

### 5.8 HYDROLOGY AND WATER QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the hydrology and water quality impacts in the City of Malibu from implementation of the proposed Crummer Site Subdivision project. Hydrology deals with the distribution and circulation of water, both on land and underground, and water quality deals with the quality of surface and groundwater resources. The analysis presented in this section is based, in part, on the Geotechnical Studies referenced in Section 5.5, *Geology and Soils*, and on the on the following technical studies:

- *Hydrology Study for Malibu Bluffs Crummer Site*, Psomas, January 21, 2009.
- *Geotechnical Evaluation of Proposed Onsite Wastewater Treatment System, Proposed Residential Development “Crummer Site”, 24200 Pacific Coast Highway, APN 4458-018-019, City of Malibu, California*, Leighton and Associates Inc., September 21, 2009.
- *Hydrogeological/ Treated Water Mounding Report for the Proposed Malibu Bluffs Residential Development at 24200 Pacific Coast Highway (aka Crummer Site), APN 4458-018-019, Malibu, California*, Earth Consultants International, September 21, 2009.
- *Response to City of Malibu Comments on Earth Consultants International Report Entitled “Hydrogeological/Treated Water Mounding Report for the Proposed Malibu Bluffs Residential Development at 24120 (aka 24200) Pacific Coast Highway (aka Crummer Site), APN 4458-018-019, TTM 07-003, Malibu, California” dated September 21, 2009,* Earth Consultants International, March 7, 2012.
- *The EDR Radius Map Report with GeoCheck. Crummer Site. 24120 Pacific Coast Highway, Malibu CA 90265.* Environmental Data Resources Inc. (EDR), July 29, 2008.
- *Percolation Test Report, 24200 Pacific Coast Hwy, Malibu, CA 90265*, Lawrence Young, September 12, 2008.
- *Conformance Review, 24200 Pacific Coast Hwy, Malibu, CA 90265*, Lawrence Young, May 19, 2010.
- *Proposed Wastewater Treatment System Design Intent for Malibu Crummer Site, 24120 (aka 24200) Pacific Coast Highway, TTM 07-003.* Ensitu Engineering Inc., March 7, 2012.
- *City of Malibu Environmental Health Review Sheets*, City of Malibu, 2007-2012

Complete copies of these studies are included Appendix N this Draft EIR.

#### 5.8.1 Environmental Setting

##### Climate and Precipitation

The climate in the vicinity of the project site is typified by warm, dry summers and wetter winters. Average annual rainfall between 1968 and 2012 was 16.1 inches at the Los Angeles County Rainfall Station 1239 at Big Rock Mesa (Fugro 2012). Infrequent storms are capable of releasing large amounts of precipitation in a short period of time.



# Environmental Analysis

## HYDROLOGY AND WATER QUALITY

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### Hydrologic Conditions

#### Watershed and Regional Drainage

A watershed is the geographic area draining into a river system, ocean, or other body of water through a single outlet and includes the receiving waters. Watersheds are usually bordered and separated from other watersheds by mountain ridges or other elevated areas.

The project area lies in the Winter Canyon Watershed, which is shown in Figure 5.8-1, *Winter Canyon Watershed*. Winter Canyon is a small local watershed of about 150 acres that extends approximately 1.3 miles northward from the coast to the local mountains. The primary surface water flow is from Winter Canyon Creek, which is an intermittent stream within the watershed. The Winter Canyon Watershed is divided into a steep upper bedrock channel and a more gently sloping coastal plain area starting south of Malibu Road, with an overall relief of 1,325 feet.

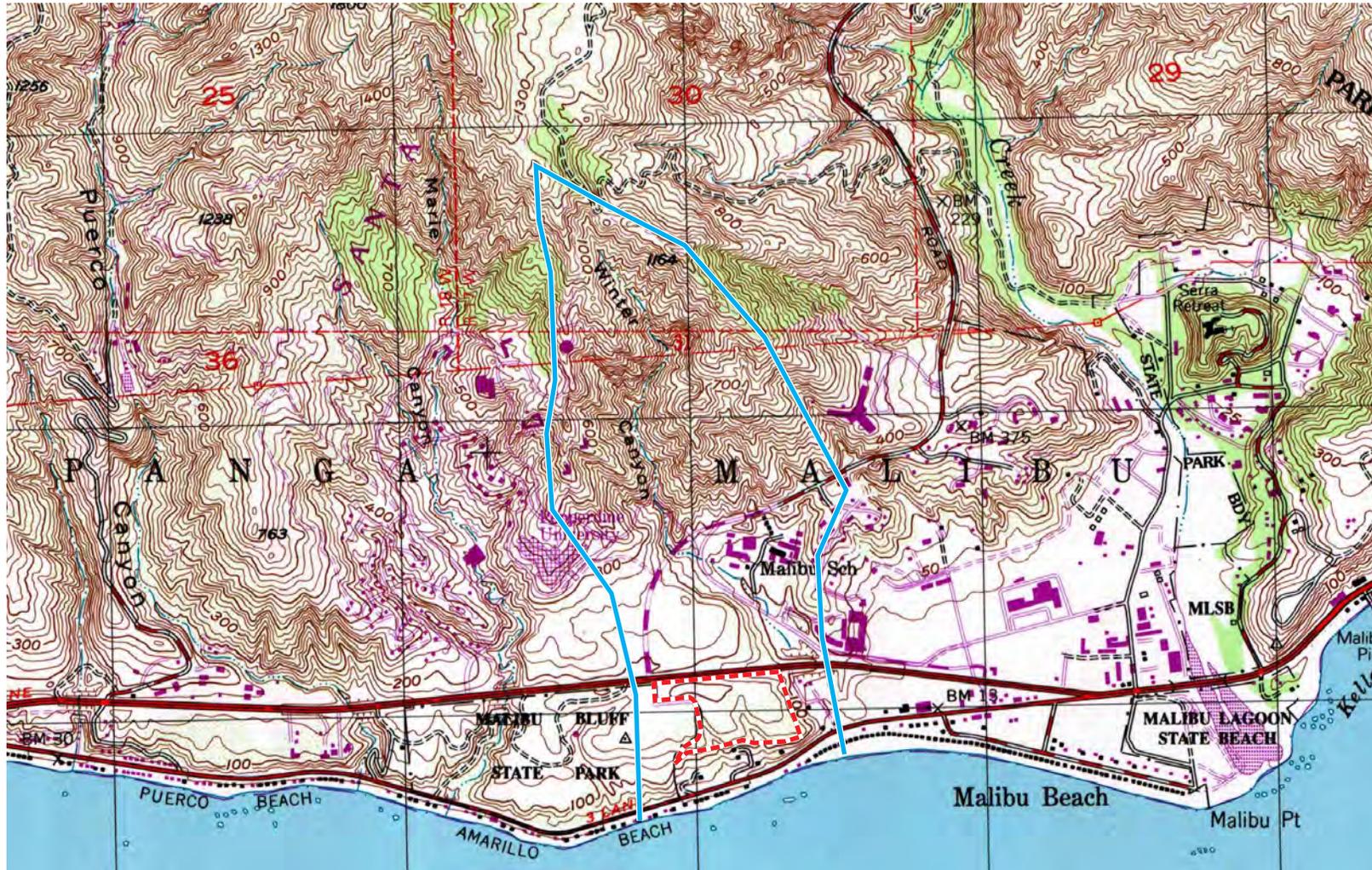
The Los Angeles County Flood Control District is responsible for the construction and maintenance of the county storm drain systems, which consist of pipelines, catch basins, manholes, open channels, and detention basins. This section discusses stormwater drainage in the vicinity of the site from the Winter Canyon Watershed, as seen in Figure 5.8-2, *Regional Drainage*.

The Winter Canyon Watershed trends north–south, and the lower reaches of the drainage have been altered over the years by various flood control measures. Surface runoff from the area of Winter Canyon north of Pacific Coast Highway (PCH) flows southward, passing through a 6-foot by 7-foot reinforced concrete box (RCB), or large culvert, that conveys water beneath PCH. The stormwater then enters an unimproved drainage channel. In addition, a portion of the surface runoff from the northeast portion of the Winter Canyon area south of PCH flows into this drainage channel. Surface flows from this channel eventually enter the Winter Canyon drainage channel, an existing Los Angeles County storm drain approximately 300 feet east of the project site and approximately 140 feet north of Malibu Road. This storm drain passes beneath Malibu Road and eventually discharges into the Pacific Ocean. The rest of the surface runoff from the Winter Canyon Watershed south of PCH drains via sheet flow and natural drainage channels to the south and eventually onto Malibu Road and into the existing storm drain system. The surface runoff that collects in the Winter Mesa Drive cul-de-sac drains into a catch basin and storm drain piping that outlets near the head of the canyon south of the City’s maintenance building at Bluffs Park.

