4.10 HYDROLOGY AND WATER QUALITY

This section of the Draft Environmental Impact Report (EIR) evaluates the potential impacts to hydrology and water quality conditions in the City of Newport Beach from implementation of the City Hall and Park Development Plan. Hydrology relates to the distribution and circulation of water, both on land and underground. Water quality is the quality of surface water and groundwater. Surface water is water on the surface of the land and includes lakes, rivers, streams, and creeks. Groundwater is water below the surface of the earth. The analysis in this section is based, in part, on the following technical report:

- *Water Quality Management Plan, Newport Beach City Hall,* Arup North America Ltd, August 2009.
- *Drainage Report and Utility Demand Estimation, Newport Beach City Hall,* Arup North America Ltd, July 2009.

These reports are contained in Appendices H and I, respectively.

Scoping Process

During the Initial Study (IS) process, it was determined that the proposed project would potentially result in impacts associated with eleven of the fifteen criteria for determining significance related to hydrology and water quality. Specifically, the proposed project may result in changes to drainage patterns, depletion of groundwater supplies, increased storm water runoff and pollutant loading, and degradation of water quality. The project site is located outside of Flood Hazard Areas determined by the Federal Emergency Management Agency (FEMA). The project site is located in Zone X (outside the 2 percent annual floodplain) on FEMA Flood Insurance Rate Maps. Therefore, the project would not place housing or structures within a 100-year flood zone. In addition, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving flooding or inundation by seiche, tsunami, or mudflow. Therefore, issues related to flooding are not included in the detailed analysis presented in this Environmental Impact Report (EIR). Refer to Appendix A, IS/ Notice of Preparation (NOP), for additional discussion.

Two comment letters associated with hydrology and water quality were received in response to the IS/NOP circulated for the proposed project. The California Regional Water Quality Control Board (RWQCB), Santa Ana Region, recommended incorporation of Best Management Practices (BMPs) to intercept and treat nitrates, sediment, pesticides, and selenium. In addition the RWQCB recommended that the EIR analyze impacts associated with selenium and groundwater dewatering. In their comment letter, two residents expressed concern that groundwater intrusion could be a potential issue with the proposed project. For copies of the IS/NOP comments, refer to Appendix A of this EIR. The recommendations and concerns raised during the scoping process related to hydrology and water quality are addressed in this EIR section.

4.10.1 Methodology

Project impacts to hydrology and water quality were evaluated based on the proposed project's adherence to local, State, and federal standards; proposed land use; design; and proposed BMPs for control of surface runoff and reduction of pollutants in runoff.

4.10.2 Existing Environmental Setting

Surface Water. The project site is located within Drainage Area 16 of the larger Newport Bay Watershed. The entire Newport Bay Watershed covers an area of approximately 13.2 square miles and includes portions of the Cities of Costa Mesa and Newport Beach. Drainage Area 16 is approximately 50 acres.

Runoff from the project site enters the City of Newport Beach storm drain system at six locations, as shown in Figure 4.10.1. The only off-site runoff that enters the site is from the residential community on the east side of MacArthur Boulevard. Runoff from the project site eventually drains to Lower Newport Bay at a single location at the terminus of El Paseo Drive. The discharge point into Lower Newport Bay and the contributing watershed area (Drainage Area 16) are shown in Figure 4.10.2.

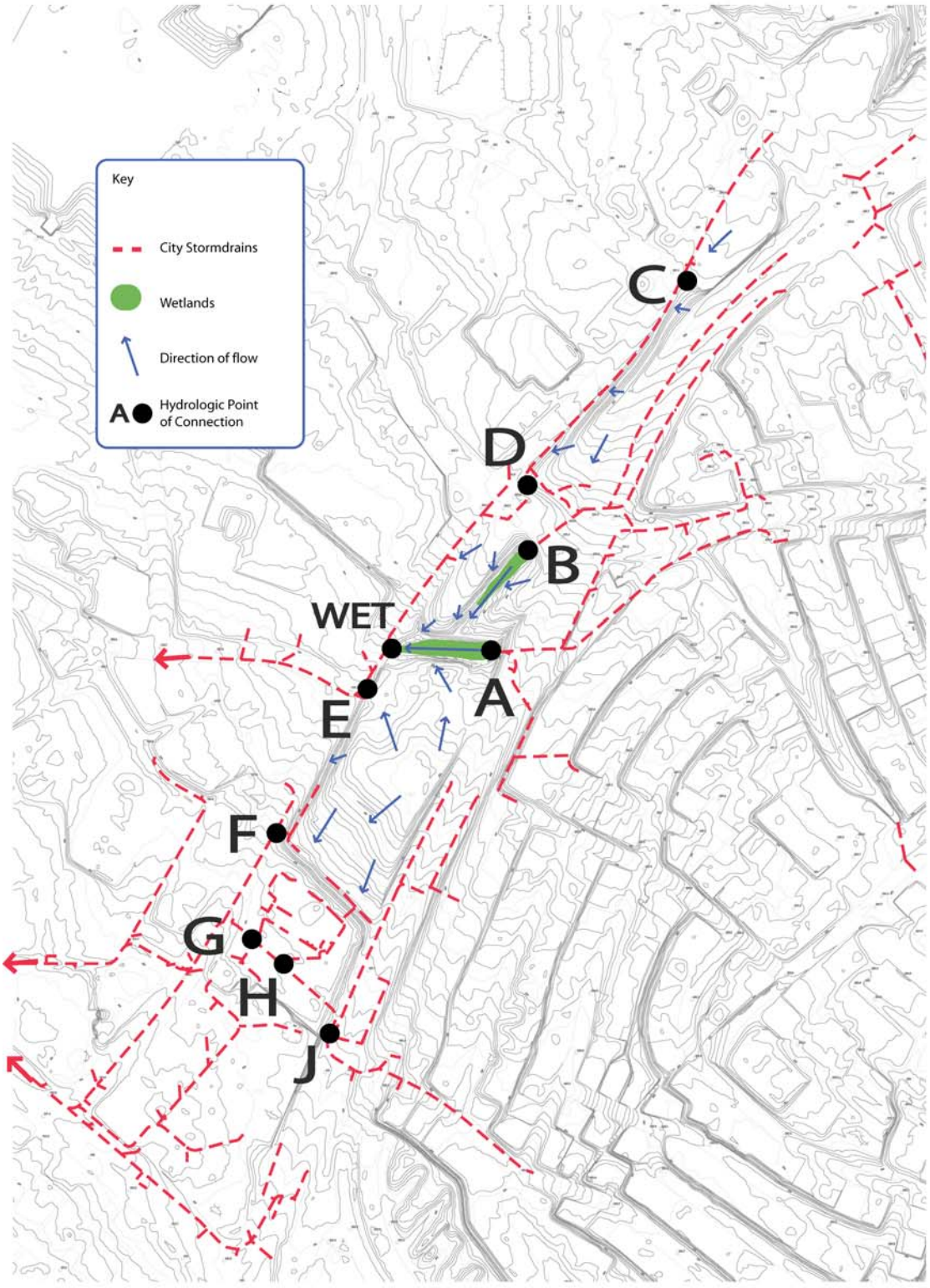
Surface Water Quality. Water quality problems in the Newport Bay Watershed include sedimentation, eutrophication, bacterial contamination, and toxic contamination. These are discussed in further detail below.

Sedimentation. Erosion in the Newport Bay watershed and resultant sediment deposition in the Bay is a continual threat to the water quality of the Bay. Most deposition occurs during major storm events and originates from construction activities, channel erosion, and erosion of agricultural land.

Eutrophication. Newport Bay has exhibited signs of nutrient enrichment, including high total inorganic nitrogen levels, for more than 25 years. The nutrient enrichment and resulting algae growth has caused water quality impairments.

Bacterial Contamination. Bacterial water quality standards in Newport Bay are rarely achieved. Sources of elevated level of fecal coliform bacteria in storm runoff include fecal wastes from humans, domesticated animals, and wildlife.

Toxic Substance Contamination. Toxic substances, including pesticides, metals, and organics, are present in the Newport Bay Watershed at concentrations that exceed water quality standards. The principal pesticide of concern is chlorpyrifos, an organic compound that is currently being phased out by the United States Environmental Protection Agency (EPA) for noncommercial applications. Chlorpyrifos is used for structural pest control,



LSA

FIGURE 4.10.1

N

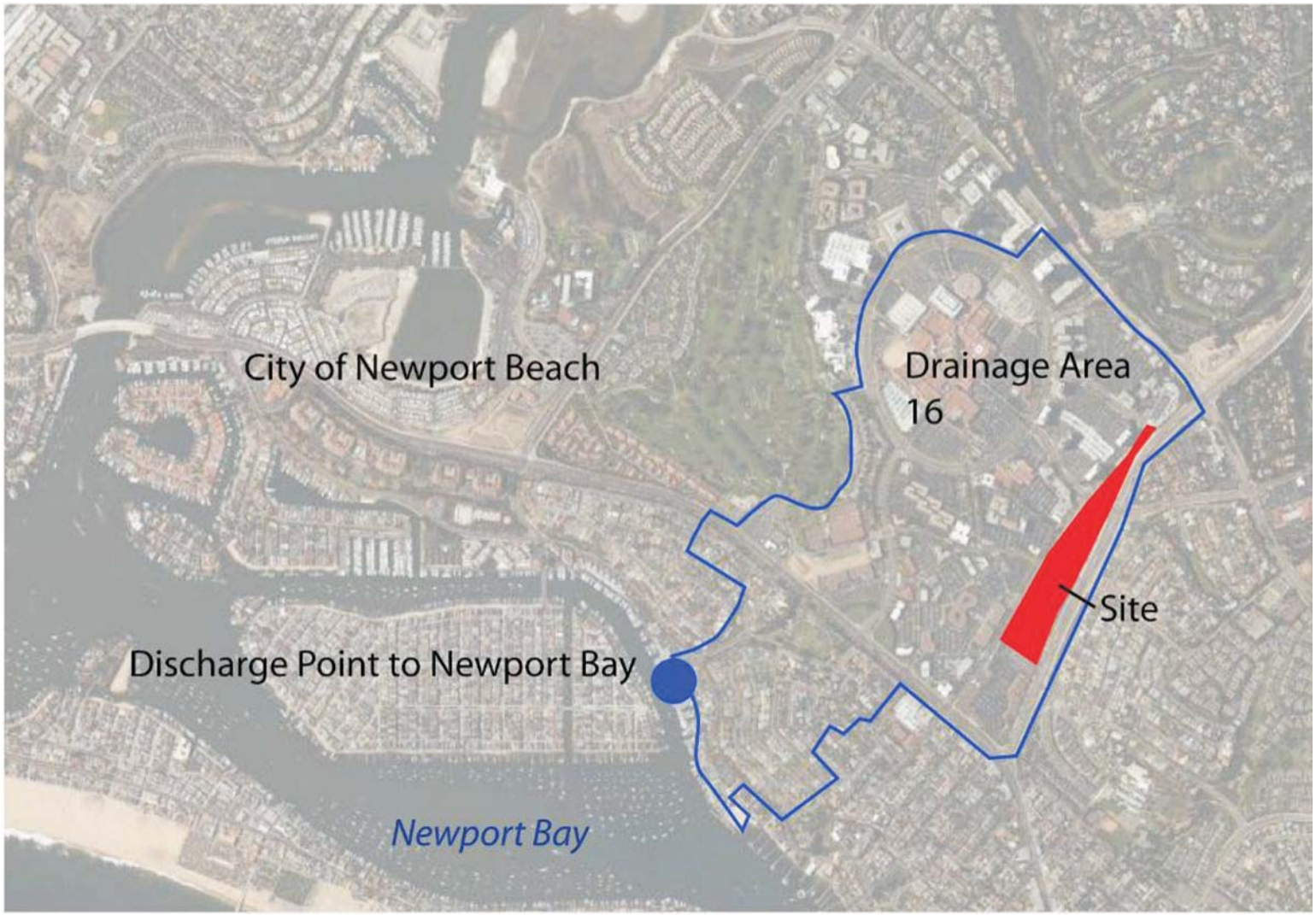
Newport Beach City Hall and Park Development Plan

Existing Drainage

SOURCE: Bohlin Cywinski Jackson (BCJ)

I:\CNB0901\G\Hydro\Existing Drainage.cdr (8/24/09)

This page intentionally left blank



LSA

FIGURE 4.10.2

N

Newport Beach City Hall and Park Development Plan

Drainage Area

SOURCE: Bohlin Cywinski Jackson (BCJ)

I:\CNB0901\G\Hydro\Drainage Area.cdr (7/31/09)

This page intentionally left blank

nursery, agricultural, and landscape applications, as well as unreported residential applications.

The primary source of heavy metals in Newport Bay is surface runoff from the urban area, which contributes five times more metals than runoff from agricultural areas. Urban development introduces metals associated with human habitation (e.g., buildings, landscaping, and motor vehicles). A major source of copper in Newport Bay is thought be from passive leaching from recreational boats and underwater hull cleaning. In addition, the Tustin and El Toro military bases have historically used various toxic substances during operations.

Natural sources, including runoff from open spaces and atmospheric deposition, contribute an estimated 40 to 67 percent of metals in runoff, depending on the specific metal. Of primary concern is selenium, a naturally occurring element. Selenium persists in soils and aquatic sediments and can bioaccumulate through the food chain at levels that can cause adverse effects on higher-level aquatic life and wildlife, including fish and birds that prey on fish and invertebrates. Selenium can become mobilized and concentrated by weathering and evaporation in the process of soil formation and alluvial fan deposition in arid and semiarid climates. Moreover, selenium may be leached from sediments as a result of irrigation practices, elevation of the groundwater table, or other modifications in the natural hydrologic regime. Selenium loadings to Newport Bay are estimated to come primarily from erosion, runoff, and discharges of shallow groundwater.

