3.7 HYDROLOGY AND WATER QUALITY

This section describes the hydrology and water quality conditions of the CSULB main campus and the Beachside Village property and evaluates the potential impacts that could occur with implementation of the Master Plan Update. This section identifies watershed characteristics, existing water quality, groundwater, stormwater, and flood hazard conditions, and presents the regulatory requirements pertaining to hydrology and water quality. The analysis evaluates potential direct and indirect impacts from implementation of the Master Plan Update.

As discussed further in Section 3.7.3, Methodology, the CEQA Guidelines Appendix G checklist questions for hydrology and water quality related to substantial alteration of existing drainage such that it would impede or redirect flood flows; and release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones, were found to have less than significant impacts in the Initial Study prepared for the project. Thus, these issues are not discussed in detail in this EIR.

No comments related to hydrology and water quality were received in response to the NOP. For a complete list of public comments received during the public scoping period, refer to Appendix A.

3.7.1 Regulatory Setting

Federal

Clean Water Act

The Clean Water Act (CWA) (33 USC § 1251 *et seq*.), as amended by the Water Quality Act of 1987, is the primary federal law that governs and authorizes water quality control activities by the U.S. Environmental Protection Agency (USEPA) as well as the states. The USEPA is the lead federal agency responsible for water quality management. Key sections of the CWA are as follows:

Sections 303 and 304 provide for water quality standards, criteria, and guidelines. Under Section 303(d) of the CWA, the state of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives and establish total maximum daily loads (TMDL) for each pollutant/stressor.

Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity which may result in a discharge to waters of the United States, to obtain certification from the state that the discharge will comply with other provisions of the act.

Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB), which have several programs that implement individual and general permits related to construction activities, municipal stormwater discharges, and various kinds of non-stormwater discharges.

Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is jointly administered by the U.S. Army Corps of Engineers (USACE) and the USEPA.

Numerous agencies have responsibilities for administration and enforcement of the CWA. At the federal level, this includes the USEPA and the USACE, while at the state level, with the exception

of tribal lands, this includes the California Environmental Protection Agency (CalEPA) and its sub-agencies, including the SWRCB.

National Flood Insurance Act

The Federal Emergency Management Agency (FEMA) is tasked with planning, mitigation, response, and recovery for disasters. The Federal Insurance and Mitigation Administration within FEMA is responsible for administering the National Flood Insurance Program (NFIP) and additional programs that aid with mitigating future damages from natural hazards. FEMA prepares Flood Insurance Rate Maps (FIRMs) that delineate the regulatory floodplain to assist local governments with the land use planning and floodplain management decisions needed to meet the requirements of NFIP. Floodplains are divided into flood hazard areas, which are areas designated per their potential for flooding, as delineated on FIRMs. Special Flood Hazard Areas are the areas identified as having a one percent chance of flooding in each year (otherwise known as the 100-year flood). In general, the NFIP mandates that development is not to proceed within the regulatory 100-year floodplain if the development is expected to increase flood elevation by one foot or more.

State

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act (California Water Code Section 13000 *et seq*.; California Code of Regulations. Title 23, Chapters 3 and 15) is the primary state regulation addressing water quality and waste discharges on land, and provides a comprehensive water-quality management system for the protection of California waters. The Act grants the SWRCB and each of the nine RWQCBs power to protect water quality. Under the Act, any entity that discharges waste or proposes to discharge waste that may affect the state's water quality must file a report of the discharge with the appropriate RWQCB. Pursuant to the Act, the RWQCB may then prescribe waste discharge requirements that add conditions related to control of the discharge. Porter-Cologne defines "waste" broadly, and the term has been applied to a diverse array of materials, including nonpoint source pollution. When regulating discharges that are included in the CWA, the state essentially treats Waste Discharge Requirements (WDRs) and NPDES as a single permitting vehicle. In April 1991, the SWRCB and other state environmental agencies were incorporated into CalEPA.