#### Project Area Drainage

The project site is located on a coastal wave-cut terrace known as Winter Mesa, immediately west of Winter Canyon and north of the Pacific Ocean. The majority of the site is gently sloping, and steeper slopes descend from the site to the north, east, and south. The southern slope descends down to a terraced area bordering the Pacific Ocean that is currently occupied by Malibu Road and numerous residential structures.

# Winter Canyon Watershed



- Site Boundary
- Winter Canyon Watershed

Rivers



Source: USGS Malibu Beach Quadrangle, CA 1995

Crummer Site Subdivision Draft EIR

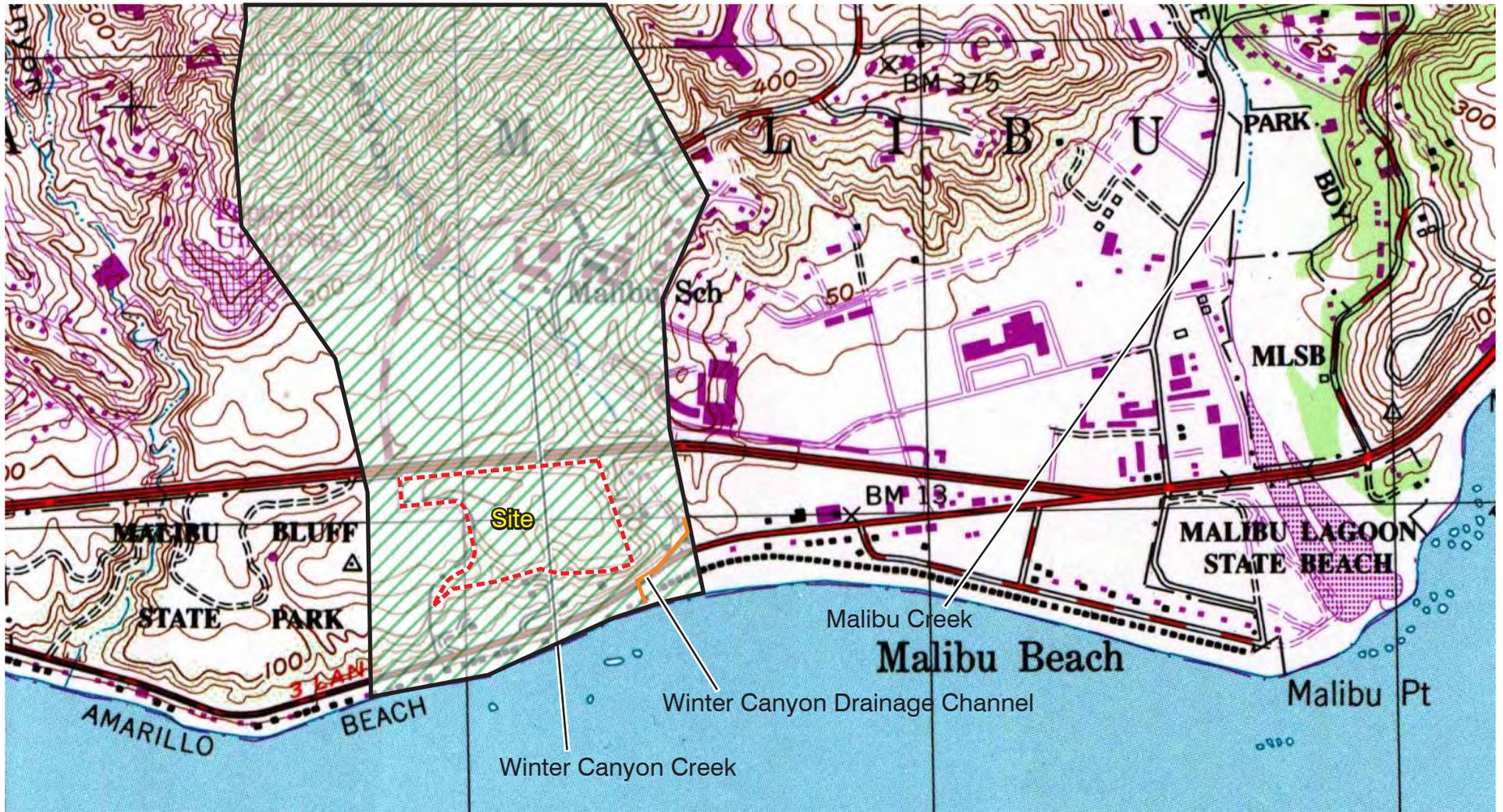
# Environmental Analysis

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## HYDROLOGY AND WATER QUALITY

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# Regional Drainage



-  Site Boundary
-  Winter Canyon Watershed

Source: USGS Malibu Beach Quadrangle, CA 1995

Crummer Site Subdivision Draft EIR



Environmental Analysis  
HYDROLOGY AND WATER QUALITY

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## 5. Environmental Analysis

### HYDROLOGY AND WATER QUALITY

Currently, drainage for the project site is via overland (sheet) flow. Surface runoff from the site generally flows to the south and eventually into two minor drainage channels, which eventually discharge to the public storm drain system within Malibu Road before ultimately discharging into the Pacific Ocean. Portions of the existing site drain to the south via sheet flow over the bluffs and through the adjacent residential developments to the south before connecting to the existing public storm drain system. Surface runoff that collects in the existing Winter Mesa Drive cul-de-sac drains into the canyon below via an existing catch basin in Winter Mesa Drive and a storm drain pipe which outlets behind the existing maintenance building near the head of the canyon. The very northern portion of the site drains toward PCH over the northern slopes, and approximately 5.3 acres of surface runoff from the eastern portion of the site drains onto the adjacent AZ Winter Mesa towing site subdivision site to the east. The project site drainage pattern is illustrated in Figure 5.8-3, *Project Site Drainage*.

#### Water Resources

##### Surface Water

Malibu Creek and its tributaries form the principal surface drainage system in the area. Surface water from Malibu Creek flows south to Malibu Lagoon and eventually into the Pacific Ocean. Intermittent flows from Winter Canyon Creek Watershed discharge into Winter Canyon and the Winter Canyon drainage channel, which is approximately 300 feet east of the site.

The quality of receiving waters (i.e., streams, creeks, and ditches within the Winter Canyon Watershed and adjacent Malibu Creek and Corral Canyon Watersheds) is affected by both point and nonpoint sources. A point-source discharge enters receiving waters at a specific location and can be sampled regularly, such as the effluent discharge from Tapia Wastewater Treatment Plant. Stormwater and urban runoff are examples of nonpoint sources.

##### Groundwater

The project site is not in any designated groundwater basin; it is just west of the Malibu Valley Groundwater Basin, which is part of the South Coastal Hydrologic Region (DWR 2003). There are two potential water-bearing zones at the project site:

- Temporary perched water conditions may occur in localized areas in the upper soil materials (i.e., artificial fill and terrace deposits) following heavy rainfall. However, no groundwater was encountered in these materials during recent investigations at the site (Leighton & Associates, 2009).
- Groundwater was encountered at the site within the Monterey Formation bedrock, which is highly fractured, thinly bedded siltstone, shale, and fine-grained sandstone. Groundwater depths ranged from 71.5 to 139 feet below ground surface (bgs) in soil borings advanced at the site and between 65.4 and 143 feet bgs in groundwater monitoring wells installed at the site (Leighton & Associates, 2009).

Sources of groundwater recharge include the onsite wastewater treatment system (OWTS), the intermittent Winter Canyon Creek, irrigation return, upland runoff, and precipitation. Areas where groundwater discharges to the surface include discharge to the ocean and to a lesser extent, evapotranspiration from vegetation. Groundwater at the site generally flows to the southeast, with a groundwater elevation of 140 feet above mean sea level (msl) in the northwest corner of the site (LMW-6) to 12.4 feet msl in the southeast corner of the site (LMW-3).



# Environmental Analysis

## HYDROLOGY AND WATER QUALITY

### Water Quality

#### Surface Water Quality

As previously stated, the project site is within the Winter Canyon Watershed. More specifically, stormwater runoff with best management practices from the project site would be temporarily detained onsite before eventual discharge to the public storm drain system along Pacific Coast Highway, Malibu Road, and the Winter Canyon drainage channel east of the site, with ultimate discharge into the Pacific Ocean.