Groundwater. The project site is located within the Irvine Groundwater Management Zone, as designated by the Santa Ana RWQCB. Groundwater basins were redesignated as Groundwater Management Zones by the Santa Ana RWQCB in the February 2008 update of the Water Quality Control Plan (Basin Plan).

The Irvine Groundwater Management Zone is bounded by consolidated rocks exposed on the northeast in the Santa Ana Mountains and on the east and south in the San Joaquin Hills. This Groundwater Management Zone is bounded by SR-55 and the Orange County Groundwater Management Zone on the northwest and the Pacific Ocean on the southwest. Recharge to the Irvine Groundwater Management Zones is derived from percolation of Santa Ana River flow, infiltration of precipitation, and injection wells.

At the project site, groundwater was encountered at approximately 31 to 62 feet below ground surface during exploration. In general, the groundwater elevation is higher in the northern region of the site and gently slopes down towards the Central Library.

Groundwater Quality. Water in the Irvine Groundwater Management Zones is primarily sodium-calcium bicarbonate based. Total dissolved solids range from 232 to 661 milligrams per Liter (mg/L) and average 475 mg/L. Groundwater is impaired by salinity, nitrate, total dissolved solids (TDS), selenium, methyl tert-butyl ether (MTBE), and contamination from organic compounds in specific locations.

4.10.3 Regulatory Setting

Federal Regulations.

Clean Water Act. In 1972 the Federal Water Pollution Control Act (later referred to as the Clean Water Act [CWA]) was amended to require that the discharge of pollutants into waters of the United States from any point source be effectively prohibited unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. In 1987, the CWA was again amended to require that the EPA establish regulations for the permitting of storm water discharges (as a point source) by municipal and industrial facilities and construction activities under the NPDES permit program. The regulations require that Municipal Separate Storm Sewer System (MS4) discharges to surface waters be regulated by an NPDES permit.

The CWA requires states to adopt water quality standards for water bodies and have those standards approved by the EPA. Water quality standards consist of designated beneficial uses for a particular water body (e.g., wildlife habitat, agricultural supply, fishing), along with water quality criteria necessary to support those uses. Water quality criteria are set concentrations or levels of constituents—such as lead, suspended sediment, and fecal coliform bacteria—or narrative statements that represent the quality of water that support a particular use. Because California had not established a complete list of acceptable water quality criteria for toxic pollutants, the EPA Region IX established numeric water quality criteria for toxic constituents in the form of the California Toxics Rule (CTR).

When designated beneficial uses of a particular water body are being compromised by water quality, Section 303(d) of the CWA requires identifying and listing that water body as impaired. Once a water body has been deemed impaired, a Total Maximum Daily Load (TMDL) must be developed for each impairing water quality constituent. A TMDL is an estimate of the total load of pollutants from point, nonpoint, and natural sources that a water body may receive without exceeding applicable water quality standards (often with a “factor of safety” included, which limits the total load of pollutants to a level well below that which could cause the standard to be exceeded). Once established, the TMDL is allocated among current and future dischargers into the water body.

The receiving water for the project site, as described in greater detail below, has constituents on the 303(d) list and is considered impaired; several TMDLs have been developed to address the impairments. These TMDLs are also described in detail below.

State Regulations.

California Porter-Cologne Act. The federal CWA places the primary responsibility for the control of water pollution and for planning the development and use of water resources within the states, although it does establish certain guidelines for the states to follow in developing their programs.

California's primary statute governing water quality and water pollution is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Resources Control Board (SWRCB) and the RWQCB broad powers to protect water

quality and is the primary vehicle for implementation of California's responsibility under the federal CWA. The Porter-Cologne Act grants the SWRCB and RWQCB the authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites, and to require clean up of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, oil, or petroleum product.

Each RWQCB must formulate and adopt a water quality plan for its region. The regional plans are to conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State water policy. The Porter-Cologne Act also provides that a RWQCB may include in its region a regional plan with water discharge prohibitions applicable to particular conditions, areas, or types of waste.

Water Quality Control Plan, Santa Ana River Basin (Basin Plan). The Santa Ana RWQCB has adopted a Water Quality Control Plan (Basin Plan) for its region of responsibility, which includes the City. The RWQCB has delineated water resource area boundaries based on hydrological features. For purposes of achieving and maintaining water quality protection, specific beneficial uses have been identified for each of the hydrologic areas described in the Basin Plan. The Basin Plan also establishes implementation programs to achieve water quality objectives to protect beneficial uses and requires monitoring to evaluate the effectiveness of the programs. These objectives must comply with the State antidegradation policy (State Board Resolution No. 68-16), which is designed to maintain high-quality waters while allowing some flexibility if beneficial uses are not unreasonably affected.

Beneficial uses of water are defined in the Basin Plan as those necessary for the survival or well-being of humans, plants, and wildlife. The present or potential beneficial uses for Lower Newport Bay as designated by the RWQCB in the Basin Plan are listed below.

- **Navigation (NAV):** Includes uses of waters for shipping, travel or other transportation by private, commercial or military vessels.
- **Water Contact Recreation (REC-1):** Includes uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, waterskiing, skin diving, scuba diving, surfing, whitewater activities, fishing, and use of natural hot springs.
- **Noncontact Water Recreation (REC-2):** Includes uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.
- **Commercial and Sportfishing (COMM):** Includes uses of water for commercial or recreational collection of fish or other organisms, including those collected for bait. These uses may include, but are not limited to, uses involving organisms intended for human consumption.

- **Wildlife Habitat (WILD):** Includes water that support wildlife habitats that may include, but are not limited to, preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.
- **Rare, Threatened or Endangered Species (RARE):** Includes waters that support the habitats necessary for the survival and successful maintenance of plant or animal species designated under state or federal law as rare, threatened or endangered.
- **Spawning, Reproduction and Development (SPWN):** Includes waters that support high quality aquatic habitats necessary for reproduction and early development of fish and wildlife.
- **Marine Habitat (MAR):** Includes waters that support marine ecosystems that include, but are not limited to, preservation and enhancement of marine habitats, vegetation (e.g., kelp), fish and shellfish and wildlife (e.g., marine mammals and shorebirds).
- **Shellfish Harvesting (SHEL):** Includes waters that support habitats necessary for shellfish (e.g., clams, oysters, limpets, abalone, shrimp, crab, lobster, sea urchins and mussels) collected for human consumption, commercial or sport purposes.
- **Estuarine Habitat (EST):** Includes waters that support estuarine ecosystems, which may include, but are not limited to, preservation and enhancement of estuarine habitats, vegetation, fish, and shellfish, and wildlife, such as waterfowl, shorebirds, and marine mammals.

The present or potential beneficial uses for the Irvine Groundwater Management Zones as designated by the RWQCB in the Basin Plan are listed below.

- **Municipal and Domestic Supply (MUN):** Includes uses of groundwater for community, military, municipal, or individual water supply systems. These uses may include, but are not limited to, drinking water supply.
- **Agricultural Supply (AGR):** Includes uses of groundwater for farming, horticulture, or ranching. These uses may include, but are not limited to, irrigation, stock watering, and support of vegetation for range grazing.
- **Industrial Service Supply (IND):** Includes uses of groundwater for industrial activities that do not depend primarily on water quality. These uses may include, but are not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.
- **Industrial Process Supply (PROC):** Includes uses of groundwater for industrial activities that depend primarily on water quality. These uses may include, but are not limited to, process water supply and all uses of water related to product manufacture or food preparation.

The Basin Plan has established narrative and numeric water quality objectives for inland surface streams, which includes Lower Newport Bay. If water quality objectives are exceeded, the RWQCB can use its regulatory authority to require municipalities to reduce pollutant loads to the affected receiving waters. Relevant water quality objectives for the proposed project are shown in Table 4.10.A.

Table 4.10.A: Surface Water Quality Objectives for Inland Surface Waters

Constituent	Concentration	Receiving Waters
Algae	Waste discharges shall not contribute to excessive algal growth in inland surface receiving waters.	All inland surface waters
Ammonia	Varies based on pH and temperature. Ranges from 0.004 to 0.0224 mg/L unionized ammonia and 0.05 to 1.49 mg/L total ammonia.	COLD beneficial use designation
	Varies based on pH and temperature. Ranges from 0.0006 to 0.0530 mg/L unionized ammonia and 0.119 to 2.27 mg/L total ammonia.	WARM beneficial use designation
Boron	Shall not exceed 0.75 mg/L as a result of controllable water quality factors.	All inland surface waters
Chlorine (residual)	Chlorine residual in wastewater discharged to inland surface waters shall not exceed 0.1 mg/L.	All inland surface waters
Coliform (fecal)	Logarithm means less than 200 organisms per 100 mL based on five or more samples per 30-day period and not more than 10 percent of the samples exceed 400 organisms per 100 mL for any 30-day period.	REC-1 beneficial use designation
	Logarithm means less than 2,000 organisms per 100 mL based on five or more samples per 30-day period and not more than 10 percent of the samples exceed 4,000 organisms per 100 mL for any 30-day period.	REC-2 beneficial use designation
Coliform (total)	Not to exceed 100 organisms per 100 mL.	MUN beneficial use designation
Color	Waste discharges shall not result in coloration of the receiving waters that causes a nuisance or adversely affects beneficial uses. The natural color of fish, shellfish or other inland surface water resources used for human consumption shall not be impaired.	All inland surface waters
Floatables	Waste discharges shall not contain floating materials, including solids, liquids, foam, or scum, that cause a nuisance or adversely affect beneficial uses.	All inland surface waters
Fluoride	Shall not exceed 0.7–1.2 mg/L as a result of controllable water quality factors depending on air temperature (refer to Basin Plan).	MUN beneficial use designation
Metals	Varies based on hardness.	All inland surface waters
Methylene blue-activated substances	Shall not exceed 0.05 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Nitrate	Shall not exceed 45 mg/L as NO_3 or 10 mg/L as N.	MUN beneficial use designation
Oil and grease	Waste discharges shall not result in deposition of oil, grease, wax, or other materials in concentrations that result in a visible film or in coating objects in the water or that cause a nuisance or adversely affect beneficial uses.	All inland surface waters
Oxygen (dissolved)	Shall not be depressed below 5 mg/L a result of controllable water quality factors.	WARM beneficial use designation
	Shall not be depressed below 6 mg/L a result of controllable water quality factors.	COLD beneficial use designation
	Waste discharges shall not cause the median dissolved oxygen concentration to fall below 85 percent of saturation or the 95th percentile concentration or fall below 75 percent of saturation within a 30-day period.	All inland surface waters

Table 4.10.A: Surface Water Quality Objectives for Inland Surface Waters

Constituent	Concentration	Receiving Waters
pH	Shall not be raised above 8.5 or depressed below 6.5 as a result of controllable water quality factors.	All inland surface waters
Radioactivity	Shall not exceed the California Code of Regulations, Title 22, standards of 5 pCi/L for combined radium-226 and radium-228, 15 pCi/L for gross alpha, 20,000 pCi/L for tritium, 8 pCi/L for strontium-90, 50 pCi/L for gross beta, and 20 pCi/L for uranium.	MUN beneficial use designation
Solids (suspended and settleable)	Shall not cause nuisance or adversely affect beneficial uses.	All inland surface waters
Sulfides	Shall not be increased as a result of controllable water quality factors.	All inland surface waters
Surfactants	Waste discharges shall not contain concentrations of surfactants that result in foam in the course of flow or use of the receiving water or that adversely affect aquatic life.	All inland surface waters
Taste and odor	Shall not contain taste- or odor-producing substances at concentrations that cause a nuisance or adversely affect beneficial uses.	All inland surface waters
Temperature	Shall not be raised above 90°F June through October or above 78°F during the rest of the year as a result of controllable water quality factors.	WARM beneficial use designation
	Shall not be increased by more than 5°F as a result of controllable water quality factors.	COLD beneficial use designation
Toxic substances	Shall not be discharged at levels that will bioaccumulate in aquatic resources to levels that are harmful to human health. Concentrations of toxic pollutants in the water column, sediments, or biota shall not adversely affect beneficial uses.	All inland surface waters
Turbidity	Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20 percent. Where natural turbidity is between 50 and 100 JTU, increases shall not exceed 10 NTU. Where natural turbidity is greater than 100 NTU, increases shall not exceed 10 percent.	All inland surface waters

Source: Water Quality Control Plan, Santa Ana Region, 1995 (updated February 2008).
°F = degrees Fahrenheit
Basin Plan = Santa Ana Regional Water Quality Control Board Water Quality Control Plan
COLD = Cold Freshwater Habitat
JTU = Jackson Turbidity Units
mg/L = milligrams per liter
mL = milliliters
MUN = Municipal Water Supply
N = nitrogen
NO_3 = nitrate
NTU = Nephelometric Turbidity Units
pCi/L = picocuries per liter
pH = percentage of hydrogen
REC-1 = Contact Water Recreation
REC-2 = Noncontact Water Recreation
WARM = Warm Freshwater Habitat

California Toxics Rule (CTR). The CTR provides water quality criteria for certain potentially toxic compounds for inland surface waters, enclosed bays, estuaries, and waters designated with human health or aquatic life uses. Although the CTR criteria do not apply directly to the discharges of storm water runoff, the CTR criteria are utilized as benchmarks for toxics in urban runoff. The CTR and other water quality criteria and targets are used as benchmarks to evaluate the potential ecological impacts of storm water runoff to receiving waters. The CTR establishes acute and chronic surface water quality standards for certain water bodies. Acute criteria provide benchmarks for the highest permissible concentration below which aquatic life can be exposed for short periods of time without deleterious effects. Chronic criteria provide benchmarks for an extended period of time (i.e., for 4 days or more) without deleterious effects. The acute CTR criteria have a shorter relevant averaging period (less than 4 days) and provide a more appropriate benchmark for comparison for storm water flows.

CTR criteria are applicable to the receiving water body and therefore must be calculated based on the probable hardness values of the receiving waters. At higher hardness values for receiving waters, certain constituents, including copper, lead, and zinc, are more likely to be complexed (bound with) components in the water column. This, in turn, reduces the bioavailability and resulting potential toxicity of these metals.

