems during maintenance operations.
- Reporting requirements: the Applicant or property manager shall prepare an annual report and submit the annual report to the City of Huntington Beach documenting the BMPs operations and maintenance conducted that year. The annual report shall also address the potential system deficiencies and corrective actions taken or planned.

Site Design BMPs

Any Applicant proposing development in the Specific Plan Area is required to incorporate LID principles as defined in the Municipal NPDES Permit and is encouraged to consider the following BMPs, if allowed in accordance with the Geotechnical Report and limitations on infiltration BMPs:

- Use of porous concrete or asphalt (if acceptable to the Geotechnical Engineer and where infiltration will not adversely affect groundwater) or other pervious pavement for driveways, paths, sidewalks, and courtyards/open space areas, to the maximum extent practicable, would reduce pollutants in stormwater runoff as well as provide some detention within the material void²⁰ space. If porous paver blocks are used, they shall be adequately maintained to provide continued porosity (effectiveness)
- Incorporation of rain gardens or cisterns to reuse runoff for landscape irrigation
- Green roofs to reduce runoff and treat roof pollutants
- Site design and landscape planning to group water use requirements for efficient irrigation

BECSP MM4.7-2 The City of Huntington Beach shall require that any Applicant prepare a Groundwater Hydrology Study to determine the lateral transmissivity of area soils and a safe pumping yield such that dewatering activities do not interfere with nearby water supplies. The Groundwater Hydrology Study shall make recommendations on whether permanent groundwater dewatering is feasible within the constraints of a safe pumping level. The Applicant's engineer of record shall incorporate the Hydrology Study designs and recommendations into project plans. If groundwater dewatering is determined allowable by the City, the Applicant shall submit an application to the RWQCB for dewatering purposes, per the De Minimis Permit Number R8-2009-0003. If safe groundwater dewatering is determined to not be feasible, permanent groundwater dewatering shall not be implemented. The City Director of Public Works, OCWD, and other regulatory agencies shall approve or disapprove any

²⁰ Void space is the empty space between individual particles.

permanent groundwater dewatering based on the Groundwater Hydrology Study and qualified Engineers' recommendations.

Mitigation measure BECSP MM4.7-3 has been modified to reflect the existing and proposed site characteristics, as well as the specific hydrologic conditions of the proposed project site and the Huntington Beach Channel.

BECSP MM4.7-3 The City of Huntington Beach shall require that the Applicant's Licensed Civil Engineer for each site-specific development prepare a Hydrology and Hydraulic Study to identify the effects of potential stormwater runoff from the specific development on the existing storm drain flows for the 10-, 25-, and 100-year design storm events. The drainage improvements shall be designed and constructed as required by the Department of Public Works to mitigate impact of increased runoff due to development, or deficient, downstream systems. Design of all necessary drainage improvements shall provide mitigation for all rainfall event frequencies up to a 100-year frequency. The Applicant shall design site drainage and document that the proposed development would not increase peak storm event flows over pre-1986 Qs, which must be established by the hydrology study. If the analyses shows that the City's current drainage system cannot meet the volume needs of the project runoff, the applicant shall be required to attenuate site runoff to an amount not to exceed the 25-year storm as determined using pre-1986 criteria. As an option, the applicant may choose to explore low-flow design alternatives, downstream attenuation or detention, or upgrade the City's stormwater system to accommodate the impacts of the new development, at no cost to the City. The Hydrology and Hydraulic Study shall also incorporate all current adopted Municipal NPDES Permit and City requirements for stormwater flow calculations and retention/detention features in effect at the time of review.

BECSP MM4.7-4 The City of Huntington Beach shall require that adequate capacity in the storm drain system is demonstrated from the specific development site discharge location to the nearest main channel to accommodate discharges from the specific development. If capacity is demonstrated as adequate, no upgrades will be required. If capacity is not adequate, the City of Huntington Beach shall identify corrective action(s) required by the specific development Applicant to ensure adequate capacity. Corrective action could include, but is not limited to:

- *Construction of new storm drains, as identified in the MPD or based on the Hydrology and Hydraulic Study, if the Hydrology and Hydraulic Study identifies greater impacts than the MPD*
- *Improvement of existing storm drains, as identified in the MPD or based on the Hydrology and Hydraulic Study, if the Hydrology and Hydraulic Study identifies greater impacts than the MPD*
- *In-lieu fees to implement systemwide storm drain infrastructure improvements*
- *Other mechanisms as determined by the City Department of Public Works.*
- *For nonresidential areas, if redevelopment would result in an impervious fraction of less than 0.9 and does not increase the directly connected impervious area compared to existing conditions, runoff is expected to remain the same or less than as assessed in the MPD and only MPD improvements would be required.*

Because some storm drain system constraints may be located far downgradient from the actual development site, several properties may serve to contribute to system capacity constraints. Therefore, the City Department of Public Works shall assess each site development and system characteristics to

identify the best method for achieving adequate capacity in the storm drain system. Drainage assessment fees/districts to improve/implement storm drains at downstream locations or where contributing areas are large are enforced through Municipal Code (Section 14.20).

The City Department of Public Works shall review the Hydrology and Hydraulic Study and determine required corrective action(s) or if a waiver of corrective action is applicable. The site-specific development Applicant shall incorporate required corrective actions into their project design and/or plan. Prior to receiving a Certificate of Occupancy or final inspection, the City Department of Public Works shall ensure that required corrective action has been implemented.

4.7.4 Cumulative Impacts

Project-related impacts for environmental issue areas that did not require substantial additional analysis from what was provided in the BECSP EIR are considered to be less than significant with mitigation. In addition, the proposed project would not result in impacts different from or greater than previously analyzed in the BECSP EIR. Therefore, additional cumulative impact analysis is not required for these issue areas, including Hydrology and Water Quality.

4.7.5 References

- Federal Emergency Management Agency (FEMA), Digital Flood Insurance Rate Map (DFIRM), 2004.
- Huntington Beach, City of. *Beach and Edinger Corridors Specific Plan Environmental Impact Report*, November 2009.
- . *City of Huntington Beach General Plan*, May 13, 1996.
- Lerdy Crandall and Associates, *Report on Foundation Investigation Proposed MOLA Office Complex*, April 14, 1981.