The beneficial uses of the downstream receiving water body, the Pacific Ocean, include contact and noncontact water recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance; fish migration and spawning; and shellfish harvesting.

General water quality objectives have been prescribed in the California Ocean Plan (SWRCB 2005). Brief summaries of these objectives are provided in Table 5.8-1.

**Table 5.8-1**  
**Water Quality Objectives for Ocean Waters of California**

Element	Objective
Algae	Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.
Bacteria, Coliform	For REC-1 designation, fecal coliform 30-day geometric mean concentration shall not exceed 200 MPN/100ml; for SHEL designation, median total coliform concentration shall not exceed 70 MPN/100ml.
Color	The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface. Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.
Floating Material	Floating particulates shall not be visible.
Natural Light	Discharge of waste shall not significantly reduce natural light outside the initial dilution zone.
Oil and Grease	Grease and oil shall not be visible.
Oxygen, Dissolved (DO)	Dissolved oxygen levels shall not be depressed more than 10 percent from that which occurs naturally.
pH	The pH shall not vary more than 0.2 units from that which occurs naturally.
Radioactive Substances	The discharge of radioactive waste shall not degrade marine life.
Solid, Suspended, or Settleable Materials	The deposition of solids or their characteristics shall not change ocean sediments such that benthic communities are degraded.
Sulfides	Dissolved sulfide concentrations shall not be increased significantly above natural conditions.
Toxicity	Toxic substances shall be at or below concentrations specified in Table B of the Ocean Plan to protect marine aquatic life and human health.

Source: California Ocean Plan, SWRCB, 2005.

5. Environmental Analysis  
**Project Site Drainage**



- - - Site Boundary
- ➔ Drainage Flow Lines

0  500  
 Scale (Feet)



Source: Google Earth Pro 2007

Environmental Analysis  
HYDROLOGY AND WATER QUALITY

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## 5. Environmental Analysis

### HYDROLOGY AND WATER QUALITY

Based on the Section 303(d) list of Water Quality Limited Segments, Malibu Beach is an impaired water body for DDT and fecal indicator bacteria (SWRCB 2006). The Los Angeles Regional Water Quality Control Board (RWQCB) has determined that elevated bacterial indicator densities are causing impairment of the water contact recreation at Malibu Creek, Malibu Lagoon, and adjacent beaches. These areas are classified REC-1, which is a state defined beneficial use classification for a water body involving body contact with water where ingestion of water is reasonably possible. Fecal coliform bacteria may be introduced from a variety of sources, including stormwater runoff, dry weather runoff, OWTS, and animal wastes. Currently, there are total maximum daily load (TMDL) allocations for all beaches on Santa Monica Bay, including Malibu Beach. The TMDL has a multipart numeric target based on the bacteriological water quality objectives for marine waters to protect the water contact recreation use. Waste load allocations are expressed as allowable exceedance days, which are defined as number of daily or weekly sample days that may exceed single sample targets. The TMDLs allow 17 exceedance days a year during wet weather days, 3 exceedance days during the dry winter days (November 1 to March 31), and no exceedance days during dry summer days (April 1 to October 31). Santa Monica Bay also has multiple adopted TMDLs: Santa Monica Bay Beaches Dry Weather Bacteria TMDL, Santa Monica Bay Wet Weather Bacteria TMDLs, and multiple Implementation Plan amendments.

Ground Water Quality According to the Malibu General Plan (1995), the primary factors that affect the presence of groundwater in Malibu areas are seasonal and annual precipitation patterns, topography, soil and rock permeability, and faults. Many of the rock formations within the City are not conducive in holding groundwater. Groundwater can be found along the coast in alluvium, beach deposits, and terrace deposits at a depth of only a few feet, but depth of groundwater increases in the consolidated rock of inland areas and can reach several hundred feet. The dominant source of groundwater recharge in the City is groundwater flow from the upper portions of the watersheds. Other sources of recharge include more localized percolation of rainfall, streamflow, irrigation runoff, and septic system disposal (Malibu General Plan, 1995). As the City of Malibu's water is supplied by a water main from the Los Angeles County Waterworks District 29, Malibu is not dependent on groundwater resources for its water supply. However, the Basin Plan includes a Municipal and Domestic Supply (MUN) designation of "potentially beneficial use" for Malibu Valley groundwater.



#### **Flood Hazards**

##### **Flood Zones**

Historically, the City of Malibu has been susceptible to major storms, as are most California coastal communities. Localized flooding occurs along the coast, in Malibu Lagoon, and in Malibu Creek during peak storm events. The Federal Emergency Management Agency (FEMA) provides information on flood hazard and frequency for cities and counties, based on its Flood Insurance Rate Maps (FIRMs). FEMA identifies designated zones to indicate flood hazard potential. The project site does not lie in a 100-year flood zone according to FIRM Map No. 06037C1537F.

##### **Mud and Debris Flows**

Mud and debris flows are mass movements of sediment, rock, and debris that can occur after intense rainfall, earthquakes, and/or severe wildfires. The velocity of a mud or debris flow is influenced by factors such as the amount and intensity of precipitation; slope steepness; magnitude and duration of seismic shaking; extent and nature of vegetation; and presence of pre-existing drainage channels or pathways. The project site lies on a coastal wave-cut terrace, and the site and surrounding area are periodically subject to wildfires and the attendant loss of vegetation. However, the topographic relief upslope of the site, to the north across PCH, is modest, and there do not appear to be any significant pre-existing drainage channels or pathways that would direct mudflows or debris flows onto the site. The foothills of the Santa Monica Mountains are approximately one-quarter mile north from the project site. Significant mud or debris flows that develop along that mountain front are more likely to follow existing drainages,

# Environmental Analysis

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## HYDROLOGY AND WATER QUALITY

such as Winter Canyon to the east of the site or Marie Canyon or Puerco Canyon to the west of the site. Furthermore, no signs of deep-seated landslide or debris flow were noted during recent field investigations at the site (Leighton and Associates 2007). For these reasons, it is concluded that mud and debris flows are unlikely to impact the project site.

The south and east boundaries of the project site are characterized by moderately steep, descending slopes that are discussed in greater detail in Section 5.4, *Geology and Soils*. Recent fires have burned significant amounts of the vegetation that once was present along these slopes, as well as varying amounts of the vegetation on the south and north slopes. The slopes were heavily vegetated in most areas prior to the fires. Since the fires, vegetation has grown to again cover the affected areas.

### Historical Pollutant Sources

The project site is currently vacant and has been subject to weed abatement activities in the past. According to historical aerial photographs, only the northwestern portion of the proposed project site was previously developed—with a baseball field. The project site is not listed on any hazardous material databases, according to the site-specific EDR report. The nearest site, Webster Elementary School, located at 3602 Winter Canyon Road, where there has been a historical release of a hazardous substance is more than one-quarter mile north of the site, and the case was closed.

### Regulatory Setting

Local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized in this section. They are designed to achieve regional water quality objectives and thereby protect the beneficial uses of the region's surface and groundwater.

### Federal

#### *The National Pollutant Discharge Elimination System*

The State Water Resources Control Board administers the National Pollutant Discharge Elimination System (NPDES) program, with assistance from local jurisdictions. All construction projects of one acre or more are required to submit for approval of a Notice of Intent to be covered under the Storm Water Permit, in compliance with the NPDES program. In addition, projects are required to develop and implement a Storm Water Pollution Prevention Plan (SWPPP), incorporating best management practices that minimize erosion and subsequent pollution of nearby waterways during construction and operation of a project.

Municipal discharges of stormwater runoff are regulated under the NPDES General Permit for Municipal Separate Storm Sewer Systems (MS4). The SWRCB issued an MS4 permit (NPDES No. CAS004001) to the Los Angeles County Flood Control District and its 84 incorporated cities, including the City of Malibu. The permit covers approximately 3,100 square miles and serves a population of about 10 million. The MS4 permit requires permittees to develop and implement their own programs for stormwater management. To comply with this requirement, the City of Malibu developed a Clean Water Program in 2001 and participated with Los Angeles County in a 2006 campaign to identify bacteria sources along Malibu beaches.

Los Angeles County's MS4 permit also requires implementation of standard urban stormwater mitigation plans (SUSMP) and design standards for BMPs. The SUSMP requirements are intended to minimize, to the maximum extent practicable, the discharge of pollutants from new development and renovation projects. The design standard is that post-construction BMPs be designed to mitigate (infiltrate or treat) stormwater runoff from the first 0.75 inch of rainfall prior to its discharge to a storm drain system.