Clean Water Act, Section 303, List of Water Quality Limited Segments. The 2006 list of impaired waters (303[d] list) was approved by SWRCB on October 25, 2006, and by the EPA on June 28, 2007. Lower Newport Bay was listed on the 2006 303(d) list as impaired for chlordane, copper, dichloro-diphenyl-trichloroethane (DDT), polychlorinated biphenyls (PCBs), and sediment toxicity. Lower Newport Bay was previously listed on the 2002 303(d) list as impaired for metals, pesticides, and priority organics.

TMDL Requirements.

The following TMDLs apply to Lower Newport Bay, which is downstream of the project site.

- **Sediment.** In 1998, the RWQCB adopted phased sediment TMDL targets for the Newport Bay Watershed. An initial TMDL target was to reduce the annual average sediment load from 250,000 to 125,000 tons per year (tpy) and to capture half of the remaining sediments in sedimentation basins, limiting the total load to Newport Bay to 62,500 tpy. The base existing load of 250,000 tpy was derived from the local sediment control plan (the 208 plan). Recognizing the episodic nature of sediment loads, the TMDLs are defined in terms of 10-year running annual averages. As part of the TMDL, monitoring data and information are collected by the Newport Bay Watershed Executive Committee. The RWQCB will use the data collected by this monitoring program to reevaluate the sediment TMDL as part of the RWQCB's planning process.
- **Nutrients.** The nutrient TMDLs for the Newport Bay Watershed are based on the general goal of reducing loads by 50 percent for nitrogen and phosphorus to approximate levels observed in the early 1970s in order to estimate the aesthetic and recreational nuisance created by seasonal algae blooms. Based on this criterion and a margin of safety, the

RWQCB amended the Basin Plan to incorporate a three-phase nitrogen TMDL for the Newport Bay Watershed.

Because measured total phosphorous (TP) and sediment loads are correlated, it is expected that a 50 percent reduction in TP loads will be achieved through compliance of the sediment reduction requirements described above. Accordingly, the TMDL for TP is based on a 50 percent reduction of current loads with a compliance date set for December 31, 2007. Based on data collected by the Newport Bay Nutrient Total Maximum Daily Load (TMDL) Regional Monitoring Program, cumulative TP load to date (October 1, 2008, to March 31, 2009) exceeded the 2002 and 2007 targets. TMDL allocations for nitrogen are thus applicable to low-flow (dry weather) conditions only.

- **Selenium.** The EPA TMDL (June 2002) load targets for the metal selenium in Lower Newport Bay are established in pounds per year and are based on a water quality criteria of 71 micrograms per liter dissolved selenium. The TMDL load targets include flows from storm drain systems, open space, nurseries, agricultural uses, dewatering, and groundwater pumping operations. The RWQCB has not yet adopted an implementation plan for this TMDL.
- **Copper, Lead, Zinc, and Cadmium.** The EPA established TMDLs for dissolved cadmium, copper, lead, and zinc in Newport Bay on June 14, 2002. The TMDL targets are expressed as concentration limits, based on the CTR criteria at various hardness values that are associated with different flow regimes. The concentration-based TMDLs apply to all freshwater discharges into Lower Newport Bay, including discharges from agricultural, urban, and residential lands (including flows from storm water systems). The RWQCB has not yet adopted an implementation plan for this TMDL.
- **Organochlorine Compounds.** The EPA issued mass-based TMDLs for legacy pesticides (e.g., chlordane, dieldrin, and DDT) and PCBs for all water bodies in the Newport Bay Watershed. Legacy pesticides are pesticides that are banned or restricted by the EPA. Because their rate of decomposition is slow, these pesticides frequently remain at elevated levels in the environment for years after their widespread use has ended. The RWQCB adopted a Basin Plan amendment on September 7, 2007, to incorporate an organochlorine compounds TMDL and implementation plan into the Basin Plan. The TMDL established wasteload and load allocations to be achieved no later than December 31, 2015.
- **Fecal Coliform.** The RWQCB has adopted phased TMDL criteria for fecal coliform bacteria in Newport Bay, with the initial focus on additional monitoring and assessment to address areas of uncertainty. The TMDL load targets include flows from storm drain systems, agricultural uses, natural sources, and vessel waste.

Clean Water Act, Section 402, National Pollutant Discharge Elimination System. Direct discharges of pollutants into waters of the United States are not allowed, except in accordance with the NPDES program established in Section 402 of the CWA.

General Construction Activity Storm Water Permit. In accordance with NPDES regulations, the State of California requires that any construction activity disturbing 1 ac or more of soil comply with the State General Construction Activity Storm Water Permit (Water Quality Order 99-08-DWQ). To obtain authorization for proposed storm water discharges pursuant to this permit, the landowner (discharger) is required to submit a Notice of Intent (NOI) to the SWRCB, prepare a Storm Water Pollution Prevention Plan (SWPPP), and implement best management practices (BMPs) detailed in the SWPPP during construction activities. Dischargers are required to implement BMPs meeting the technological standards of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or eliminate storm water pollution. Certain discharges of nonstorm water, such as irrigation and pipe flushing/testing are permitted as long as they do not cause or contribute to a violation of any water quality standard, violate any provision of the General Construction Permit, require a nonstorm water permit (such as that issued by the RWQCB), or violate provisions of the Basin Plan. BMPs include programs, technologies, processes, practices, and devices that control, prevent, or remove or reduce pollution. Permittees must also maintain BMPs and conduct inspection and sampling programs as required by the permit.

The General Construction Activity Permit is in the process of being renewed by the SWRCB and is anticipated to be adopted in late summer 2009 for implementation during the 2009/2010 rainy season. This permit, as renewed, will impose additional regulatory requirements on storm water dischargers with the intent of providing greater water quality protection. For example, the renewed permit will likely include posting of project-specific construction phase SWPPPs on the SWRCB website with a time period provided for public comment, numeric benchmark values and action levels for storm water discharges, determination of a risk level for each construction project, and permit compliance requirements based upon the determined risk level.

The proposed project is subject to the General Construction Permit because it will disturb more than 1 ac of soil during the construction phase.

Local Regulations.

Drainage and Flood Control. Drainage and flood control structures and improvements in the project vicinity are subject to review and approval by the City. The regulatory and design frameworks pertaining to such facilities include the following:

- **County Regional Facilities.** Facilities owned, maintained, and operated by the County of Orange (County) with watersheds that cover at least 1,000 acres (ac). County regional facilities must be designed to accommodate 100-year frequency storms as outlined in the Orange County Hydrology Manual.
- **County Subregional Facilities.** County facilities consisting of watersheds that range in size from 640 ac to 1,000 ac. Systems with tributary areas 640 ac or greater must be designed for a 100-year frequency storm event as outlined in the Orange County Hydrology Manual.
- **City Local Facilities.** These are facilities with watersheds less than 640 ac that are owned and maintained by the City. Facilities with tributary areas less than 640 ac must be designed for a 25-year frequency storm event as outlined in the Orange County Hydrology Manual.

The proposed project would not involve changes to County or City drainage or flood control facilities.

De Minimus Permit. On December 20, 2004, the Santa Ana RWQCB issued an NPDES Permit (Order No. R8-2004-0021) for De Minimus discharges, including groundwater and nonstorm water construction dewatering waste, within the San Diego Creek/Newport Bay Watershed. This permit was subsequently amended by Order No. R8-2006-0065 on October 13, 2006. For coverage under this permit, a discharger is required to submit a Notice of Intent to the Santa Ana RWQCB. Under this permit, discharges must comply with discharge specifications, receiving water limitations, and monitoring and reporting requirements detailed in the permit. This permit sets a maximum daily concentration limit of 116µg/L and an average daily concentration limit of 58 µg/L total recoverable selenium in discharges into Lower Newport Bay.

Order No. R8-2004-0021 (amended by Order No. R8-2006-0065) recognized that while groundwater contained high levels of selenium, there were no feasible treatment technologies for reducing selenium concentrations in discharges. A Working Group was subsequently formed, and the Orange County Nitrogen Selenium Management Program (NSMP) was developed to investigate alternative compliance approaches and develop an overall understanding and management plan for selenium and nitrogen as a result of groundwater discharges in the watershed. The NSMP Working Group consists of various stakeholders and technical representatives to develop a Work Plan for addressing nitrogen and selenium issues as a result of groundwater discharges in the watersheds. The research and information collected under the NSMP will also be beneficial in the development of the TMDL specific for selenium, as well as improving compliance with the existing TMDL for nutrients.

Municipal Storm Water (MS4) Permit. The City is a co-permittee under the Orange County Municipal NPDES Permit for the Santa Ana Region, Order No. R8-2009-0030 (NPDES No. CAS618030), approved on May 22, 2009, which supersedes Order No. R9-2002-0010 issued in 2002. To implement the requirements of the 2002 MS4 Permit, the co-permittees developed a 2003 Drainage Area Master Plan (DAMP) that includes a Model New Development and Redevelopment Program (Model Program). This Model Program provides a framework and a process for following the MS4 Permit requirements to incorporate watershed protection/storm water quality management principles into the co-permittees' General Plan process, environmental review process, and development permit approval process. The DAMP is currently being updated to include the requirements of the MS4 permit adopted on May 22, 2009. The DAMP is anticipated to be completed within 12 months of approval of the MS4 permit.

Per the requirements in the DAMP and the MS4 Permit, the City has adopted a Local Implementation Plan (LIP) implementing the DAMP and MS4 Permit within the City limits. The LIP is also anticipated to be updated within 12 months of approval of the MS4 permit. Using the LIP as a guide, the City will approve Water Quality Management Plans (WQMPs) for new development and redevelopment projects within its jurisdiction as part of the development plan and entitlement approval process. WQMPs for new development and significant redevelopment projects that fall under specific priority project categories must include Site Design and Source Control BMPs. Site-specific Treatment Control BMPs must be included for priority projects

unless the project is specifically exempted or if the project is participating in an acceptable regional or watershed Treatment Control program. The priority project categories are those determined by the RWQCB to have the greatest potential to impact receiving waters with polluted runoff. The proposed project is considered a "priority" project because it consists of the addition of 5,000 or more square feet (sf) (0.1 ac) of impervious surface on an already developed site.

One of the requirements for WQMPs pursuant to the City's LIP program is that all priority new development and significant redevelopment projects are required to develop and implement a WQMP that addresses the following:

- Consideration of Site Design BMPs (as appropriate)
- Structural and nonstructural Site Design BMPs (as appropriate)
- Treatment Control BMPs (site-specific or regional, if applicable)
- The mechanisms by which long-term operation and maintenance of all Structural BMPs will be provided, as described in DAMP Section 7.6.6

As a development located in the City and the County (owners and operators of MS4s that are subject to the municipal storm water NPDES Permit), the proposed project is also obligated to implement RWQCB-approved BMPs to limit urban pollutants generated by the construction and operational (postconstruction) phases of the project from reaching MS4s and ultimately to receiving water bodies of the United States, such as Lower Newport Bay. Permittees of the municipal storm water NPDES Permit, such as the City and County, require all significant development and redevelopment projects within their jurisdiction to implement these BMPs, since these projects are dischargers into municipal storm sewer systems for which they are responsible. The BMPs chosen for the project site must be summarized in a WQMP that is submitted to the City for review and approval prior to the commencement of construction activity. Approved BMPs can be found in the Orange County (OC) DAMP.

City of Newport Beach General Plan. Water quality is addressed in the Natural Resources Element and the Harbor and Bay Element of the City's General Plan. Of particular application to the proposed project are Goals NR 3 and NR 4 of the General Plan Natural Resources Element. Goal HB 8 of the Harbor and Bay Element and the associated policies are the same as those listed below under Goal NR 3. The goals are supported by the following policies:

Goal NR 3 *Enhancement and protection of water quality of all natural water bodies, including coastal waters, creeks, bays, harbors, and wetlands.*

NR 3.4 **Storm Drain Sewer System Permit.** Require all development to comply with the regulations under the City's municipal separate storm drain system permit under the National Pollutant Discharge Elimination System.

NR 3.5 **Natural Water Bodies.** Require that development not result in the degradation of natural water bodies.

NR 3.9 **Water Quality Management Plan.** Require new development applications to include a Water Quality Management Plan (WQMP) to minimize runoff from rainfall events during construction and post-construction.

NR 3.10 **Best Management Practices.** Implement and improve upon Best Management Practices (BMPs) for residences, businesses, development projects, and City operations.

NR 3.11 **Site Design and Source Control.** Include site design and source control BMPs in all developments. When the combination of site design and source control BMPs are not sufficient to protect water quality as required by the National Pollutant Discharge Elimination System (NPDES), structural treatment BMPs will be implemented along with site design and source control measures.

NR 3.12 **Reduction of Infiltration.** Include equivalent BMPs that do not require infiltration, where infiltration of runoff would exacerbate geologic hazards.

NR 3.13 **Natural Wetlands**. Promote the use of natural wetlands to improve water quality.

NR 3.15 **Street Drainage Systems.** Require all street drainage systems and other physical improvements created by the City, or developers of new subdivisions, to be designed, constructed, and maintained to minimize adverse impacts on water quality. Investigate the possibility of treating or diverting street drainage to minimize impacts to water bodies.

NR 3.16 **Siting of New Development.** Require that development be located on the most suitable portion of the site and designed to ensure the protection and preservation of natural and sensitive site resources that provide important water quality benefits.

NR 3.17 **Parking Lots and Rights-of-Way.** Require that parking lots and public and private rights-of-way be maintained and cleaned frequently to remove debris and contaminated residue.

NR 3.19 **Natural Drainage Systems.** Require incorporation of natural drainage systems and storm water detention facilities into new developments, where appropriate and feasible, to retain storm water in order to increase groundwater recharge.