NPDES Municipal Storm Water Permitting Program

The Municipal Storm Water Permitting Program regulates stormwater discharges from municipal separate storm sewer systems (MS4s). The source of stormwater comes from rain or snowmelt that runs off surfaces such as rooftops, paved streets, highways, or parking lots and may carry pollutants such as oil, pesticides, herbicides, sediment, trash, bacteria, and metals. The runoff can then drain directly into a local stream, lake, or bay. Often, the runoff drains into storm drains that eventually drain untreated runoff into a local water body.

The RWQCB regulates urban runoff discharges under the NPDES permit regulations. NPDES permitting requirements cover runoff discharged from point (e.g., industrial outfall discharges) and nonpoint (e.g., stormwater runoff) sources. The RWQCB implements the NPDES program by issuing construction and industrial discharge permits. CSULB is considered a Non-Traditional MS4 permittee and is subject to the SWRCB's Water Quality Order No. 2013-0001-DWQ, NPDES General Permit No. CAS000004 for Waste Discharge Requirements for Storm Water Discharges

from Small MS4s.[1] The Small MS4 permit requires the implementation of specific Best Management Practices (BMPs) consistent with the California Stormwater Quality Association Best Management Practice Handbooks or equivalent as well as monitoring and reporting on stormwater management activities, including those during construction and post-construction.[2] Small MS4 BMPs include measures for erosion control (e.g., chemical stabilization, compost blankets, and mulching), runoff control (e.g., check dams, grass-lined channels, land grading), and sediment control (e.g., brush barriers, compost filter berms, and fiber rolls).[3]

The Small MS4 Permit also requires projects that create and/or replace 5,000 square feet or more of impervious surface to implement low impact development (LID) standards. LID is a stormwater management approach where the primary goal is to preserve a site's predevelopment hydrology. The effects of changes to runoff patterns caused by land use modifications, or hydromodification, can be reduced through the use of LID site planning (e.g., reduce impervious areas, preserve open space, minimize land disturbance) and structural BMPs (e.g., bioretention swales, pervious pavements, cisterns), which are intended to promote infiltration, storage, evapotranspiration, and other processes that mimic the site's natural hydrology.[4]

Construction General Permit (Order No. 2009-0009-DWQ)

In August 1999, the SWRCB adopted the statewide NPDES General Permit for stormwater discharges associated with construction activity. CSULB is subject to the California's General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2009-0009-DWQ as amended in 2010 and 2012 (NPDES No. CAS000002) issued by the SWRCB.[5] The permit requires that, for construction activities disturbing more than one acre of land, a Stormwater Pollution Prevention Plan (SWPPP) is prepared and implemented. BMPs are required as part of a SWPPP, and typically include the following activities, practices, and/or procedures, to prevent or reduce water pollution and control runoff:

- Erosion control BMPs: preservation of existing vegetation, hydraulic mulching, and wind erosion control;
- Sediment control BMPs: silt fences, storm drain inlet protection, and street sweeping;
- Non-stormwater BMPs: water conservation practices, concrete finishing, vehicle and equipment cleaning; and
- Materials management BMPs: stockpile management, hazardous waste management, and contaminated soil management.

California Water Plan

The California Water Plan, required by the California Water Code Section 10005(a) and prepared by the Department of Water Resources (DWR), is the state's strategic plan for managing and developing statewide water resources for current and future generations. The California Water

1 State Water Resources Control Board, 2018, *Non-Traditional Small MS4 Permittees*.
2 State Water Resources Control Board, 2022, *Phase II Small Municipal Separate Storm Sewer System (MS4) Program, Section F – Provision for Non-Traditional Small MS4 Permittees*.
3 U.S. Environmental Protection Agency, 2022, National Menu of Best Management Practices (BMPs) for Stormwater-Construction, available at: https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater-construction, accessed July 17, 2023.
4 State Water Resources Control Board, 2011, Frequently Asked Questions about Low Impact Development.
5 State Water Resources Control Board, 2012, *NPDES General Permit For Storm Water Discharges Associated With Construction and Land Disturbance Activities*.