***General Construction Permit***

Construction projects that disturb one acre of land or more are required to control stormwater discharges associated with construction activities under the NPDES General Permit for Construction Activities (GCP). Construction sites that meet this criterion must submit a Notice of Intent (NOI) to file for permit coverage or else they will be in violation of the CWA. The SWRCB issued a statewide general NPDES Permit for stormwater discharges from construction sites (NPDES No. CAS000002) in 2001.

Under this permit, applicants are required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP should contain a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography before and after construction, and drainage patterns across the project site. The SWPPP must list BMPs that would be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for nonvisible pollutants if there is a failure of the BMPs, and a sediment monitoring plain if the site discharges directly to a water body listed on the 303(d) list for sediment.

The proposed project encompasses approximately 24 acres and is therefore subject to the stormwater discharge requirements of the GCP. The SWRCB is the permitting agency for this activity, and the project developer must submit an NOI, filing fee, and site map to the SWRCB prior to the commencement of grading and construction activities. In addition, coverage under this permit will not occur until the applicant develops an adequate SWPPP for the project. The City of Malibu has developed a list of applicable BMPs under the LCP. Prior to receiving a building or grading permit, the project applicant must demonstrate proof of a Waste Discharge Identification Number to the City of Malibu, which is issued by the SWRCB after receiving the NOI, filing fee, and site map, and the developer must submit a certification statement that all required and selected BMPs will be effectively implemented.



In addition, Provision C.3 of the GCP requires local municipalities to evaluate water quality effects and identify appropriate mitigation measures when they conduct environmental review of proposed projects. In order to implement CWA provisions governing discharges to municipal storm drains, Provision C.3 requires new and redevelopment projects that would create or replace impervious area to treat and/or detain stormwater runoff before it is discharged to creeks or storm drains. The primary goals of Provision C.3 are to protect water quality by minimizing sediment and other pollutants in site runoff and to prevent downstream erosion by ensuring that postproject runoff and volume do not exceed preproject runoff and volume.

***Porter-Cologne Water Quality Act***

The Porter-Cologne Water Quality Act of 1969 is the basic water quality control law for California. The act established the SWRCB and divided the state into nine regional basins, each under the jurisdiction of an RWQCB. The SWRCB is the primary state agency responsible for the protection of California’s water quality and groundwater supplies. The RWQCBs carry out the regulation, protection, and administration of water quality in each region. Each regional board is required to adopt a water quality control plan or basin plan that recognizes and reflects the regional differences in existing water quality, the beneficial uses of the region’s ground and surface water, and local water quality conditions and problems.

***Water Quality Control Plan, Los Angeles Region***

The City of Malibu is in the jurisdiction of the Los Angeles RWQCB, Region 4. The “Water Quality Control Plan: Los Angeles Region – Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties” (Basin Plan) was adopted in 1994 and amended in 2007. This Basin Plan gives direction on the beneficial uses of the state waters within

# Environmental Analysis

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## HYDROLOGY AND WATER QUALITY

Region 4; describes the water quality that must be maintained to support such uses; and provides programs, projects, and other actions necessary to achieve the standards established in the Basin Plan. In addition, the revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) was adopted by the SWRCB in 2005 and approved by the EPA in 2006. The Ocean Plan contains water quality objectives and effluent limits that apply to all discharges to the coastal waters of California. Waste management systems that discharge to the ocean must be designed and operated in a manner to maintain a healthy marine ecosystem and not adversely impact the health of recreational users. The Malibu Valley groundwater basin designation for municipal groundwater in the Basin Plan is “potentially beneficial use.”

### **Local**

#### ***City of Malibu Plumbing Code***

The City of Malibu has adopted Los Angeles County Code Title 28, Plumbing Code. Appendix K of the plumbing system includes regulations governing private sewage disposal systems such as the proposed OWTS. In addition, the City of Malibu has adopted amendments to the Plumbing Code, described in Ordinance 318, that present additional OWTS requirements, including regulations intended to ensure that the disposal of treated wastewater does not impact groundwater or nearby structures.

#### ***City of Malibu Local Coastal Program Land Use Plan***

The City of Malibu LCP LUP Chapter 3(C)(4) includes policies related to hydrology and water quality pollution control from new developments, erosion and sedimentation, and grading and landform. Specific techniques are required by the LUP, including limiting increases in impervious surfaces and limiting land disturbance activities, such as clearing or grading. The LUP also requires BMPs to reduce the effects of stormwater runoff, construction erosion or runoff, and stormwater contamination, among others.

#### ***City of Malibu LCP Local Implementation Plan***

The LCP LIP implements the policies of the California Coastal Act and the LUP to protect, maintain, and enhance the overall quality of the environment. LIP Chapter 8, Grading, includes provisions to keep the amount of grading to an absolute minimum, with limits on the maximum amount of grading, the maximum height of cuts and fills, maximum grade, and seasonal restrictions on grading. LIP Chapter 9, Hazards, includes measures to ensure that new development minimizes risks to life and property from hazards, including floods. LIP Chapter 10, Shoreline and Bluff Development, discusses the construction of swimming pools in accordance with the Guidelines for the Preparation of Geologic and Geotechnical Engineering Reports.

LIP Chapter 17, Water Quality Protection, provides application submittal requirements, development standards, and other measures to ensure that new development is sited and designed to conserve natural drainage features and vegetations, to prevent the introduction of pollutants into coastal waters, and to protect the overall quality of coastal waters and resources. LIP Chapter 17 states that all development should consider site-design, source-control, and treatment-control BMPs to prevent polluted runoff and water quality impacts resulting from development. In addition, projects should be designed to control postdevelopment peak runoff rates and volumes to maintain or reduce predevelopment downstream erosion rates.

LIP Chapter 18, On-Site Wastewater Treatment System Standards Ordinance, provides protection to coastal waters within the City of Malibu from impacts resulting from the design, siting, installation, operation, and maintenance of Onsite Wastewater Treatment System (OWTS), in accordance with the policies of the City’s Local Coastal Plan. To implement the certified Land Use Plan; permit application requirements; siting, design and performance standards;

maintenance, operation and monitoring requirements; and other measures are provided to ensure that permitted OWTS shall be designed, sited, installed, operated and maintained to prevent the introduction of pollutants into coastal waters and protect the overall quality of coastal waters and resources.

### ***Stormwater Management Plan***

All projects that require a coastal development permit (CDP) must also submit a Stormwater Management Plan (SWMP) to the City of Malibu's Department of Public Works to mitigate the effects of development on stormwater after construction. The project must be designed to maximize, to the extent practicable, the percentage of permeable surfaces and the detention of dry-weather runoff on the site. The SWMP shall include: 1) a local SWPPP that includes construction phase BMPs; 2) a hydrology/hydraulic report that shows pre- and postdevelopment flow rates for a 100-year storm event; and 3) a site plan and grading and drainage plan that includes site design and source control BMPs.

A local SWPPP is required for projects that require a CDP in order to mitigate the effect of development on stormwater during construction. The SWPPP must be submitted to the City Department of Public Works and include a narrative description of the construction BMPs, an erosion control plan, demonstration of how existing vegetation will be protected from damage, and a certification statement by the project architect or engineer of record and the landowner or landowner's agent. A local SWPPP may substitute for a state SWPPP if the local SWPPP is at least as inclusive in its controls and BMPs.

### ***Prohibition on New Septic Systems in Malibu Civic Center Area***

New discharges from onsite wastewater disposal systems are prohibited within the Malibu Civic Center area under Los Angeles RWQCB Resolution R4-2009-007, issued in November 2009. The prohibition was issued in response to impairment of several water bodies in the Malibu area with contaminants, including coliform bacteria and indicator bacteria. The proposed project is one of a few projects excepted from the prohibition because those projects had already progressed through the entitlement process.. Under the terms of the prohibition, new development must be connected to a certified wastewater treatment facility by 2019.



## **5.8.2 Thresholds of Significance for Hydrology and Water Quality**

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

- HYD-1 Violate any water quality standards or waste discharge requirements.
- HYD-2 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.
- HYD-3 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 a substantial erosion or siltation on- or offsite.
- HYD-4 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 offsite.

# Environmental Analysis

## HYDROLOGY AND WATER QUALITY

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- HYD-5 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.
- HYD-6 Otherwise substantially degrade water quality.
- HYD-7 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.
- HYD-8 Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
- HYD-9 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.
- HYD-10 Be subject to inundation by seiche, tsunami, or mudflow.