NR 3.20 **Impervious Surfaces .** Require new development and public improvements to minimize the creation of and increases in impervious surfaces, especially directly connected impervious areas, to the maximum extent practicable. Require redevelopment to increase area of pervious surfaces, where feasible.

Goal NR 4 *Maintenance of water quality standards through compliance with the total maximum daily loads (TMDLs) standards.*

NR 4.4 **Erosion Minimization.** Require grading/erosion control plans with structural BMPs that prevent or minimize erosion during and after construction for development on steep slopes, graded, or disturbed areas.

HB 8 *Enhancement and protection of water quality of all natural water bodies, including coastal waters, creeks, bays, harbors and wetlands. (Goal NR3)*

Newport Beach City Council Policies

City Council Policy L-18: This policy, along with Policy L-22, is intended to minimize dry-weather runoff and runoff from small rain events (collectively referred to as "runoff" in this Policy) in an effort to improve water quality of Newport Bay, water quality-limited receiving waters, and the near-shore ocean environment. This Policy is prompted, in part, by the adoption of new regulations by the California Regional Water Quality Control Board, Santa Ana Region ("Regional Board") contained in the Regional Board's Order No. R8-2002- 0010, NPDES No. CAS618030.

Whenever possible, runoff should be retained on private property to prevent the transport of these pollutants. Reduction, retention or diversion of runoff can benefit property owners through water conservation and reuse of water that would otherwise drain to the City's street drainage system and harbors, bays, and ocean.

City Council Policy L-22: This policy, along with Policy L-18, is intended to minimize dry-weather runoff and runoff from small rain events (collectively referred to as "runoff" in this Policy) in an effort to improve water quality of Newport Bay, water quality-limited receiving waters (like Buck Gully), and the near-shore ocean environment. This Policy is prompted, in part, by the adoption of new regulations by the California Regional Water Quality Control Board, Santa Ana Region ("Regional Board") contained in the Regional Board's Order No. R8-2002-0010, NPDES No. CAS618030.

New development or redevelopment presents the City and the public with the opportunity to reduce the impacts of runoff that would otherwise drain to the City's street drainage system and the harbors, bays, and ocean. At the time of submittal of an application for a new development or redevelopment project, an applicant shall submit a Water Quality Management Plan (WQMP) to the City. The WQMP's purpose is to minimize to the maximum extent practicable dry weather runoff and runoff from small storms (less than 0.75 inch of rain falling over a 24-hour period) during construction and postconstruction from the property.

City of Newport Beach Municipal Code

Chapter 14.36 (Water Quality): Chapter 14.36 of the City's Municipal Code requires the City to participate as a co-permittee under the NPDES permits in the development and adoption of an ordinance to accomplish the requirements of the CWA. The purpose of this chapter is for the City

to participate in the improvement of water quality and comply with federal requirements for the control of urban pollutants to storm water runoff, which enters the network of storm drains throughout Orange County.

Chapter 15.10 (Excavation and Grading Code): As required by the City's Municipal Code, grading activities shall require a grading permit from the City's Building Official. The Building Official also issues drainage permits as appropriate. Chapter 15.10 contains grading, fill, drainage, and erosion control standards that shall be applied to the corresponding construction activity. The purpose of this chapter is to safeguard life, limb, property, and the public welfare by regulating grading, drainage, and hillside construction on private property, and for similar improvement proposed by private interests on City right-of-way where regulations are not otherwise exercised.

Chapter 15.50 (Flood Damage Prevention): The purpose of Chapter 15.50 of the City's Municipal Code is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions. To accomplish this purpose, this chapter includes methods and provisions to do the following:

- Restrict or prohibit uses that are dangerous to health, safety, and property due to water or erosion hazards, or that result in damaging increases in erosion or flood heights or velocities
- Require that uses vulnerable to floods, including facilities that serve such uses, be protected against flood damage at the time of initial construction
- Control the alteration of natural floodplains, stream channels, and natural protective barriers, that help accommodate or channel flood waters
- Control filling, grading, dredging, and other development that may increase flood damage
- Prevent or regulate the construction of flood barriers that will unnaturally divert flood waters or that may increase flood hazards in other areas

4.10.4 Impact Significance Criteria

The thresholds for hydrology and water quality impacts used in this analysis are consistent with the City's Initial Study Checklist and Appendix G of the State CEQA Guidelines. The effects of the project on hydrology and water quality are considered to be significant if the proposed project would:

Threshold 4.10.1: Violate any water quality standards or waste discharge requirements.

Threshold 4.10.2: 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 preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

Threshold 4.10.3: 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 off-site.

Threshold 4.10.4: 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 off-site.

Threshold 4.10.5: Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

Threshold 4.10.6: Otherwise substantially degrade water quality.

Threshold 4.10.7: 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.

Threshold 4.10.8: Place structures within a 100-year flood hazard area which would impede or redirect flood flows.

Threshold 4.10.9: 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.

Threshold 4.10.10: Result in inundation by seiche, tsunami, or mudflow.

Threshold 4.10.11: Result in significant alteration of receiving water quality during or following construction.

Threshold 4.10.12: Result in a potential for discharge of storm water 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.

Threshold 4.10.13: Result in the potential for discharge of storm water to affect the beneficial uses of the receiving waters.

Threshold 4.10.14: Create the potential for significant changes in the flow velocity or volume of storm water runoff to cause environmental harm.

Threshold 4.10.15: Create significant increases in erosion of the project site or surrounding areas.

The IS, included as Appendix A, substantiates that there would be no impacts associated with the following thresholds: 4.10.7, 4.10.8, 4.10.9, and 4.10.10. These thresholds will not be addressed in the following analysis.

4.10.5 Project Impacts

Threshold 4.10.1: Would the project violate any water quality standards or waste discharge requirements?

OR

Threshold 4.10.6: Would the project otherwise substantially degrade water quality?

OR

Threshold 4.10.11: Would the project result in significant alteration of receiving water quality during or following construction?

OR

Threshold 4.10.12: Would the project result in a potential for discharge of storm water 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?

OR

Threshold 4.10.13: Would the project result in the potential for discharge of storm water to affect the beneficial uses of the receiving waters?

Construction. Less than Significant. The potential impacts of construction activities on water quality focus primarily on sediments, turbidity, and pollutants that might be associated with sediments (e.g., phosphorus and legacy pesticides). Construction-related activities that are primarily responsible for sediment releases are related to exposing soils to potential mobilization by rainfall/runoff and wind. Such activities include removal of vegetation, site grading, and construction of the proposed structures. Environmental factors that affect erosion include topographic, soil, and rainfall characteristics. Nonsediment-related pollutants that are also of concern during construction include waste construction materials; chemicals, liquid products, and petroleum products used in construction or the maintenance of heavy equipment; and concrete-related waste streams.

During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion compared to existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. There is also the potential for construction-related pollutants to be discharged into the City's storm drains during construction activities of the proposed project. For instance, grading activities generate sediment, which has the potential to be washed into storm drains or tracked off site by construction trucks and heavy equipment. In addition, hazardous materials such as paints, solvents, and fuels are used as part of construction activities, and improper use or storage of these materials could affect the storm drain system.

As stated above, the City is required to comply with the State General Construction Permit. The General Construction Permit requires the City to develop and implement a SWPPP, which must include erosion and sediment control BMPs that would meet or exceed measures required by the General Construction Permit, as well as BMPs that control other potential construction-related pollutants. A SWPPP would be developed as required by, and in compliance with, the General Construction Permit. Erosion control BMPs are designed to prevent erosion, whereas sediment controls are designed to trap sediment once it has been mobilized. The General Construction Permit requires the SWPPP to include a menu of BMPs to be selected and implemented to address erosion and sediment control as well as control of other potential construction site materials. The BMPs are based on the phase of construction and the weather conditions. BMPs on this menu are expected to include, but are not limited to:

- Revegetation of landscaped areas
- Hydroseeding, mulching, or other erosion controls for inactive exposed areas
- Sediment controls such as check dams, desilting basins, fiber rolls, and silt fencing
- Catch basin inlet protection
- Construction materials management
- Cover and containment of construction materials and wastes

The SWPPP would address site-specific conditions related to project construction, identify the sources of sediment and other pollutants that may affect the quality of storm water discharges, and describe and ensure the implementation and maintenance of BMPs to reduce or eliminate sediment, pollutants adhering to sediment, and other nonsediment pollutants in storm water as well as nonstorm water discharges. In addition, in order to protect the water quality of the on-site wetlands, the BMPs would prevent runoff from the construction site from entering the on-site wetlands. Compliance with the General Construction Permit has been determined by the SWRCB to ensure that water quality standards (protection of beneficial uses and adherence to water quality objectives) are adequately protected during the construction period.

BMPs consistent with BAT/BCT are required by the Construction General Permit, DAMP, and LIP to be implemented during the construction phase of the project. Erosion and sediment transport and transport of other potential pollutants (e.g., construction material-related pollutants) from the project site during the construction phase would be reduced or prevented through implementation of BMPs meeting BAT/BCT so as to prevent or minimize environmental impacts and to ensure that discharges during the construction phase of the project would not cause or contribute to any exceedance of water quality standards in the receiving waters. In addition, the SWPPP would contain programs for inspections of BMPs (to ensure proper installation and functionality), maintenance of BMPs, training of construction personnel, reporting requirements (for any potential exceedances of water quality standards and any potential noncompliance with the General Construction Permit), and a sampling program for potential nonvisible pollutants in storm water flows. Inspections of the site would be conducted in accordance with the SWPPP. Outside inspections of the site would be conducted at the discretion of the RWQCB under the authority the General Construction Permit.

Non-storm water dewatering may be required during construction. In addition, groundwater dewatering may be necessary during construction if perched groundwater is encountered. Dewatered groundwater may contain high levels of total dissolved solids, salinity, high nitrates, selenium, or other contaminants that could be introduced to surface waters. Any dewatering or construction-related non-storm water discharges would be controlled in compliance with the Construction General Permit and the De Minimus Permit. The De Minimus Permit requires permittees to conduct monitoring of dewatering discharges and adhere to effluent and receiving water limitations contained within the permit so that water quality of surface waters is ensured protection. Compliance with the De Minimus Permit further assures that the impacts of these discharges are appropriately addressed. PDF WQ-2 requires compliance with the groundwater dewatering permit during non-storm water dewatering.

Based upon the factors discussed above and adherence to PDF WQ-1, which requires compliance with the requirements of the General Construction Permit, and PDF WQ-2, which required compliance with the De Minimus Permit, potential construction impacts related to erosion, siltation violation of water quality standards or waste discharge requirements, or degradation of water quality would be less than significant. No mitigation is required.

Operation. Less than Significant. The change in land use to a Civic Center Complex, including, parking lots/structure, driveways, a dog park, and other landscaped areas and increase in impervious surface that would occur with implementation of the proposed project has the potential to increase the types of pollutants in runoff or increase pollutant loading to City storm drains and Newport Bay. The existing site is currently comprised of approximately 5 percent impervious surface area. The proposed project would increase the impervious surface area to approximately 39 percent.

Several pollutants are commonly associated with storm water runoff, including sediment, nutrients, bacteria, oxygen-demanding substances, petroleum products, heavy metals, toxic chemicals, and floatables. Expected and potential pollutants of concern for the proposed usage of the project site are summarized in Table 4.10.B. Pollutants of concern and their impacts on water quality and aquatic habitat are described in more detail in Table 4.10.B.

Bacteria and Viruses. Bacteria sampling and analysis are used to indicate relative levels of other pathogens such as viruses. Bacterial levels in urban runoff can exceed public health standards for water contact recreation. Bacteria levels in streams within natural watersheds also can exceed standards for water contact recreation. A common source of bacteria is animal excrement, and other sources include soils and plant materials.

Heavy Metals. Bioavailable forms of trace metals are toxic to aquatic life. The most common metals found in urban runoff are lead, zinc, and copper. Other trace metals such as cadmium, chromium, and mercury are typically not detected or detected at very low levels in urban runoff. Sources of heavy metals in surface waters include emissions and deposits from automobiles, industrial wastewater, and common household chemicals.

Table 4.10.B: Anticipated and Potential Pollutants of Concern

General Pollutant Category	Land Use Category				
	Commercial	**Parking Lots**	**Street**	**Dog Park**	**Landscaping**
Bacteria/Virus		P	P[4]	X	
Heavy Metals	P	X	X		
Nutrients				X	P
Pesticides					P
Organic Compounds	P[2]	X[3]	X[3]		
Sediments			X	X	P
Trash and Debris	X	X	[5]		
Oxygen-Demanding Substances				X	P
Oil and Grease	X	X	X		

Water Quality Management Plan, Newport Beach City Hall, Arup North America Ltd, August 2009.

[1] Land use only corresponds to the building, or land use footprint. Associated landscaping associated with each land use is addressed separately in the Landscaping column

[2] Including solvents

[3] Including petroleum hydrocarbons

[4] Analysis of pavement runoff routinely exhibit bacterial indicators

[5] Typically likely on public streets, but not likely within the City Hall setting

X = anticipated

P = potential

Nutrients. Nutrients are typically composed of phosphorus and/or nitrogen. Fertilizers are a main source of nitrogen and phosphorus in urban runoff. Other sources of phosphorus in runoff are lawn clippings and tree leaves that accumulate on streets and in gutters. Elevated levels in surface waters cause algal blooms and excessive vegetative growth. As nutrients are absorbed, the vegetative growth decomposes; utilizing oxygen in the process and reducing dissolved oxygen levels. Dissolved oxygen is critical for support of aquatic life. The ammonium form of nitrogen (found in wastewater discharges) converts to nitrite and nitrate in the presence of oxygen, which further reduces the dissolved oxygen levels in water.

Pesticides. A pesticide is a chemical agent designed to control pest organisms. Pesticides can persist in the environment and can bioaccumulate (concentrate within the body) over several years, resulting in health problems for the affected organism.