Plan provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's future for water. The plan presents basic data and information on California's water resources, including water supply evaluations and assessments of agricultural, urban, and environmental water uses to quantify the gap between water supply and use. The California Water Plan also identifies and evaluates existing and proposed statewide water demand management and water supply augmentation programs and projects to address the state's water needs. The plan is updated every five years, most recently with the California Water Plan Update 2018 (Update 2018). Update 2018 recommends actions, funding, and an investment strategy to strengthen the efforts of water and resource managers, planners, and decision-makers in addressing California's most pressing water resource challenges.

Sustainable Groundwater Management Act

In 2014, California enacted the Sustainable Groundwater Management Act (California Water Code Section10720-10737.8 *et seq*.) to protect the state's groundwater resources in the long term. The legislation provides for the sustainable management of groundwater by requiring local agencies to form groundwater sustainability agencies (GSAs) and to develop and implement groundwater sustainability plans (GSPs). The act requires GSAs and GSPs for all groundwater basins identified by the DWR as high or medium priority. The CSULB campus is located within a very low priority groundwater basin.[6] Additionally, the legislation establishes criteria for the sustainable management of groundwater and authorizes DWR to establish BMPs for groundwater.

California State University

California State University, Long Beach Landscape Master Plan

The 2012 CSULB Landscape Master Plan identifies important aspects of the campus landscape and provides recommendations for future campus enhancement and preservation. The plan also provides the regional and local context regarding stormwater management for the CSULB campus. The plan recommends initiatives for stormwater treatment, such as inlet basin filters, a roof filtering system, and bioswales designed for groundwater recharge.

California State University, Long Beach Water Action Plan

The 2014 CSULB Water Action Plan (updated in 2017) mandated a reduction in water consumption by 10 percent by 2016 and by 20 percent by 2020 from its 2013 baseline. Beach Building Services leads the coordination and implementation of the plan. CSULB's goals are to reduce its reliance on potable water and overall campus water use. The plan seeks to meet these goals through several objectives, such as adopting and implementing BMPs for all campus operations, developing a communication plan to encourage university-wide water conservation, and planning future campus development for water resiliency. The university has implemented water conservation projects as part of its overall sustainability goals which include the transition to drought tolerant landscaping, conversion of landscape areas to drip irrigation, use of waterless and low flow urinals, installation of touch free automatic faucets with low flow restrictors, installation weather based central irrigation controllers, and the use of reclaimed water for irrigation.

[6] California Department of Water Resources, Basin Prioritization, available at: https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization, accessed January 20, 2023.

California State University, Long Beach Storm Water Management Plan

CSULB's Storm Water Management Plan (SWMP) was developed to comply with the USEPA's Phase II NPDES requirements promulgated under the Clean Water Act. The SWMP applies to the entire CSULB campus and seeks to: (1) identify pollutant sources potentially affecting the quality and quantity of stormwater discharges; (2) identify BMPs for municipal and small construction activities implemented by CSULB staff and contractors; and (3) provide measurable goals for the implementation of the SWMP to reduce the discharge of the identified pollutants into the storm drain system and associated water ways including Bouton Creek. Based on the CSULB SWMP, BMPs are to be reviewed annually and updated as appropriate to comply with any additions or changes to NPDES permit requirements. Updates to the CSULB SWMP are provided annually to the state's Water Boards Stormwater Multiple Application & Reporting Tracking System (SMARTS) database in the form of a Program Effectiveness Assessment and Improvement Plan. Based on the 2022 Program Effectiveness Assessment and Improvement Plan, good housekeeping and trash removal are key BMPs that are routinely implemented and evaluated. Contractor requirements are included for pollution prevention, and BMPs for construction sites are implemented consistently.[7] Typical types of BMPs include the following:

- Treatment controls;
- Operating procedures;
- Practices to control site runoff, spills and leaks, sludge or waste disposal, or drainage from raw material storage; and
- Structural and non-structural BMPs, such as conservation of natural and permeable areas, permeable pavers, rooftop runoff infiltration galleries, and mechanical storm drain filters.