The project site is not located within the 100-year flood hazard area and is not within the inundation zone of any upstream levees or dams. Therefore, the impacts associated with the following thresholds would be less than significant and these impacts will not be addressed in the following analysis.

- Thresholds HYD-7, HYD-8, HYD-9, and HYD-10

### 5.8.3 Environmental Impacts

The following impact analysis addresses potentially significant impacts. The applicable thresholds of significance are identified in brackets after the impact statement.

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**Impact 5.8-1:** The proposed project would not violate any water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise degrade water quality. [Thresholds HYD-1 and HYD-6]

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**Impact Analysis:** Urban runoff resulting from storms or nuisance flows (runoff during dry periods) from development projects can carry pollutants to receiving waters. Runoff can contain pollutants such as oil, fertilizers, pesticides, trash, soil, and animal waste. This runoff can flow directly into local streams or lakes or into storm drains and continue through pipes until it is released untreated into a local waterway and eventually the ocean. Untreated stormwater runoff degrades water quality in surface waters and groundwater and can affect drinking water, human health, and plant and animal habitats. Additionally, increased runoff from urban surfaces can increase the intensity of flooding and erosion.

The construction and operational phases of the proposed project could have the potential to impact water quality. Construction activities may impact water quality due to sheet erosion of exposed soils. The operational phase would alter the existing land uses of the project site and would consequently alter the anticipated and potential pollutant sources at the site. The following is a discussion of the potential impacts that the construction and operational phases of the proposed project could have on water resources and quality.

### Construction Phase Pollutant Sources

Clearing, grading, excavation, and construction activities associated with the proposed project may impact water quality through sheet erosion of exposed soils and subsequent deposition of particles and pollutants in drainage areas. Grading activities, in particular, lead to exposed areas of loose soil and sediment stockpiles, which are susceptible to uncontrolled sheet flow. The use of materials such as fuels, solvents, and paints also presents a risk to surface water quality due to an increased potential for nonvisible pollutants entering the storm drain system.

If uncontrolled, these materials could lead to water quality impacts such as the discharge of sediment-laden runoff, prohibited non-stormwater discharges, and ultimately, the degradation of downstream receiving water bodies such as the Pacific Ocean. The soil-disturbing activities associated with the proposed project necessitate the implementation of a SWPPP and related construction BMPs, with the best available technology economically achievable and best conventional pollutant control technology.

Under the Statewide General Construction NPDES Permit No. CAS000002 (Order 99-08-DWQ), the project applicant is required to submit an NOI to the SWRCB prior to the commencement of construction activities. In addition, a SWPPP must be prepared and implemented at the project site and revised as necessary as administrative or physical conditions change. Prior to the issuance of a grading permit by the City of Malibu, the project applicant is required to provide proof of filing for an NOI with the SWRCB and prepare a SWPPP describing the BMPs to be implemented during the project's construction activities. Construction contractors are required to maintain a copy of the SWPPP at the site at all times and implement all construction BMPs identified in the SWPPP during construction activities. The following BMPs that may apply during construction are outlined in Table 5.8-2. Additional measures may be required if deemed appropriate by the City of Malibu.



# Environmental Analysis

## HYDROLOGY AND WATER QUALITY

**Table 5.8-2  
Construction BMPs**

Category	Description
Erosion Controls	EC-1 Construction Scheduling
	EC-2 Preservation of Existing Vegetation
	EC-4 Hydroseeding
	EC-5 Soil Binders
	EC-7 Geotextiles and Mats
	EC-9 Earth Dikes and Swales
	EC-10 Velocity Dissipation Devices
Sediment Controls	SE-1 Silt Fence
	SE-3 Sediment Trap
	SE-4 Check Dam
	SE-7 Street Sweeping
	SE-8 Sandbag Barrier
	SE-9 Straw Bale Barrier
	SE-10 Storm Drain Inlet Protection
Wind Erosion Controls	WE-1 Wind Erosion Control
Tracking Controls	TC-1 Stabilized Construction Entrance / Exit
	TC-3 Entrance / Outlet Tire Wash
Non-Stormwater Management Controls	NS-2 Dewatering Operations
	NS-3 Paving and Grinding Operations
	NS-6 IC/ID Detection and Reporting
	NS-8 Vehicle & Equipment Cleaning
	NS-9 Vehicle & Equipment Fueling
	NS-10 Vehicle & Equipment Maintenance
	NS-12 Concrete Curing
NS-13 Concrete Finishing	
Waster Management and Controls (i.e., good housekeeping practices)	WM-1 Material Delivery & Storage
	WM-2 Material Use
	WM-3 Stockpile Management
	WM-4 Spill Prevention and Control
	WM-5 Solid Waste Management
	WM-6 Hazardous Waste
	WM-7 Contaminated Soil
	WM-8 Concrete Waste
	WM-9 Sanitary / Septic Waste

Source: California Stormwater BMP Handbook, January 2003.

The SWPPP is required to identify construction BMPs necessary to mitigate project impacts, including but not limited to:

- Sediment from areas disturbed by construction shall be retained onsite using structural controls (erosion and sediment controls) and sediment debris basins (first flush basin will serve this function during construction activities) to the maximum extent practicable. Streets adjacent to the site entrance and exits shall be free of sediment and debris from the project site and shall be swept as directed by the City.

## 5. Environmental Analysis

### HYDROLOGY AND WATER QUALITY

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- Stockpiles of soil shall be properly contained to minimize sediment transport from the site to streets, drainage facilities, or adjacent properties via runoff, vehicle tracking, wind, or water.
- Appropriate BMPs for construction-related materials, wastes, and spills shall be implemented to minimize transport from the site to streets, drainage facilities, or adjoining properties by wind or runoff.
- Runoff from equipment and vehicle washing shall be contained at construction sites unless treated to reduce or remove sediment and other pollutants.
- All construction contractor and subcontractor personnel are to be made aware of the required BMPs and good housekeeping measures for the project site and any associated construction staging areas.
- At the end of each day of construction activity, all construction debris and waste materials shall be collected and properly disposed in trash or recycle bins.
- Construction sites shall be maintained in such a condition that an anticipated storm does not carry wastes or pollutants offsite. Discharges of material other than stormwater can occur only when necessary for performance and completion of construction practices and where they do not cause or contribute to a violation of any water quality standard; cause or threaten to cause pollution, contamination, or nuisance; or contain a hazardous substance in a quantity reportable under federal regulations (Title 40 Code of Federal Regulation [CFR], Parts 117 and 302).
- Potential pollutants include but are not limited to solid or liquid chemical spills; wastes from paints, stains, sealants, glues, limes, pesticides, herbicides, wood preservatives, and solvents; asbestos fibers, paint flakes, or stucco fragments; fuels, oils, lubricants, and hydraulic, radiator, or battery fluids; fertilizers, vehicle/equipment and concrete wash water; concrete, detergent, or floatable wastes; wastes from any engine/equipment steam cleaning or chemical degreasing; and superchlorinated potable water line flushing. During construction, the permittee shall dispose of such materials in a specified and controlled temporary area onsite, physically separated from potential stormwater runoff, with ultimate disposal in accordance with local, state, and federal requirements.
- Dewatering of contaminated groundwater or discharging contaminated soils via surface erosion is prohibited. Dewatering of noncontaminated groundwater requires a NPDES permit from the local RWQCB.
- The permittee and contractor shall inspect the erosion control work to ensure that it is in accordance with the approved plans.
- The permittee shall notify all general contractors, subcontractors, material suppliers, lessees, and property owners that dumping of chemicals into the storm drain system is prohibited.
- Equipment and workers for emergency work shall be made available at all times during the rainy season. Necessary materials shall be available onsite and stockpiled at convenient locations to facilitate rapid construction of temporary devices when rain is imminent.
- Submittal of an NOI and implementation of the SWPPP and its associated BMPs throughout the construction phase of the proposed project would address anticipated and expected pollutants of concern as a result of construction activities. The proposed project would comply with all applicable water quality standards and waste discharge requirements.



# Environmental Analysis

## HYDROLOGY AND WATER QUALITY

### Operational Phase

The operational phase of the proposed project could result in long-term impacts to the quality of stormwater and urban runoff, subsequently impacting downstream receiving waters. Development projects can alter the existing drainage course and potentially create new sources of runoff contamination. Consequently, the proposed project has the potential to increase postconstruction pollutant loadings of certain pollutants.