Organic Compounds. Organic compounds are carbon-based and are found in pesticides, solvents, and hydrocarbons. Elevated levels can indirectly or directly constitute a hazard to life or health. During cleaning activities, these compounds can be washed off into storm drains. Dirt, grease, and grime may adsorb concentrations that are harmful or hazardous to aquatic life.

Sediments. Natural sediment loads are important to downstream environments by providing habitat, substrate, and nutrition; however, increased sediment loads can result in several negative effects to downstream environments. Excessive sediment can be detrimental to aquatic life by interfering with photosynthesis, respiration, growth, and reproduction. In addition, pollutants that adhere to sediment such as nutrients, trace metals, and hydrocarbons can have other harmful effects on the aquatic environment when they occur in elevated levels.

Trash and Debris. Trash and debris can have a significant effect on the recreational value of a water body and aquatic habitat. It also can interfere with aquatic life respiration and can be harmful or hazardous to aquatic animals that mistakenly ingest floating debris.

Oxygen-Demanding Substances. Oxygen-demanding substances include plant debris (such as leaves and lawn clippings), animal wastes, and other organic matter. Microorganisms utilize dissolved oxygen during consumption of these substances, which reduces a water body's capacity to support aquatic life.

Petroleum Hydrocarbons. Petroleum hydrocarbons include oil and grease, benzene, toluene, ethyl benzene, xylene (constituents in gasoline), and polyaromatic hydrocarbons. Sources of petroleum hydrocarbons include parking lots and roadways, leaking storage tanks, auto emissions, and improper disposal of waste oil. Some of these materials can be toxic to aquatic life at low concentrations.

Selenium. As discussed previously, selenium naturally occurs in the Newport Bay Watershed. A portion of the proposed project site is underlain by terrace deposits over bedrock. Quaternary terrace deposits at the site consist of varying amounts of sand, silt, and clay. A portion of the proposed project site is also underlain by Tertiary age Monterey Formation bedrock, which was also encountered beneath the terrace deposits. These soils have the potential to release selenium. Dry weather runoff samples collected on June 16 and 27, 2009 had 56 micrograms per liter (µg/L) and 47 µg/L total selenium and 37 µg/L and 47 µg/L dissolved selenium, respectively. These sampling results indicate that runoff entering the project site currently exceeds the CTR criteria of 5 µg/L (continuous concentration) for selenium for a freshwater surface water body. These results do not exceed the CTR criteria of 71 µg/L (continuous concentration) or 210 µg/L (maximum concentration) for a saltwater surface water body.

As specified in PDF WQ-3, the project would implement several Source Control, Site Design, and Treatment Control BMPs to reduce the discharge of pollutants of concern to the maximum extent practical. Site Design BMPs are BMPs that reduce runoff or pollutants at the source through intentional use of landforms and materials. Source Control BMPs are measures that focus on reducing or elimination runoff and controlling sources of pollutants during operation of the project. Treatment BMPs utilize treatment mechanism to remove pollutants that have entered storm water runoff. In addition, Low Impact Development (LID) features have been included in the site design to reduce runoff and provide treatment of storm water runoff from the project site. The goal of LID features is to mimic the site's existing hydrology by using design measures that capture, filter, store, evaporate,

detain, and infiltrate runoff, rather than allowing runoff to flow directly to piped or impervious systems. The overall BMP strategy is to: (1) reduce post-project runoff; (2) control sources of pollutants; (3) retain storm water runoff on-site through infiltration, evapotranspiration, or reuse, and (4) treat storm water runoff before discharging it to the storm drain system or to receiving waters.

Source Control and Site Design BMPs considered for the proposed project are provided in Table 4.10.C and depicted in Figure 4.10.3. Treatment Control BMPs considered for the proposed project are provided in Table 4.10.D and depicted in Figure 4.10.4. The final design of the BMPs may change slightly from the concepts described and depicted, however, the overall function and results would remain fundamentally the same. Any alterations, should they be made, would improve upon the water treatment strategy.

The United States Geological Survey (USGS) regression model developed by Driver and Tasker was used to estimate predevelopment and postdevelopment runoff quality for a selection of parameters. Results of the water quality modeling are provided in Table 4.10.E. The model results provide an estimate of the pollutant loads from the site as well as BMP performance.

The predicted performances do not account for the site design or source control BMPs nor the additional treatment provided by both the media filters and multiple treatment steps at the dog park and parking structure. The removal rates in the model only account for removal of pollutants through the treatment BMPs. The postdevelopment water quality values in Table 4.10.E essentially account for the site design BMPs, because these generally affect the overall imperviousness of the site, and the results in Table 4.10.E are dependent on impervious surface areas input into the model. However, the effects of individual site design BMPs cannot be accounted for in the model.

Source control BMPs generally prevent excessive or unusual pollution. Data is not available on the overall effects of source control BMPs. Some would essentially be included in the values in the postdevelopment column of Table 4.10.E because most built developments are likely to have implemented some source control BMPs, and the data for the model is based on water quality from built projects or urban areas. However, the effects of individual source control BMPs cannot be accounted for in the model.

Therefore the “postdevelopment with BMPs” values intrinsically include the majority of site design BMPs and some source control BMPs. The model explicitly accounts for removal rates in the treatment BMPs. Because the predicted performances do not account for all the site design or source control BMPs nor the additional treatment provided by both the media filters and multiple treatment steps at the dog park and parking structure, the estimates of impacts are conservative. In other words, the site design or source control BMPs are expected to further reduce the pollutant concentrations and loads, but the amount of that reduction is not quantified by the model.

As indicated in Table 4.10.E, implementation of the BMPs has the potential to result in lower pollutant loading from the site compared to existing conditions for suspended solids, total nitrogen, total phosphorus, dissolved phosphorus, total copper, and total zinc.

Table 4.10.C: Source Control and Site Design BMPs Considered for the Proposed Project

Name	Project-Specific Application	Included in Project
Site Design BMPs		
Maximize permeable area	A majority of open spaces within the site have been designed to be permeable to the extent allowed by on-site soils. Parking has been predominantly incorporated into a 3 story parking structure rather than spread as surface parking over the site. Approximately 61% of the site would be permeable surface.	Yes
Conservation of natural areas	The majority of existing valuable native habitats lies within the northern half of the central parcel and include the existing wetlands and upland coastal scrub vegetation. The wetland area, along with the upland vegetation within the steep ravine (slopes greater than 1:1) would remain as is with the exception of 8-foot wide trails that would descend the ravine and cross the wetlands at three locations. While the remaining upland areas adjacent to the wetlands would be largely re-graded to provide accessibility and park use areas adjacent to trails, they would be re-vegetated with native or adapted drought tolerant vegetation over approximately 60% of their area. The remaining 40% shall consist of level fields, vegetated with drought tolerant turf for recreational purposes.	Yes
Use of permeable paving or other surfaces	Permeable asphalt which meets ADA requirements can have high maintenance requirements in order to maintain permeability over the life of the project. Footpaths in the park areas, surface parking and terraces adjacent to the buildings shall not be constructed of permeable materials. Due to the limited availability of surface parking, it is anticipated that these areas would receive high usage. The use of a permeable material at the dog park shall be precluded by the need to line the sub-grade in order that all runoff from the dog park receives adequate treatment.	No
Designing to minimum widths necessary	Streets, sidewalks and parking lot aisles would be designed to the minimum widths necessary, while complying with ADA regulations and other life safety requirements. Park paths shall be 8 feet in width, maximum.	Yes
Incorporation of landscaped buffers	Incorporation of landscaped buffer areas between sidewalks and streets would be provided where accessibility and topography constraints are permitting. Landscape buffers occur extensively along the southern access roadway and loading dock access roadway and to a lesser extent along the main entrance way roadway.	Yes
Reduced street widths	Minimum street widths within the project area are set by the City of Newport Beach. Typically streets are designed with 12-foot traffic lanes. The San Miguel Drive enhancement would include lane widths between 10–12 feet.	Yes
Maximize canopy interception	As previously described, the majority of open spaces shall be planted with either native or adapted drought tolerant vegetation. Exceptions are the civic green, level areas within the open spaces, trails, pavilions, and the terraces/gardens immediately adjacent to the buildings.	Yes
Use of native or drought tolerant trees/shrubs	Vegetation in the wetland and the adjacent steep slopes (> 1:1) would be preserved. Other pervious areas of the northern half of the south parcel and the north parcel as well as the western edge of the site adjacent to MacArthur Boulevard shall be planted with drought tolerant trees/shrubs/groundcover/grasses.	Yes
Minimize impervious surfaces in landscaping	Roadways and trails are set to minimum widths and lengths, as practicable to comply with ADA standards.	Yes
Use of natural drainage systems	The project would use at grade drainage systems such as vegetated drainage swales or naturalized channels to convey runoff from most areas of the site. Drainage swales may be designed differently than treatment swales in that they would not be sized to treat runoff from the water quality event but rather to convey runoff from larger storm events. To promote infiltration, at grade drainages would be surfaced with pervious material. While at grade drainages sometimes provide water quality treatment, the majority of at grade drainages would terminate at Treatment BMPs such as bioretention basins located behind check dams within the swales. These shall be specifically designed for treatment purposes.	Yes
Low flow infiltration	Perforated pipes shall be used for secondary landscaped drains in locations where soils are suitable for infiltration. The	Yes

Table 4.10.C: Source Control and Site Design BMPs Considered for the Proposed Project

Name	Project-Specific Application	Included in Project
	primary storm drains, such as the drain which runs north to south beneath the civic green, would carry higher flows and would not be perforated. Perforated subdrains shall also be used beneath treatment BMPs including vegetated swales and detention basins. This shall improve treatment by filtering runoff as it percolates through the soil profile to the subdrains.	
Draining rooftops into adjacent landscaping	Runoff from the parking structure and the City Hall building shall drain to an extended detention basin behind the Library and runoff from the new Library Extension roof shall drain to detention basins. These BMPs shall provide treatment as well as promote infiltration and absorption of water into the soil profile.	Yes
Draining to adjacent landscaping	The majority of pathways and trails throughout the site are flanked by open space. Runoff from pathways shall sheet flow into adjacent open space where it would be picked up by either vegetated swales, vegetated filter strips or extended detention basins.	Yes
Vegetated drainage swales	Vegetated drainage swales shall be implemented in lieu of subsurface drainage pipes to the maximum extent practicable. Subsurface drainage pipes are only used at the site where spatial constraints or slopes prohibit use of vegetated drainage swales. In some instances, subsurface landscape drains need to discharge to subsurface drainages. In contrast to treatment swales, which are designed specifically to provide treatment, vegetated drainage swales are sized for conveyance of large storm event runoff. The drainage swales in most cases would discharge into treatment BMPs.	Yes
Site drainage system	The site drainage design incorporates several methods for conveying street and parking area runoff to BMPs. At the main entrance roadway and the loading bay area, runoff would drain to a curb cut which opens into either a vegetated swale or bio-retention basin. At the main access road, runoff would sheet flow to a vegetated swale leading to a bioretention basin. Runoff from the southern, at grade parking area of the civic green would drain directly to subsurface storm drains. Storm flows would be routed away from this storm drain to a detention basin south of the library building. Runoff from the covered part of the parking structure would drain to a clarifier and subsequently the sewer, which is consistent with other parking structures within the City. Runoff from the at-grade parking area in the central parcel along Avocado Avenue would drain through a curb cut to treatment swales which discharge to a subsurface drain and finally to a detention basin. All open space runoff would sheet flow to the nearest drainage or treatment device.	Yes
Source Control BMPs		
Education for property owners, tenants, and occupants	Practical informational materials are provided to residents, occupants, or tenants to increase the public's understanding of storm water quality, sources of pollutants, and what they can do to reduce pollutants in storm water. Upon occupying the building, the City would maintain educational materials regarding the layout, structure, management, and maintenance of the storm water system. This would include details for management and upkeep of specific areas including the loading dock, dog park, parking structure and general landscaping. The educational material would include the types and uses of all chemicals to be used at the site including solvents, pesticides, fertilizers, and detergents.	Yes

Table 4.10.C: Source Control and Site Design BMPs Considered for the Proposed Project

Name	Project-Specific Application	Included in Project
Activity restrictions	Rules or guidelines for developments are established within appropriate documents, which prohibit activities that can result in discharges of pollutants. Activity restriction would be implemented at the site to reduce the risk of pollutants from entering the storm drains. These would include and not be limited to prohibitions for on-site storage of fertilizers and pesticides, dumping of cleaning water or other wastes and chemicals into the storm drain, overwatering of landscape areas, washdown of impermeable landscape areas using other than high pressure and low water use jet spray nozzles, maintenance vehicle washing, and a requirement for pet owners to remove pet feces.	Yes
Common area landscape management	Specific practices are followed and ongoing maintenance is conducted to minimize erosion and overirrigation, conserve water, and reduce pesticide and fertilizer applications. A landscape management crew, employed by the City, would be responsible for maintaining landscapes in the open space around the site. In particular, the landscape crew would be instructed to remedy any erosion or irrigation systems leaks as they occur. Permanent irrigation would be required at the more formalized landscaped areas. Where feasible, micro-irrigation systems would be installed to minimize water use and reduce the chance of over-watering. Microirrigation systems utilize small water emitters either just above or below the ground surface. Spray irrigation may be required to maintain healthy vegetation in targeted areas such as the civic green. Native vegetation in the less formal landscaping areas would receive irrigation during a plant establishment period.	Yes
BMP maintenance	In order to ensure adequate and comprehensive BMP implementation, all responsible parties are identified for implementing all non-structural BMPs and for structural BMPs, cleaning, inspection, and other maintenance activities are specified including responsible parties for conducting such activities. The City would be responsible for all maintenance activities associated with the storm water management BMPs, both structural and non-structural. The City would identify an appropriate staff member, such as the facilities manager, to inspect and organize the periodic maintenance of BMPs. Routine and periodic maintenance activities such as debris and sediment removal would be conducted by the City's landscape maintenance crew. Non-routine maintenance such as major reconstruction or replacement, would be handled by contractors with experience in constructing storm water management BMPs.	Yes
Title 22 CCR Compliance	Hazardous waste is managed properly through compliance with applicable Title 22 regulations. The project includes a fuel storage facility area for a backup generator. The fuel storage area and facilities would comply with relevant sections of Title 22 of the California Code of Regulations as well as relevant sections of the California Health and Safety Code. For example, storage areas would be paved and sufficiently impervious to contain leaks and spills and be covered with a roof or awning to minimize collection of storm water within the secondary containment area. It is not anticipated that other hazardous wastes would be handled at the City Hall facility. The building cooling system would not utilize chemicals but would implement a chemical free cooling tower system. Pesticides for landscape management would be stored off-site at the City's maintenance yard.	Yes