As proposed, the project would indirectly discharge into the Pacific Ocean via the public storm drain system beneath Malibu Road, Pacific Coast Highway, and the Winter Canyon drainage channel to the east of the site. Under the current Los Angeles County MS4 permit, no numeric effluent limitations are required for stormwater discharges and no sampling or monitoring programs are currently required. However, the long-term operation of the proposed project necessitates the implementation of postconstruction or operational BMPs to the extent practicable to mitigate and abate pollutants that may compromise the Pacific Ocean's beneficial uses and water quality. The applicable postconstruction/operational BMPs for the proposed project are discussed in the following paragraphs.

### Pollutants of Concern

As a result of the proposed alteration of existing site conditions, the proposed project would create new pollutant sources, changing the makeup of pollutant constituents generated by the proposed land uses. Because stormwater runoff pollution is diffuse in nature, the composition, level, and cumulative effects of specific pollutants generated by the proposed project cannot be appropriately quantified. However, based on the proposed land uses, the pollutants generally associated with the project's postconstruction operations can be predicted.

Primary pollutants of concern are those that have been identified as causing impairment of receiving waters. Table 5.8-3 summarizes the categories of land use or project features of concern and the general pollutant categories associated with them.

**Table 5.8-3  
Potential Pollutants Created by Land Use Type**

Priority Pollutant Category	General Pollutant Categories								
	Sediment/Turbidity	Nutrients	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Bacteria & Viruses	Oil & Grease	Pesticides	Heavy Metals
Detached Residential Development	E	E		E	E	E	E	E	
Streets, Highways, & Freeways	E	P <sup>1</sup>	E <sup>2</sup>	E	P <sup>3</sup>		E		E

Source: Table 2-1, California Stormwater BMP Handbook - New Development and Redevelopment, January 2003.

E = Expected P = Potential

<sup>1</sup> A potential pollutant if landscaping or open areas exist.

<sup>2</sup> Including petroleum hydrocarbons.

<sup>3</sup> Including solvents.

As required by the City, the project applicant will submit a WQMP and SWMP, which includes a local SWPPP, hydrology/hydraulic report, and site plan and grading and drainage plan. These reports and plans will outline approved postconstruction BMPs, including site-design and source- and treatment-control BMPs selected for the project to reduce pollutants in postdevelopment runoff to the standards of the best available technology economically achievable

and the best conventional pollutant control technology. The water quality management plan will outline how the BMPs would be implemented to reduce the discharge of polluted runoff from the project. The following is a discussion of site-design, source-control, and treatment-control BMPs that would be incorporated into the proposed project.

### **Site Design BMPs**

These include but are not limited to maximizing pervious areas, minimizing directly connected impervious areas, use of onsite ponding areas, constructing hardscape with permeable materials, and implementing on-lot hydrologically functional landscape design. Specific details and guidelines for the implementation of site-design BMPs are provided in the Los Angeles County Development Planning for Storm Water Management, the California Stormwater Best Management Practice Handbook for New Development and Redevelopment, and the LIP, Appendix A, Storm Water Best Management Practices.

The proposed project would, at a minimum, incorporate the following site-design BMPs, where feasible:

#### ***Minimize Impervious Areas***

- Maximize permeable areas.
- Reduce sidewalk widths.
- Design residential streets for the minimum required pavement widths.
- Incorporate landscaped areas in site design to reduce the amount of impervious cover.
- Reduce overall lot imperviousness by promoting alternative driveway surfaces and shared driveways that connect two or more homes.
- Use pervious materials, such as Grasscrete, in parking areas.
- Use stone pavers in the roadways instead of asphalt.
- Use reinforced turf in the fire truck access lanes instead of hardscape.



#### ***Increase Rainfall Infiltration***

- Use permeable materials, such as Grasscrete, for private sidewalks and driveways.
- Use bioretention facilities on individual lots to clean runoff from driveways, roofs, and patios and promote infiltration.
- Direct rooftop runoff to pervious areas, such as yards, open channels, or vegetated areas, and avoid routing rooftop runoff to the roadway or the urban runoff conveyance system.

#### ***Maximize Rainfall Interception***

- Maximize canopy interception and water conservation by preserving existing native trees and shrubs and planting additional native or drought-tolerant trees and large shrubs.

#### ***Minimize Directly Connected Impervious Areas***

- Drain rooftops into individual bioretention facilities prior to discharging to the storm drain.

# Environmental Analysis

## HYDROLOGY AND WATER QUALITY

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- Drain parking surfaces into biofiltration ponds.
- Drain roads and sidewalks into adjacent landscaping, as feasible.

### *Slope and Channel Protection*

- Use natural drainage systems to the maximum extent practicable.
- Plant native or drought-tolerant vegetation on slopes.
- Use energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels.

### **Source-Control BMPs**

These effectively minimize the potential for typical urban pollutants to come into contact with stormwater, thereby limiting water quality impacts downstream. Numerous source-control BMPs would be incorporated into the proposed project and would be carried out through its operation phase. These include:

- Storm drain stenciling or signage on all catch basins with highly visible source-control messages (e.g., “no dumping—drains to ocean”). Regular litter control for the entire project area, including trash pick up and sweeping of littered common areas, performed by the maintenance crew.
- Sweeping of all impervious streets performed at a frequency that reduces or prevents sediment and debris from entering receiving waters and prior to the rainy season.
- Properly designed trash enclosures and material storage areas to minimize contact with stormwater and reduce rainfall runoff.
- Proper landscaping design incorporating native drought-tolerant plants, protection of slopes, and efficient irrigation design.
- Routine maintenance of all catch basins, grate inlets, etc., for debris and litter removal.
- Regular litter control for the entire project area, including trash pickup and sweeping of littered common areas.
- Common-area landscape management that includes minimizing fertilizer and pesticide application, maintenance activities, and proper education and training for landscaping/maintenance workers
- Educational materials related to urban runoff provided to all employees and residents upon occupancy.

### **Treatment-Control BMPs**

Treatment-control BMPs remove anticipated pollutants of concern from onsite runoff. They can range from natural treatment systems such as vegetated swales, detention basins, and constructed wetlands, to proprietary control measures. Considering that no single treatment BMP can effectively remove all contaminants that can pollute stormwater runoff, the treatment-control BMPs required for the proposed project would be highly to moderately efficient in removing the target pollutants. Table 5.8-4, *Treatment-Control BMPs*, demonstrates the variation in pollutant-removal efficiencies of several treatment-control BMPs. Moreover, the treatment-control BMPs selected for the proposed project would be required to mitigate (infiltrate or treat) either volumetric or flow-based stormwater runoff.

Table 5.8-4  
Treatment-Control BMPs

Pollutant of Concern	Categories <sup>1</sup>						
	Biofilters	Detention Basins	Infiltration Basins <sup>2</sup>	Wet Ponds or Wetlands	Filtration	Drainage Inserts	Hydro-dynamic Separator Systems <sup>3</sup>
Sediment/Turbidity	M	H	H	H	H	L	M
Nutrients	L	M	M	M	M	L	L
Heavy Metals	M	M	M	H	H	L	L
Organic Compounds	U	U	U	U	M	L	L
Trash & Debris	L	H	U	U	H	M	M
Oxygen Demanding Substances	L	M	M	M	M	L	L
Bacteria	U	U	H	U	M	L	L
Oil & Grease	M	M	U	U	H	L	L
Pesticides	U	U	U	U	U	L	L

Sources: Table 3, City of Malibu Local Implementation Plan, City of Malibu, September 2002.

Notes:

L: Low removal efficiency

M: Medium removal efficiency

H: High removal efficiency

U: Unknown removal efficiency

<sup>1</sup> The City of Malibu will periodically assess the performance characteristics of many of these BMPs to update this table.

<sup>2</sup> Including trenches and porous pavement.

<sup>3</sup> Also known as hydrodynamic devices and baffle boxes.



Volumetric-based criteria are used in the sizing of detention basins or infiltration structures, and flow-based criteria are used to design swales, catch basin devices, and wetlands. The Los Angeles County SUSMP requires volumetric treatment-control BMPs to mitigate a specified volume of runoff from project sites, equal to one of the following:

- The 85<sup>th</sup> percentile<sup>1</sup> 24-hour runoff event, determined as the maximized capture urban-runoff volume for the area, from the formula recommended in the Urban Runoff Quality Management, Water Environment Federation (WEF) Manual of Practice No. 23/American Society of Civil Engineers (ASCE) Manual of Practice No. 87, (1998)
- The volume of annual runoff based on unit basin storage volume, to achieve 80 percent or more volume treatment by the method recommended in the California Stormwater Best Management Practices Handbook – New Development and Redevelopment, (2003)
- The volume of runoff produced from a 0.75 inch storm event, prior to its discharge to a stormwater conveyance system
- The volume of runoff produced from a historical record based reference 24-hour rainfall criterion for “treatment” (0.75 inch average for the Los Angeles County area) that achieves approximately the same reduction in pollutant loads achieved by the 85<sup>th</sup> percentile 24-hour runoff event.

Flow-based treatment-control BMPs would mitigate a specified flow of runoff from project sites, equal to one of the following:

<sup>1</sup> This is defined as a level below which 85 percent of the storms have a 24-hour runoff volume less than this amount.

# Environmental Analysis

## HYDROLOGY AND WATER QUALITY

- The flow of runoff produced from a rain event equal to at least 0.2 inches per hour intensity
- The flow of runoff produced from a rain event equal to at least two times the 85<sup>th</sup> percentile hourly rainfall intensity for Los Angeles County
- The flow of runoff produced from a rain event that will result in treatment of the same portion of runoff as treated using aforementioned volumetric standards.

However, the City of Malibu has more stringent sizing criteria for treatment of BMPs than Los Angeles County. According to Chapter 13.04.100 of the Malibu Municipal Code (M.M.C.), Storm Water Management Plan for New Development, proposed developments must mitigate increased runoff due to new impervious surfaces through onsite detention such that the peak runoff rate after development does not exceed the peak runoff from the site before development for the 100-year storm. In addition, the detention basin/facility must be designed to provide attenuation and release in stages through orifices for 2-year, 10-year, and 100-year flow rates. The storage volume of the detention facility must be sized based upon one inch of rainfall over the proposed impermeable surfaces plus one-half inch of rainfall over the permeable surfaces. In addition, all onsite drainage facilities must be sized to cumulatively convey the runoff from a 100-year storm event to the detention facility.

To comply with the City of Malibu's stormwater treatment design requirements, onsite underground stormwater detention tanks are one of the treatment-control BMPs selected to fulfill the mitigation requirements. Surface runoff from each residential lot and the private street would be collected by storm drain catch basins and routed to onsite underground stormwater detention tanks on each lot. The detention tanks are designed to provide preliminary treatment by settling sediments and to equalize flows prior to discharge into the public storm drain system and ultimately into the Pacific Ocean.

Based on the requirements of the City of Malibu, the detention volumes for the five residential lots and the private street are listed in Table 5.8-5, *Detention Required per City of Malibu*. The outlets for the detention tanks will be designed to release water in the 2-year, 10-year, and 100-year storm events so that the proposed peak flows will not exceed predevelopment peak flows.

**Table 5.8-5**  
**Detention Required per City of Malibu**

Sub Area	Detention Volume Required (cf) <sup>1</sup>
Lot 1	4,500
Lot 2	4,300
Lot 3	5,000
Lot 4	2,400
Lot 5	3,000
Private Street	5,800

Sources: Table 4, Hydrology Study for Malibu Bluffs Crummer Site, January 21, 2009

<sup>1</sup> Maximum calculated detention volumes assuming entire hardscape area is impervious.

In addition, other treatment control BMPs are planned for the proposed development. Water will be collected on the lawns of each lot, which will be designed for infiltration. Each lawn area will be sized to ensure that the entire water quality volume can be treated for each residential lot. Grasscrete®, a pervious pavement concrete product, will be installed on either side of the private street. Grasscrete reduces runoff by allowing rainwater to pass through the

## 5. Environmental Analysis

### HYDROLOGY AND WATER QUALITY

material and promotes groundwater recharge. Adjacent and parallel to the Grasscrete sections of the private road will be bioswales to intercept water that does not infiltrate through the Grasscrete. The bioswales will allow partial infiltration of rainwater and filtration of pollutants prior to conveyance into catch basins and the underground stormwater retention tanks. Also, berms will be installed on the downslope sides of Lots 2, 3, and 5 so that rainwater can be diverted into the adjacent canyon drainage channels, thus decreasing the potential for erosion of the bluffs and flooding of the downslope residential properties. The “Grading and Drainage Plan” included in Appendix N provides additional details regarding the location and layout of the proposed BMPs.

Collectively, the site-design and source- and treatment-control project design features would address the anticipated and expected pollutants of concern from the operational phase of the proposed project. Additionally, the City would ensure that the project complies with various statutory requirements necessary to achieve regional water quality objectives and protect groundwater and surface waters from pollution by contaminated stormwater runoff. Stormwater runoff generated on the project site would be managed in accordance with all applicable federal, state, and local water quality rules and regulations in order to effectively minimize the project’s impacts on water quality.

#### **Wastewater Discharges and Impact on Water Quality**

It is proposed that the Onsite Wastewater Treatment System (OWTS) be installed in the northwest corner of the site near the intersection of Winter Mesa Drive and PCH and that the effluent from the treatment be discharged to seepage pits in the southernmost portion of Lot 7 along Winter Mesa Drive. Percolation testing in this area (Lawrence Young 2008) confirmed that the use of seepage pits at this location would meet the requirements of the LIP and the City of Malibu’s Plumbing Code. In addition, the project needs to obtain a permit for the OWTS from the RWQCB. The seepage pits would be 6 feet in diameter and range from 61 to 65 feet deep. Soil conditions at the proposed seepage pit locations allow for a separation between groundwater and the bottom of the seepage pits, ranging from 17 to 22 feet (Ensitu Engineering Inc., 2009).

An AdvanTex package treatment system by Orenco Systems is proposed to be used for wastewater treatment at the site. The treatment would be performed using two stage, multi-pass, packed bed aerobic filters, which treat the effluent through a combination of physical, chemical, and biological processes. Prior to entry into the OWTS, the wastewater would be collected in 2,000-gallon, two-compartment septic tanks at each household and a 1,500-gallon, two-compartment septic tank at the gate house. All wastewater then would be routed to a 35,000-gallon, four-compartment equalization/recirculation/polishing/dosing tank connected with the treatment units. Treatment would be performed in two stages. Three Advantex AX100 treatment units would be used for Stage I treatment, and three additional Advantex AX100 treatment units would be used for nitrogen reduction (secondary nitrification). After treatment, disinfection of the effluent would occur by liquid chlorination and the effluent then would be dechlorinated prior to discharge to the seepage pits.

Based on the treatment system design and previous study results, it is anticipated that the biological oxygen demand (BOD) and total suspended solids (TSS) levels in the effluent after treatment would be 20 mg/l or less and that nitrate-nitrogen concentrations would be 10 mg/l or less. Fecal/pathogen contamination would be controlled by disinfection of the effluent prior to discharge into the seepage pits and filtration through the subsurface. Thus, no significant impact on local groundwater is anticipated. Furthermore, the City of Malibu does not use groundwater resources for its drinking water supply.



# Environmental Analysis

## HYDROLOGY AND WATER QUALITY

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**Impact 5.8-2:** Development of the proposed project would alter the existing drainage pattern of the site and result in erosion or siltation and flooding. [Thresholds HYD-3, HYD-4 and HYD-5]

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**Impact Analysis:** Increased runoff from urban surfaces can increase the intensity of flooding and erosion. The following is a discussion of the potential erosion, siltation, and flooding impacts that could occur as a result of project development.

### Erosion and Siltation

The majority of potential erosion and siltation impacts would occur during the construction phase of the proposed project. During construction, the project site would be cleared of vegetation in preparation for grading, which would expose loose soil to potential wind and water erosion. If not controlled, the transport of these materials to local waterways would temporarily increase suspended sediment concentrations and release pollutants attached to sediment particles into local waterways. As previously stated, the project would be required to submit an NOI and SWPPP prior to the commencement of construction activities. The SWPPP would describe the BMPs to be implemented during the project's construction activities. Some of the construction BMPs that will be implemented at the site include velocity check dams in all unpaved street areas and unpaved graded channels, debris basins, silt fences around the perimeter of the disturbed area, stabilized construction entrance/exit, and straw wattles to protect downstream catch basins. These construction BMPs are shown on the *Erosion Control Plan*, which is provided in Appendix N.

The operational phase of the proposed project would contain a number of features to reduce the impact of erosion and siltation. The site-design, source-control, and treatment-control BMPs for the operational phase would be outlined in the project's SWPPP, including:

- Use pervious materials for private sidewalks, driveways, and interior roadway surfaces.
- Use Grasscrete and bioswales along private road to increase infiltration.
- Use native or drought-tolerant vegetation and shrubs on slope areas.
- Reduce the amount of impervious cover by incorporating landscaped areas in the site design.
- Install detention basins on each individual lot and at the end of the private road.
- Construct berms downslope of developed areas for bluff protection.
- Use natural drainage systems, earthen berms, and/or energy dissipaters at the outlets of storm drains or culverts.