Table 4.10.C: Source Control and Site Design BMPs Considered for the Proposed Project

Name	Project-Specific Application	Included in Project
Local water quality permit compliance	The project complies with Permits issues under the Water Quality Ordinance to ensure clean storm water discharges from fuel dispensing areas and other areas of concern on public properties. The project does not include fuel dispensing areas or other areas of concern on public properties. Therefore this BMP does not apply to the project.	No
Spill contingency plan	A spill contingency plan is prepared for any hazardous chemicals or materials handled at the site. The project includes a fuel storage facility area for a backup generator. A spill contingency plan would be prepared by the City to safeguard the site in the event of an accidental fuel spill. Copies of the plan would be clearly marked and reside with the site manager as well as at a convenient location within the fuel storage area. The plan would mandate stockpiling of cleanup materials and implements, notification of responsible agencies, disposal methods of cleanup materials, and documentation of cleanup actions and spill quantities.	Yes
Underground storage tank compliance	The project does not include underground storage tanks and is therefore not required to comply with appropriate policies and regulations.	No
Hazardous materials disclosure compliance	Measures would be taken to comply with applicable local, state, and federal regulation to avoid harm to humans and the environment from the handling and storage of hazardous materials or wastes. The project includes a fuel storage facility area for a backup generator. Because hazardous materials would be handled at the site, measures would be taken to comply with requirements of the local fire department, health care agency, and other appropriate agencies including the Department of Toxic Substances Control.	Yes
Uniform fire code implementation	The project would comply with Article 80 of the Uniform Fire Code regarding hazardous material storage facilities. The project includes a fuel storage facility area for a backup generator. Design installation and operation of this facility would comply with elements of Article 80 of the Uniform Fire Code. For example, according to Article 8004.2.2.5, rooms or areas where hazardous material liquids are dispensed into containers exceeding a 1- gallon (3.785 L) capacity or used in open containers or systems exceeding a 5-gallon (18.93 L) capacity would be provided with spill control. Secondary containment would be provided when the capacity of an individual container exceeds 55 gallons (208.2 L) or the aggregate capacity of multiple containers exceeds 100 gallons (378.5 L). Article 8003.1.7.2 states that floors would be sloped; constructed with sumps and collection systems; recessed a minimum of 4 inches; provided with a liquid-tight raised sill to a minimum height of 4-inches to prevent the flow of liquids to adjoining areas; or otherwise constructed to contain a spill from the largest single container or tank. Except for surfacing, the sill would be constructed of noncombustible material, and the liquid-tight seal would be compatible with the material stored. When liquid-tight sills are provided, they are not required at door openings which are provided with and open-grate trench that connects to an approved drainage system.	Yes

Table 4.10.C: Source Control and Site Design BMPs Considered for the Proposed Project

Name	Project-Specific Application	Included in Project
Common area litter control	Trash management and litter control procedures would be specified and include responsible parties and implementation procedures to reduce pollution of drainage water. An appropriate City employee, such as the facilities manager, would be responsible for ensuring that the premises remain clear of trash and large debris such that risk of pollution to receiving waters is minimized. The facilities manager may appoint this task to a landscape maintenance contractor. Garbage bins and cigarette disposal devices would be placed in sufficient numbers throughout the open space trail network and around City Hall and parking structure buildings to encourage safe disposal of trash and litter by visitors and employees. The landscape contractor or City staff in charge of this responsibility would undertake routine litter patrols, including inspection and emptying of trash receptacles, and noting and recurring violations.	Yes
Employee training	Practical informational materials and/or training are provided to employees to increase their understanding of storm water quality, sources of pollutants, and their responsibility for reducing pollutants in storm water. Copies of operation and maintenance manuals and specifications as available for all BMPs used must be included in Appendix A of the Water Quality Management Plan (WQMP). City Hall staff does not receive annual storm water training. However, training would be provided for targeted staff in the position to affect storm water quality. Site maintenance staff would be trained in the uses, and appropriate disposal methods, of cleaning and maintenance materials.	Yes
Housekeeping of loading docks	Cleaning and clean up procedures are specified and implemented for loading dock areas to keep the area free from pollutants and reduce associated pollutant discharges. The loading dock at the City Hall would receive relatively few deliveries compared to other types of commercial facilities. Deliveries at City Hall would include food items and other supplies. The loading dock would be regularly swept and kept clear of clutter, debris and trash. Should any breakage or spill occur, cleanup would be undertaken immediately without the use of water whenever possible. Any water used in cleanup activities would be discharged to the sanitary sewer. Appropriate permits would be sought for this connection. Vehicle washing would be prohibited at the loading dock area.	Yes
Drainage facility inspection	Inspection procedures, schedules, and responsibilities are established for drainage facilities to ensure regular cleaning, inspection, and maintenance. The City maintenance staff would inspect all catch basins (drain inlets), storm water BMPs, storm drain cleanouts, and drainage swales at least once per year, typically in late summer or early fall prior to the start of the wet season. An inspection log would be kept with the facilities manager. At least 80% of all drainage facilities would be cleaned and maintained on an annual basis, with 100% of the facilities included in a two-year period. Inspection and cleaning would take place in late summer to early fall prior to the start of the rainy season.	Yes

Table 4.10.C: Source Control and Site Design BMPs Considered for the Proposed Project

Name	Project-Specific Application	Included in Project
Street sweeping private streets and parking lots	Street sweeping frequency and responsible parties are identified and regular sweeping is conducted to reduce pollution of drainage water. All streets and parking areas on site would be swept using appropriate street cleaning equipment on a weekly basis.	Yes
Retail gasoline outlets	Specific operational and maintenance BMPs are implemented to the extent feasible to reduce potential for pollutant discharge from wash off by runoff, leaks, and spills. There are no gasoline outlets on the site.	No
Routine Structural BMPs		
Site design and landscaping planning (SC-10)	Landscape planning methodologies are incorporated into project design to maximize water storage and infiltration opportunities and minimize surface and groundwater contamination from storm water. Site design and landscape planning would incorporate water storage and infiltration opportunities consistent with the LID approach to storm water management. These include drainage swales with check dams constructed from stone or similar materials. Drainage swales may vary in typology, ranging from fully vegetated linear depressions where flows are minimal in the upper drainage areas to naturalized channels with rock bottoms where larger flows would occur in lower drainage areas. Landscape drainage features would terminate in Treatment BMPs designed to standards set forth in the DAMP.	Yes
Roof runoff controls (SC-11)	Direct roof runoff away from paved areas and to pervious areas, cisterns, and/or infiltration trenches to reduce total volume and rate natural infiltration rates at the site. Roof runoff from the City Hall, Council Chambers, Library Expansion and parking structure buildings would be diverted to naturalized treatment BMPs where infiltration and absorption of moisture into the soil layers would occur. City Hall and Council Chamber runoff would flow to a vegetated swale with check dams on the west side of the City Hall Building. Library Expansion and parking structure runoff would flow to an extended detention basin on the North side of the Library. One or more sub-surface vaults would be installed to receive runoff from all building roofs as well as open spaces around the buildings to offset anticipated increases in peak discharge from the site.	Yes
Efficient irrigation (SC-12)	Project plans include application methods to minimize irrigation water discharged into storm water drainage systems. Site-wide irrigation would be automated and use soil moisture sensors and timers or an equivalent technology to dictate when irrigation is applied. Moisture sensors would, on a daily basis, activate the irrigation system. Timers would ensure that when irrigation is required it is only applied during mornings or evenings when evapotranspiration losses are at a minimum. The application method would be designed to minimize the runoff of excess irrigation water into the municipal storm drain. Where feasible, micro-irrigation systems would be installed to minimize water use and reduce the chance of over-watering. Micro-irrigation systems utilize small water emitters either just above or below the ground	Yes

Table 4.10.C: Source Control and Site Design BMPs Considered for the Proposed Project

Name	Project-Specific Application	Included in Project
	surface and directed at plant root systems. Spray irrigation may be required to maintain healthy vegetation in targeted areas such as the civic green. Native vegetation in the less formal landscaping areas would only receive irrigation during the plant establishment period. Mulches would be used at the surface in landscaped areas to minimize sediment in runoff. Flow reducers or shutoff valves triggered by pressure drops would be installed to control water losses from broken emitters or lines.	
Storm drain system signs (SC-13)	Stencils or affixed signs placed adjacent to storm drain inlets to prevent waste dumping. All storm drain inlets would be marked with stencils indicating that the drain leads to Newport Bay and forbidding dumping of pollutants.	Yes
Pervious pavement (SC-20)	Porous concrete or asphalt, blocks with pervious spaces or joints, or grass or gravel surfaces are employed to reduce runoff volume and provides treatment. All trails, pathways and paved areas would be ADA compliant and would therefore require smooth surfaces. While pervious asphalt has been considered as a potential material for these surfaces, long term maintenance by surface vacuuming is required to maintain the materials function. Therefore, pervious pavements would not be used at the site. Other mechanisms consistent with an LID storm water management approach for encouraging natural infiltration and treatment have been incorporated into the design to manage runoff from these areas.	No
Alternative building materials (SC-21)	Specialized building materials are employed that have lower potential to leach pollutants, and reduce need for future painting or other pollutant generating maintenance activities. For example, some treated wood contains pollutants that can leach out to the environment and some metal roofs and roofing materials result in high metal content in runoff. Building materials have not been specified. However, care would be taken to minimize the use of materials which cause leaching of pollutants or which require frequent pollutant generating activities such as cleaning.	Yes
Fueling areas (SC-30)	Project plans are developed for cleaning, spill cleanup, containment, leak prevention, and incorporation of design to reduce rain and runoff that could come in contact with fueling areas. There are no fueling areas on the site	No
Maintenance bays and dock (SC-31)	Project design incorporates measures to cover or otherwise eliminate run-on and off from bays and docks, and direct connections to storm drain are eliminated. The loading dock doorway would be covered by a high overhang of the buildings roof. Additionally, the ground would slope gradually away from the building in the immediate vicinity of the loading area. This combination of design measures would prevent storm water run–on to the loading area. To prevent runoff of water from the loading bay, a concrete drainage channel with metal grates would be placed around its perimeter. The channel would lead to the sanitary sewer.	Yes

Table 4.10.C: Source Control and Site Design BMPs Considered for the Proposed Project

Name	Project-Specific Application	Included in Project
Trash enclosures (SC-32)	Trash storage areas are covered and enclosed to prevent introduction of trash and debris to site runoff. The trash storage area would be located at the rear of the City Hall building adjacent to the loading bay. Some trash receptacles would be located within the building areas outside of the building used for trash storage would be covered and slightly elevated to prevent the introduction of trash, debris and other pollutants to site runoff.	Yes
Vehicle and equipment washing areas (SC-33)	Designated wash areas or facilities are contained and wash water is reused, treated, or otherwise properly disposed of. Vehicle and equipment washing areas are not included in the site design.	No
Outdoor material storage areas (SC-34)	Outdoor storage areas for materials containing pollutants, especially hazardous materials, are covered and enclosed, on impervious surfaces, and include secondary containment when applicable. There would be fuel stored on site south of the proposed parking structure and west of the southern parking structure access driveway, as part of the backup generator for the Emergency Operations Center (EOC). Fuel would be stored in an aboveground tank. The City would need to comply with Fire Department Guideline E.02 for the installation of generator sub-base fuel storage tanks to minimize hazards to employees or visitors to the Civic Center. The Guidelines require review of quantities and types of liquids to be stored; distances from tanks and dispensers to property lines, buildings, and other exposures; vehicle access; vehicle impact protection; protected tanks and their supports; methods of storage and dispensing; overfill prevention; spill containment; vents; vapor recovery dispensers; and other equipment and accessories.	Yes
Outdoor work areas (SC-35)	Outdoor work areas are covered, contained, and treated as necessary to reduce opportunity of pollutants from work activities to enter storm water. Outdoor work areas are not included in the design.	No
Outdoor processing areas (SC-36)	Outdoor processing areas are covered, contained, and treated as necessary to reduce opportunity of pollutants from work activities to enter storm water. Outdoor processing areas are not included in the design.	No

Source: *Water Quality Management Plan, Newport Beach City Hall*, Arup North America Ltd, August 2009.
Note: SC= Source Control. Refers to the standard BMP numbering system used in the California Stormwater Quality Association (CASQA) Stormwater Best Management Practice (BMP) Handbooks

This page intentionally left blank

ARUP

KEY

Surface flow

SD 1.5 BMP ID

Site Boundary

BMPs not depicted but included in the WQMP

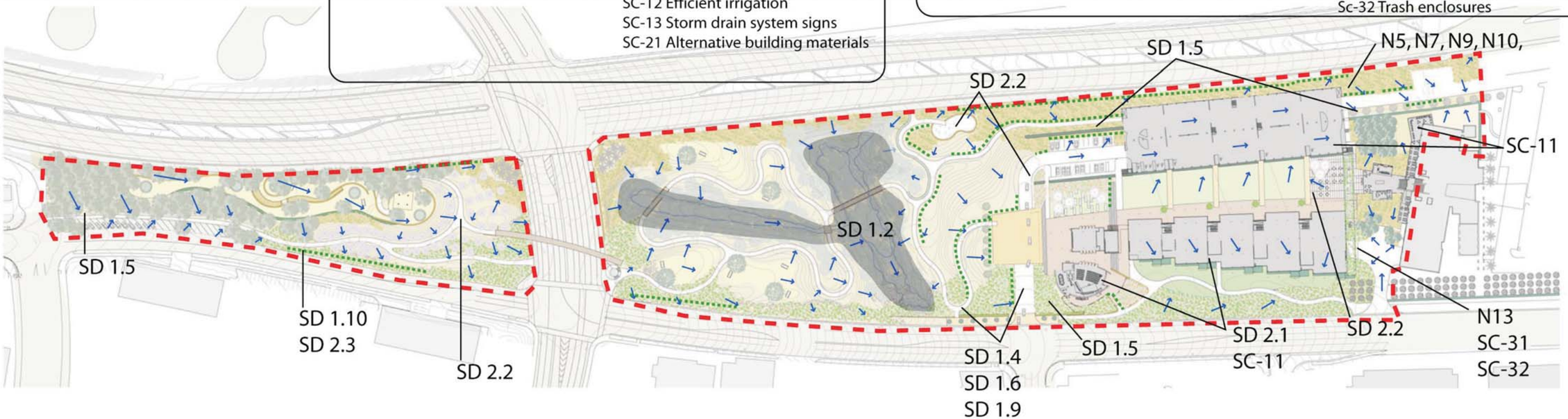
Site Design
SD 1.1 Maximize permeable area
SD 1.7 Maximize canopy interception
SD 1.8 Native or drought tolerant vegetation
SD 1.11 Low flow drainage infiltration
SD 2.4 Site drainage system

Source Control
N1 Education of property owners
N2 Activity restrictions
N3 Common area landscape management
N4 BMP maintenance
N11 Common area litter control
N12 Employee training
N14 Drainage facility inspection
N15 Street sweeping
SC-12 Efficient irrigation
SC-13 Storm drain system signs
SC-21 Alternative building materials

BMPs Depicted below and included in the WQMP

Site Design BMPs
SD 1.2 Conservation of natural areas
SD 1.4 Design to minimum widths
SD 1.5 Incorporation of landscape buffers
SD 1.6 Reduce street widths
SD 1.9 Minimize impervious surfaces
SD 1.10 Natural drainage systems
SD 2.1 Drain rooftops to adjacent landscaping
SD 2.2 Drain to adjacent landscaping
SD 2.3 Drainage swale

Source Control BMPs
N13 Housekeeping of loading docks
N5 Title 22 Compliance
N7 Spill Contingency Plan
N9 Hazardous material disclosure
N10 Uniform Fire Code compliance
SC-10 Site design and landscape planning
SC-11 Roof runoff controls
SC-31 Maintenance bays
Sc-32 Trash enclosures



LSA

FIGURE 4.10.3

N

0 100 200
FEET

SOURCE: Bohlin Cywinski Jackson (BCJ)

I:\CNB0901\G\Hydro\Source Control BMPs.cdr (7/31/09)

Newport Beach City Hall and Park Development Plan

Site Design and Source Control BMPs

This page intentionally left blank

Table 4.10.D: Treatment Control BMPs Considered for the Proposed Project

Name	Project-Specific Application	Included in Project
Infiltration		
Infiltration Trench (TC-10)	A long narrow rock filled trench with no outlet receives water and stores it until it infiltrates into the underlying soil. It is effective at removing most pollutants but can get clogged with sediment. Infiltration trenches would not be used on site for the following reasons. Soils are generally not suitable for direct infiltration, grading would take much of the site ground surface to the level of bedrock, and infiltration trenches tend to require more intensive maintenance than other devices with similar water quality improvement performance.	No
Infiltration Basin (TC-11)	A shallow impoundment designed to capture and hold storm water until it infiltrates into underlying soil. Effective at removing most pollutants but requires large areas and may be constrained by soil types. See TC-10. The devices at the site would not be specifically designed for infiltration but would be open bottom and allow infiltration to occur at natural rates.	No
Retention/Irrigation (TC-12)	Storm water is captured in cistern, basin, trench, or other storage area and is subsequently used for irrigation of site landscaping. Rainwater harvesting is not included in the site design.	No
Detention and Settling		
Wet Pond (TC-20)	A constructed basin with a permanent pool of water throughout the year. This basin type differs from wetlands because it is of greater depth. Treats storm water runoff by settling and biological uptake. A wet pond is not appropriate at the site due to the lack of a permanent water source to maintain water within the permanent pool.	No
Constructed Wetland (TC-21)	A constructed basin with permanent pool of shallow water throughout most of year with substantial vegetative coverage. A constructed wetland is not appropriate at the site due to the lack of a permanent water source to maintain water within the shallow permanent pool.	No
Extended Detention Basin (TC-22)	A constructed basin with an outlet designed to detain storm water for at least 48 hours to allow particles and pollutants to settle. Small extended detention basins would be used to detain water from a number of locations at the site including the dog park. These would be very similar to bioretention basins but would likely require the use of liners to prevent subsurface ponding in the vicinity of the library basement. Bio-retention basins are not typically lined and utilize natural infiltration to disperse stored water. A perforated stand pipe would allow the basins to drain over a period of 48 hours. The detention basins would also attenuate peak flows during larger storm events by providing additional storage above and beyond the SQDV. The required volumes for additional storage are estimated to be 4,000 and 1,600 cubic feet.	Yes

Table 4.10.D: Treatment Control BMPs Considered for the Proposed Project

Name	Project-Specific Application	Included in Project
	The extended detention basins would be planted with ground cover and /or larger vegetation depending on the site specific landscape design intent. The type of vegetation planted would dictate the depth of the soil profile and thus the depth of the impervious liner. Extended detention strategies would be used to treat runoff from, among other areas, the dog park, the main entrance road, the rear entrance road, the parking structure, the civic green, and the roof of the library expansion. Effluent from the extended detention basin serving the dog park would discharge to the vegetated swales. This detention basin may be replaced by a media filter as described below in TC-40.	
Wetland (MP-20	Wetland: Similar to a constructed wetland but a self contained, manufactured module with vegetation that mimics natural wetland processes. A wetland is not appropriate at the site due to the lack of a permanent water source to maintain water within the shallow permanent pool. While storing and treating over time is a possibility, this option carries higher costs than other treatment BMPs. Furthermore, package wetland systems can require significant maintenance.	No
Biofiltration		
Vegetated Swale (TC-30)	Open, shallow, vegetated channels that collect and slowly convey runoff through the property. Filters runoff through vegetation, subsoil matrix, and/or underlying soils; traps pollutants, promotes infiltration and reduce flow velocity. Vegetated swales would be used extensively at the site. The vegetated swales would in most instances be modified with check dams to reduce the occurrence of short circuiting flows. Check dams would be approximately 3 inches in height. The swales would provide both biofiltration, as is typical of vegetated swales, and retention of storm water runoff through infiltration and absorption within the soil profile. The vegetated treatment swales would have a subdrain where native soils are impervious as is typical on the majority of the site. Utilizing the subdrain would ensure that runoff is filtered through the soil profile before being discharged to a storm drain. Detailed sizing calculations have been made to ensure that the entire water quality volume can be infiltrated through the soil profile at a long term rate of 0.9 inches per hour. The vegetated swales would receive runoff from numerous open spaces. The dog park runoff would also pass through a vegetated swale after being detained in an extended detention basin.	Yes
Vegetated Buffer Strip (TC-31)	Vegetated surfaces that are designed to treat sheet flow from adjacent surfaces. Removes pollutants by deceleration, settling, and infiltration. Vegetated buffer strips are included as specific treatment devices within the watersheds that contribute sheet flow directly to the existing wetlands. The vegetated buffer strip would form a treatment barrier surrounding the wetland such that any landscape drainage crosses the filter prior to sheet flowing to the wetland. This would reduce flows by infiltration and improve water quality. In addition, some runoff from pathways, terraced areas and other spaces would, by necessity, sheet flow across vegetated areas prior to reaching conveyance or treatment devices. While not the primary treatment mechanism in this instance, the additional treatment is similar to that described in the site design BMP in Table 4.10.C.	Yes
Bioretention (TC-32)	A soil and plant based filtration strategy that involves capturing storm water in depressed landscaped areas. Bioretention	Yes

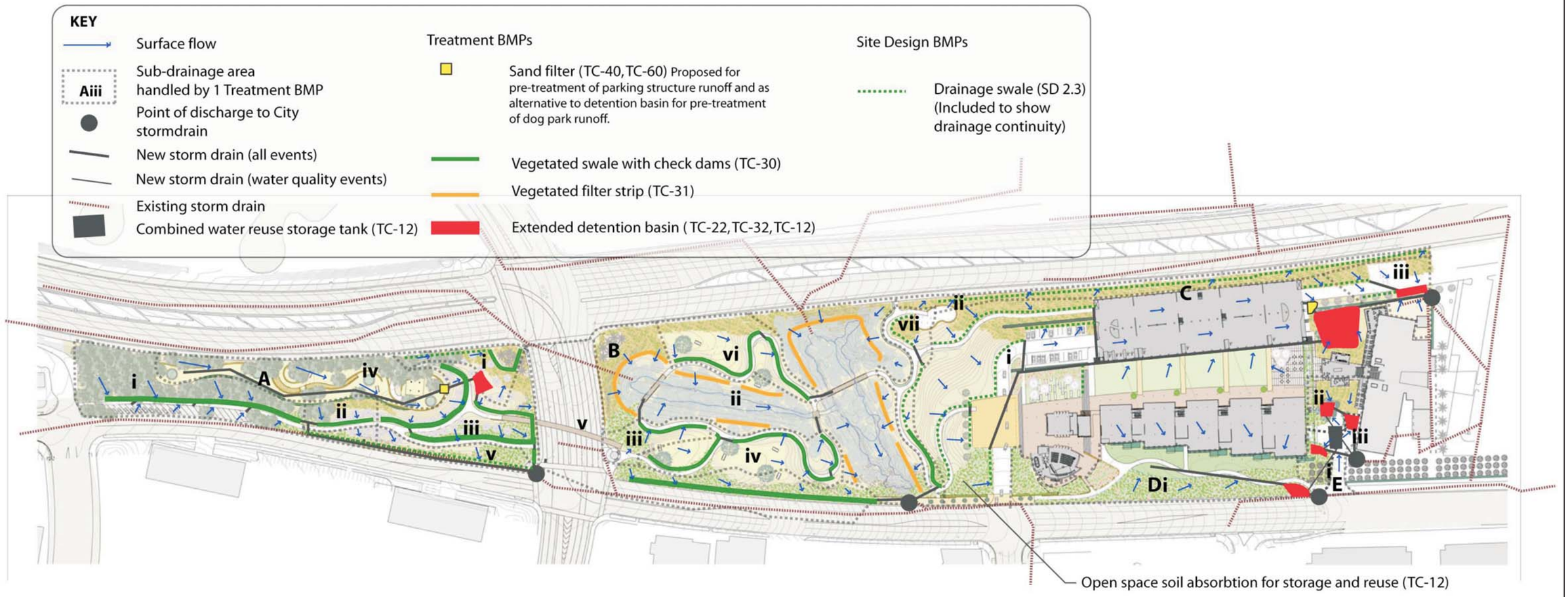
Table 4.10.D: Treatment Control BMPs Considered for the Proposed Project

Name	Project-Specific Application	Included in Project
	practices are flexible strategies for using landscaping as treatment. As described in the extended detention basin and vegetated swales discussion (see above BMP TC-22 and TC-30) the intended design of extended detention basins and vegetated swales would be very similar to bioretention basins but with perforated subdrains or stand pipes employed rather than relying solely on natural infiltration. However, in some instances it may be determined that localized natural infiltration rates are sufficient to support drainage over 48 hours. If this occurs, the design would be more similar to a bioretention basin.	
Filtration		
Sand or other Media Filter (TC-40)	Usually two-chambered with a pretreatment settling basin and a filter bed filled with sand or other absorptive filter media. Media filtration system would be used to treat runoff from the roof of the parking structure as well as the dog park to enhance removal of organic compounds to improve nutrient and pathogen removal. Sand media is currently being considered; however, a different media or combination of media with similar or better treatment performance may be substituted in final design. Runoff from the dog park would receive a second treatment step in vegetated swales with check dams as described above in TC-30. Runoff from the parking structure roof would receive a second treatment step in the extended detention basin, as described above in TC-22. Sand media is currently being considered; however, a different media or combination of media with similar or better treatment performance may be substituted in final design.	Yes
Flow Through Separation		
Water Quality Inlet (TC-50)	Vaults with chambers including screens, settling areas, and/or filter media to promote settling and/or separation of pollutants from storm water. Subsurface water quality inlets would not be used. Other BMPs would be implemented to meet the requirements of the WQMP.	No
Wet Vault (MP-50)	A vault with a permanent water pool and internal features to promote settling and/or separation of pollutants from storm water. Wet vaults would not be used. Other BMPs would be implemented to meet the requirements of the WQMP.	No
Vortex Separator (MP-51)	Similar to wet vaults but round and use centrifugal action as primary separation mechanism. Vortex separators would not be used. Other BMPs would be implemented to meet the requirements of the WQMP.	No

Table 4.10.D: Treatment Control BMPs Considered for the Proposed Project

Name	Project-Specific Application	Included in Project
Drain Inserts (MP-52)	Boxes, trays, or socks with screens or filter fabric and may also include filter media. They are installed in inlets or catch basins and removal effectiveness for pollutants is generally low except for large sediment. Drain inserts would not be used. Other BMPs would be implemented to meet the requirements of the WQMP.	No
Other		
Multiple Systems (TC-60)	A system that uses two or more BMPs in series to increase treatment. This system is useful when one BMP does not provide sufficient treatment alone. Multiple systems would be used in two instances at the site. Both the dog park and parking structure runoff would flow through a media filter system before being retained in an extended detention basin.	Yes