### Flooding

The proposed onsite storm drain system for the project would include underground detention tanks to control onsite runoff, earthen berms along the south side of the property for protection of bluffs and offsite properties, and various storm drain catch basins and inlets. The underground detention tanks would be located within each residential lot and at the end of the private street. The detention tanks, storm drainage pipes, and earthen berms would ultimately route runoff into the canyons and public storm drain system, away from the existing homes below the bluffs. The outlet flow rates from the underground detention tanks would be designed to temporarily detain and then slowly release water in the 2-year, 10-year, and 100-year storm events so that the proposed peak flow rates do not exceed the existing peak flow rates.

The pre- and postdevelopment flow rates were determined based on procedures described in the Los Angeles County Department of Public Works Hydrology Manual. The hydrology study, which was prepared by Psomas (2009), is provided as Appendix N.

## 5. Environmental Analysis

### HYDROLOGY AND WATER QUALITY

The hydrology study divided the drainage area into 6 subareas based on surface topography. Offsite areas to the south and east were included in the analysis so that a total of 49.1 acres was evaluated even though the project site only encompasses 24 acres. Peak runoff rates under existing and post-development conditions were compared for the 2-year, 10-year, 50-year and 100-year storm events. A comparison of the existing and proposed hydrologic conditions for the 50-year storm is summarized in Table 5.8-6.

**Table 5.8-6  
Existing vs. Postconstruction Runoff Volumes for 50-Year Storm Event**

Drainage Area	Area (ac)		Peak Flow Rate (cfs)		
	Existing	Post-construction	Existing	Post-construction	Difference
1A	7.8	7.9	28	29	+1
1B	4.9	4.8	18	17	
1C	2.3	2.0	7	7	
1D	9.1	10.5	32	33	+1
2A	15.6	14.5	47	46	
2B	9.4	9.4	32	32	
<b>Total</b>	<b>49.1</b>	<b>49.1</b>	<b>---</b>	<b>---</b>	<b>---</b>

Source: Hydrology Study for Malibu Bluffs Crummer Site, Psomas, January 21, 2009.

The results of the hydrology study showed that the 50-year storm event would produce an increase in peak runoff flowrate of 1 cubic foot per second (cfs) in two subareas. The required detention volume for each subarea would be 0.003 ac-ft or 130 cubic feet, according to the Los Angeles County SUSMP requirements. However, the City of Malibu has more stringent stormwater detention volume requirements (see Table 5.8-5). Therefore, the detention volumes shown in Table 5.8-6 were used in designing the storm water detention system for this project to ensure that postdevelopment peak flow rates do not exceed preproject conditions.

The implementation of the project's proposed drainage improvements (onsite stormwater detention tanks, bioswales, earthen berms, and catch basins), required by Mitigation Measure 5.8-2(a), would ensure that onsite or offsite flooding would be unlikely to occur.



**Impact 5.8-3: The site would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. [Threshold HYD-2]**

**Impact Analysis.** Seepage from the OWTS could result in increased levels of nitrogen and pathogens (fecal coliform) found in area groundwater. Groundwater quality degradation may contribute to surface-water-quality issues. The City of Malibu's water is supplied by water from the Los Angeles County Waterworks District 29, so Malibu is not dependent on groundwater resources for its water supply.

Individual OWTS are not planned at the project site. The proposed sewage treatment system is a single OWTS package plant for all proposed residences in the northwest corner of the site. After the effluent is treated and disinfected, it would be discharged into 6-foot-diameter seepage pits in the southernmost portion of Lot 7. The effluent from the OWTS package plant would be disinfected and dechlorinated prior to discharge to the seepage pits. As a result of the wastewater treatment, it is predicted that BOD, TSS, and nitrate levels in the effluent would be significantly reduced from pretreatment levels, and fecal/pathogen contamination would be controlled by disinfection of the effluent prior

# Environmental Analysis

## HYDROLOGY AND WATER QUALITY

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to discharge into the seepage pits. Therefore, the discharge into the seepage pits is not expected to have a significant impact on local groundwater. In addition, the separation between groundwater and the bottom of the seepage pits at the project site ranges from 17 to 22 feet. The minimum separation distance for site conditions required by City of Malibu's LIP, Chapter 18, Section 18.7(H) is ten feet. Another potential concern is groundwater mounding, which can occur under any water dispersal field. When this occurs, the water table can rise high enough in the winter to interfere with the ability of dispersal fields to drain properly. Computer modeling and a report prepared by Earth Consultants International (ECI 2009) indicated that the predicted worst-case groundwater level increases beneath the site from the discharge of treated wastewater under extreme rainfall conditions would range from 0.055 to 0.258 foot. This minor increase in groundwater beneath the seepage pits does not breach the minimum 10-foot separation distance required by the City's LIP. The analysis concluded that the construction and operation of the onsite treatment system and seepage disposal pits would not cause a significant rise in groundwater levels beneath the site and would not have a significant impact on groundwater quality. In addition, there was no predicted impact on the water quality of nearby surface drainages.

### 5.8.4 Cumulative Impacts

Implementation of the proposed project, in conjunction with planned future projects in the vicinity of the site, could result in increased flows that ultimately discharge into the Pacific Ocean. Development of the proposed project and other development in the area could potentially impact water quality. Without controls, both short-term construction-related impacts and long-term operational impacts could substantially impact water quality. The impacts of the proposed project with respect to surface runoff and groundwater are predicted to be minimal, but would incrementally contribute to the increase in stormwater runoff and pollutant loading to the nearby storm drains, the public drain system within Malibu Road and PCH, and the Pacific Ocean. As with the proposed project, related future projects in the City of Malibu would be required to comply with drainage and grading regulations and ordinances that control runoff and regulate water quality at each development site. New projects would be required to demonstrate that stormwater volumes could be managed by downstream conveyance facilities and would not induce flooding. New projects in Malibu also would be required to comply with the City's standard conditions of approval, regulations, and ordinances regarding water quality and NPDES permitting requirements. In addition, the project and all future development within the Civic Center area, must connect to the Civic Center wastewater treatment facility by 2019.

In consideration of the preceding factors, cumulative water quality impacts would be rendered less than considerable, and therefore not cumulatively significant.

### 5.8.5 Existing Regulations and Standard Conditions

- CWA 33, USC 1251 to 1387, and 40 CFR 122 and 124.
- SWRCB NPDES General Permit for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (Water Quality Order 97-03-DWQ/NPDES Permit No. CAS000001), April 17, 1997.
- SWRCB NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Water Quality Order 99-08-DWQ/NPDES Permit No. CAS000002), August 19, 1999.
- Los Angeles RWQCB Final Standard Urban Storm Water Mitigation Plan for Los Angeles County and Cities in Los Angeles County, March 8, 2000.

- Los Angeles RWQCB Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach (Los Angeles County MS4 Permit, Order. No. R4-2012-0175; NPDES Permit No. CAS004001), December 13, 2001, amended December 28, 2012.
- Los Angeles County Plumbing Code, Appendix K, Private Sewage Disposal Systems, and M.M.C. Amendments described in Ordinance 318.
- City of Malibu Local Coastal Program Local Implementation Plan

### 5.8.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant.

- Impact 5.8-1 Neither the construction nor the operation of the proposed project would result in a significant degradation of water quality, or in a violation of any water quality standards.
- Impact 5.8-3 Neither the construction nor the operation of the proposed project would significantly reduce, degrade, or otherwise impact groundwater.
- Cumulative Impacts The proposed project would not result in a significant cumulative effect with other nearby projects.



Without mitigation, the following impacts could be **potentially significant**:

- Impact 5.8-2 The project would generate increased stormwater runoff that could result in erosion, siltation, and flooding impacts.

### 5.8.7 Mitigation Measures

#### Impact 5.8-2

- 8-1 The project shall include the construction and proper maintenance of onsite stormwater detention tanks underneath each residential lot and the private street to mitigate potential flooding and erosion impacts to downstream areas. The detention tanks shall be sized according to the City of Malibu's required detention volume for new residential development. In addition, the project shall comply with all site-design, source-control, and treatment-control best management practices outlined in the project's stormwater management plan, including design to reduce potential flooding and to reduce the potential for erosion and siltation.

### 5.8.8 Level of Significance After Mitigation

The aforementioned mitigation measures would reduce potential impacts associated with hydrology and water quality issues to a level that is less than significant. Therefore, no significant unavoidable adverse impacts relating to hydrology are anticipated.

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