Source: *Water Quality Management Plan, Newport Beach City Hall,* Arup North America Ltd, August 2009.
Note: TC= Treatment Control. Refers to the standard BMP numbering system used in the California Stormwater Quality Association (CASQA) Stormwater Best Management Practice (BMP) Handbooks



LSA

FIGURE 4.10.4

N

0 100 200
FEET

SOURCE: Bohlin Cywinski Jackson (BCJ)

I:\CNB0901\G\Hydro\Treatment BMPs.cdr (7/31/09)

Newport Beach City Hall and Park Development Plan

Treatment BMPs

This page intentionally left blank

Table 4.10.E: Pollutant Modeling Results

Water Quality Parameter	Site Pollutant Load (lbs)			Load Reduction from Treatment of Off-Site Runoff from Avocado Avenue and San Miguel Drive (lbs)	Final Load (lbs)	Total Load Reduction Compared to Existing Conditions (lbs)
	Existing	Postdevelopment	Postdevelopment with BMPs			
Suspended Solids	5.12	4.87	0.54	0.59	-0.06	-5.18
Total Nitrogen	2.11	3.38	1.96	0.27	1.69	-0.42
Total Phosphorus	0.53	0.77	0.27	0.24	0.03	-0.50
Dissolved Phosphorus	0.20	0.25	0.04	0.07	-0.04	-0.24
Copper	0.04	0.07	0.01	0.02	-0.01	-0.06
Zinc	0.41	0.55	0.19	0.08	0.10	-0.30

Source: *Water Quality Management Plan, Newport Beach City Hall,* Arup North America Ltd, August 2009.
Note: Negative number indicates that the load reduction is greater than the site pollutant load with BMPs. Actual BMP performance may vary from model results.
BMPs = Best Management Practices
lbs = pounds

This page intentionally left blank

In addition, the project would treat runoff from portions of Avocado Avenue and San Miguel Drive. The additional treatment would contribute to a further reduction of pollutant loading than that achieved by treating runoff from the project site. The estimated total reduction in pollutant loading compared to existing conditions is provided in the final column of Table 4.10.E. Therefore, impacts related to water quality, water quality standards, and beneficial uses would be less than significant. No mitigation is required.

In addition to the constituents modeled above, selenium is a naturally occurring element in the Newport Bay Watershed and is a potential pollutant of concern. The proposed project would not involve long-term dewatering; therefore, transfer of selenium or other groundwater-related constituents to surface water would not occur. Selenium may also be leached from soils; however, as discussed above, the project would reduce suspended solid concentrations and loads from the project site. Therefore, because the project BMPs would reduce suspended solid concentrations and loads, it is unlikely that the proposed project would increase concentrations of selenium during dry or wet weather flows. Therefore, water quality impacts related to selenium during project operation would be less than significant.

Threshold 4.10.2: Would the project 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 preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Less than Significant. The proposed project is not located in a groundwater recharge area. As discussed above, some groundwater dewatering may be required during construction activities. However, dewatering activities would be temporary, and the volume of groundwater removed would not be substantial. In addition, the City would be required to comply with the De Minimus Permit for non-storm water discharges, as specified in PDF WQ-2. Based on the proposed use of the project site, groundwater withdrawal would not be required during operation of the project. The proposed project would increase the impervious surface area and result in a net increase in total runoff volume. This volume is runoff that would not be infiltrated into the ground; however, aquifer recharge would not be affected by the change in volume of storm water runoff at the site. Due to the presence of bedrock and the high impermeability of the site, overland runoff does not likely contribute to aquifer recharge in the existing condition; therefore, it would not contribute to aquifer recharge in the proposed condition.. As discussed in Section 4.13, Public Services, Utilities, and Service Systems, there is adequate potable water available to serve the project. Therefore, impacts to groundwater supplies would be less than significant, and no mitigation is required.

Threshold 4.10.3: Would the project 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 off-site?

OR

Threshold 4.10.4: **Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?**

OR

Threshold 4.10.5: **Would the project create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?**

OR

Threshold 4.10.14: **Would the project create the potential for significant changes in the flow velocity or volume of storm water runoff to cause environmental harm?**

OR

Threshold 4.10.15: **Would the project create significant increases in erosion of the project site or surrounding areas?**

Construction. Less than Significant. As previously described, during construction activities, the project site would be graded and excavated soil would be exposed, and there would be an increased potential for soil erosion compared to existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. There is also the potential for construction-related pollutants to be discharged into the City's storm drains during construction activities of the proposed project. For instance, grading activities generate sediment, which has the potential to be washed into storm drains or tracked off site by construction trucks and heavy equipment.

Project Design Feature (PDF) WQ-1 requires preparation of a SWPPP to identify construction BMPs to be implemented as part of the proposed project to reduce impacts to water quality during construction, including those impacts associated with soil erosion. Adherence to PDF WQ-1, which requires compliance with the requirements of the General Construction Permit, would reduce potential construction impacts related to erosion and siltation to below a level of significance. No mitigation is required.

Operation. Less than Significant. As previously discussed, the proposed project would increase impervious surface area from approximately 5 percent to 39 percent. In addition, the proposed project would modify drainage patterns on-site. Due to contour modifications within the park region, two offsite watersheds that currently drain to MacArthur Boulevard (just north and south of San Miguel Drive) would be modified to retain private runoff within the park watershed. In addition, the proposed

dog park watershed would drain towards Avocado Avenue instead of to the north wetland. As a result, the total volume of water entering the north wetland during storm events would be reduced by approximately 11 percent. Because the north park is not currently irrigated, the reduction would occur only in wet weather flows, and dry weather flows into the wetland would not be impacted by this watershed modification. As discussed in Section 4.5, Biological Resources, this reduction in runoff to the north wetland would not result in a significant adverse biological impacts. The central wetland watershed would also be modified to include runoff from the adjacent San Miguel Drive enhancement and portions of Avocado Avenue. A portion of the existing eastern embankment along MacArthur Boulevard would be cut away to install the parking garage, which would shift a portion of the watershed to drain toward the project site instead of onto MacArthur Boulevard.

The proposed project would likely reduce on-site erosion because a large portion of the site would be installed with landscaping and hard materials, which would improve retention of soil material at the site. On-site erosion of sand materials currently occurs at areas of the site with sparse planting or bare soil. In the proposed condition, hardscape materials and the topsoil and rooting of plants would better retain surface soils at the site. There are no opportunities for storm water from the project site to generate off-site erosion. Once storm runoff enters the City storm drain system at the designated points of discharge (shown previously in Figure 4.10.1), the water remains within storm pipes until discharging to the ocean. For these reasons, on- and off-site erosion impacts due to the alteration of on-site drainage patterns are not anticipated.

Underground detention storage tanks would be provided at the southwest and southeast corners of the site to counteract the increased runoff from the increased impervious surface areas and shifting of the watersheds described above. The detention storage tanks would be sized to detain up to a 50-year storm event peak discharge from connection points G and H (shown in Figure 4.10.1). In addition, a vegetated biofiltration swale with a series of check dams is proposed adjacent to Avocado Avenue north of the wetlands. The check dams would be sized to provide adequate detention storage to offset the shifting of peak demands within the wetland watershed.

Existing and proposed peak discharge and total volume was modeled for a 2, 5, 10, 25, 50, and 100-year storm event. Full model results are summarized in Table 2 in the *Drainage Report and Utility Demand Estimation* (ARUP North America Ltd, July 2009) in Appendix I of the EIR. Under the proposed conditions, there would be a net decrease in peak discharge at four of the discharge points. At the remaining two discharge points (E and H on Figure 4.101), the increase in peak discharge would be negligible (less than 1 percent and/or 1 cubic foot per second (cfs).

The Drainage Report concluded that based on the modeling results, the proposed drainage infrastructure serving the site would be adequately sized to provide flood protection for a 2, 5, 10, 25, 50, and 100-year storm event. The capacity of downstream storm networks is dependent on peak discharge rates generated by upstream watersheds. Total storm volumes would increase at two of the six discharge points; however, as discussed above, the increase in peak discharge would be negligible and is not anticipated to impact the capacity of the downstream storm drain systems. Based on the factors discussed above, the proposed project would have a less than significant impact on drainage patterns, on- or off-site erosion or siltation, drainage volumes and velocities, or flood potential downstream.

4.10.6 Cumulative Impacts

Less than Significant. Cumulative development in the project area is a continuation of the existing urban pattern of development that has already resulted in extensive modifications to watercourses in the area. The area's watercourses have been channelized, and drainage systems have been put into place to respond to the urbanization that has occurred in this area over the past 60 years. For all cumulative analysis related to hydrology and water quality, the cumulative projects being considered include all potential projected development discharging to Newport Bay. Because cumulative hydrology and water quality impacts are caused by build out of properties that increase impervious area and pollutant loads, cumulative development is considered to be the build out of the Newport Bay Watershed over an extended time period, resulting in development of all available parcels.

New development and redevelopment can result in increased urban pollutants in dry weather and storm water runoff from project sites. Each project must comply with NPDES permitting requirements and include BMPs to avoid impacts to water quality and local hydrology in compliance with local ordinances and plans adopted to comply with MS4 Permit (DAMP and LIP) and other permits (e.g., De Minimus Permit, General Construction Permit). Each project must consider impaired receiving waters and annual TMDL loads for receiving waters. The TMDL program is designed to identify all constituents that adversely affect the beneficial uses of waterbodies and then identify appropriate reductions in pollutant loads or concentrations from all sources so that the receiving waters can maintain/attain the beneficial uses in the Basin Plan. Thus, by complying with TMDLs, the project contribution to overall water quality improvement in the watershed in context of the regulatory program is designed to account for cumulative impacts.

The proposed project would convert undeveloped land to a public facility with parking lots, streets, a dog park, and other landscaped areas. As discussed in detail above in Section 4.10.5, the proposed project includes a series of Site Design, Source Control BMPs and a Treatment BMP that were found to reduce pollutant loads to lower than existing conditions. In addition, the proposed project would not increase on- or off-site erosion. Although the on-site drainage pattern would be altered, the increase in peak storm flow and velocity when compared to the existing condition would be minimal, and downstream facilities have sufficient capacity to accept project flows. As also discussed above, the change in volume of storm water runoff at the site would not affect aquifer recharge.

Regional programs and BMPs such as TMDL programs, the DAMP/LIP, and the MS4 Permit Program have been designed under an assumption that the San Diego Creek Watershed will continue the pattern of urbanization. The regional control measures contemplate cumulative effects of proposed development. Compliance with these regional programs and the General Construction Permit constitutes compliance with programs intended to address cumulative hydrological and water quality impacts. Therefore, the project's contribution to cumulative water quality and hydrology impacts would be less than significant.

4.10.7 Level of Significance Prior to Mitigation

Because the project would implement a comprehensive WQMP and BMPs to address pollutants of concern and to ensure protection of beneficial uses of receiving waters, hydrological and water quality impacts from the project site are considered less than significant. Therefore, no mitigation measures are required.

4.10.8 Mitigation Measures

The following project design features are regulatory requirements that would be implemented with the proposed project, and would reduce or avoid impacts related to water quality.

PDF-WQ-1 **State General Construction Activity NPDES Permit.** Prior to and during construction, the City of Newport Beach shall comply with the requirements of the National Pollution Discharge Elimination System (*NPDES) General Permit, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated with Construction Activities (Order No. 99-08-DWQ, NPDES No. CAS000002)* and any subsequent permit as they relate to construction activities. This shall include submission of a *Notice of Intent* (NOI) to the Santa Ana Regional Water Quality Control Board (RWQCB) at least 30 days prior to the start of construction, preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) and submission of a *Notice of Termination* (NOT) to the Santa Ana RWQCB upon completion of construction and stabilization of the site. Prior to construction activities and after the final design phase and environmental determinations, a construction SWPPP and a Monitoring and Reporting Program shall be developed for the project. The construction phase SWPPP shall be designed to identify potential pollutant sources associated with construction activities; identify non-storm water discharges; and identify, implement, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants associated with the construction site.

PDF-WQ-2 **Short-Term Groundwater Discharges.** Prior to commencement of grading activities, the City of Newport Beach shall determine whether dewatering of groundwater will be necessary during project construction and whether dewatering activities will require discharge to the storm drain system or surface waters. If dewatering activities are required, the City of Newport Beach shall comply with the requirements of the *General National Pollutant Discharge Elimination System (NPDES) Permit/Waste Discharge Requirements (WDR) for Short-Term Groundwater Discharges and De Minimus Wastewater Discharges* (Order No. R8-2004-0021, amended by order R8-2006-0065) or subsequent permit. This will include submission of a Report of Waste Discharge (ROWD) and Notice of Intent for coverage under the permit to the Santa Ana Regional Water Quality Control Board (RWQCB) at least 45 days prior to the start of dewatering and compliance with all applicable provisions in the permit, including water sampling, analysis, and reporting of dewatering-related discharges.

PDF-WQ-3	**Site Design, Source Control, and Treatment Best Management Practices.** The City of Newport Beach shall comply with the requirements of the Orange County Drainage Area Management Plan (DAMP), the City of Newport Beach Local Implementation Plan (LIP), and the City of Newport Beach Council Policies and Municipal Code, as they relate to hydrology and water quality. Project-specific Site Design, Source Control, and Treatment Control Best Management Practices (BMPs) contained in the Final Water Quality Management Plan (WQMP) shall be incorporated into final design. The BMPs shall be properly designed and maintained to target pollutants of concern and reduce runoff from the project site. The WQMP shall include an operations and maintenance plan for the prescribed Treatment Control BMPs to ensure their long-term performance.

Regulatory requirement and conventional BMPs and LID features would be implemented to the maximum extent practicable. No mitigation measures are required.

4.10.9 Level of Significance after Mitigation

As discussed above, no mitigation measures are required, and hydrology and water quality impacts would be less than significant with compliance with existing plans, programs, and policies and implementation of project design features.