Regional

Basin Plan for the Los Angeles Region

Since 1973, the SWRCB and its nine RWQCBs have been responsible for administering permitted discharge into the waters of California. Permitted discharges must be compliant with the regional Basin Plan. Each RWQCB implements the Basin Plan to ensure that projects consider regional beneficial uses, water quality objectives, and water quality problems. The Los Angeles RWQCB's Basin Plan specifically designates beneficial uses for surface waters and ground waters, sets narrative and numerical objectives that must be met in order to protect the beneficial uses and conform to the state's antidegradation policy, and describes implementation programs to protect all waters in the region. The Basin Plan provides all relevant information necessary to carry out federal mandates for the antidegradation policy, 303(d) listing of impaired waters, and related TMDLs, and provides information relative to NPDES and WDR permit limits.

3.7.2 Environmental Setting

The CSULB main campus and Beachside Village property are located in Los Angeles County within the jurisdiction of the Los Angeles RWCQB (Regional Board 4). This section describes the regional hydrological conditions as well as the local conditions of the CSULB main campus and Beachside Village property as it relates to hydrology, water quality, groundwater, water supplies, stormwater, and flooding. The CSULB main campus is located approximately 2.5 miles north of

[7] California Water Boards Stormwater Multiple Application & Reporting Tracking System, Attachment ID 3226034, CSULB PEAIP Annual Report FY 2021-2022, available at: https://smarts.waterboards.ca.gov/smarts/faces/PublicDataAccess/PublicNoiSearchResults.xhtml, accessed July 31, 2023.

the Pacific Ocean and along the western flank of the Peninsular Ranges geomorphic province.

Watershed Characteristics

The CSULB main campus and Beachside Village property are located within the lower coastal plain region of the southwestern portion of the greater Los Angeles basin. This basin is bound by the Santa Monica and San Gabriel Mountains to the north, the Pacific Ocean to the west, the Santa Ana Mountains to the east, and partially by the San Joaquin Hills to the southeast.[8] The basin is part of the highly urbanized Los Angeles region, with the Los Angeles River being the largest stream on the plain draining the San Fernando Valley and much of the San Gabriel Mountains.

The CSULB main campus and Beachside Village property are located within the San Gabriel River watershed, which receives drainage from 689 square miles of eastern Los Angeles County. The San Gabriel River watershed is bound by the San Gabriel Mountains to the north, most of San Bernardino and Orange counties to the east, the division of the Los Angeles River from the San Gabriel River to the west, and the Pacific Ocean to the south. Nearby watersheds include the Antelope watershed to the north, the Santa Ana River watershed to the east, and the Los Angeles River watershed to the west. Major tributaries to the San Gabriel River include Walnut Creek, San Jose Creek, Coyote Creek, and numerous storm drains entering from the 19 cities that the San Gabriel River passes through. The river's headwaters originate in the San Gabriel Mountains, and most of its upper reaches consist of extensive areas of undisturbed riparian and woodland habitats. The majority of the watershed of the West Fork and East Fork of the river is set aside as a wilderness area, while other areas in the upper watershed are subject to heavy recreational use and contain a series of flood control dams. The middle of the watershed contains large spreading grounds used for groundwater recharge. The watershed is connected to the Los Angeles River through the Whittier Narrows Reservoir. The lower portion of the river flows through a concrete-lined channel in a heavily urbanized portion of Los Angeles County before becoming a soft bottom channel near the ocean in the City of Long Beach.[9] The watersheds are shown in Figure 3.7-1.

[8] Yerkes, Robert F., Thane H. McCulloh, J.E. Schoellhamer, and John G. Vedder, 1965, *Geology of the Los Angeles Basin California—An Introduction*.

[9] California Water Boards, San Gabriel River Watershed, available at: https://www.waterboards.ca.gov/rwqcb4/water_issues/programs/regional_program/Water_Quality_and_Watersheds/san_gabriel_river_watershed/summary.shtml, accessed August 2, 2022.

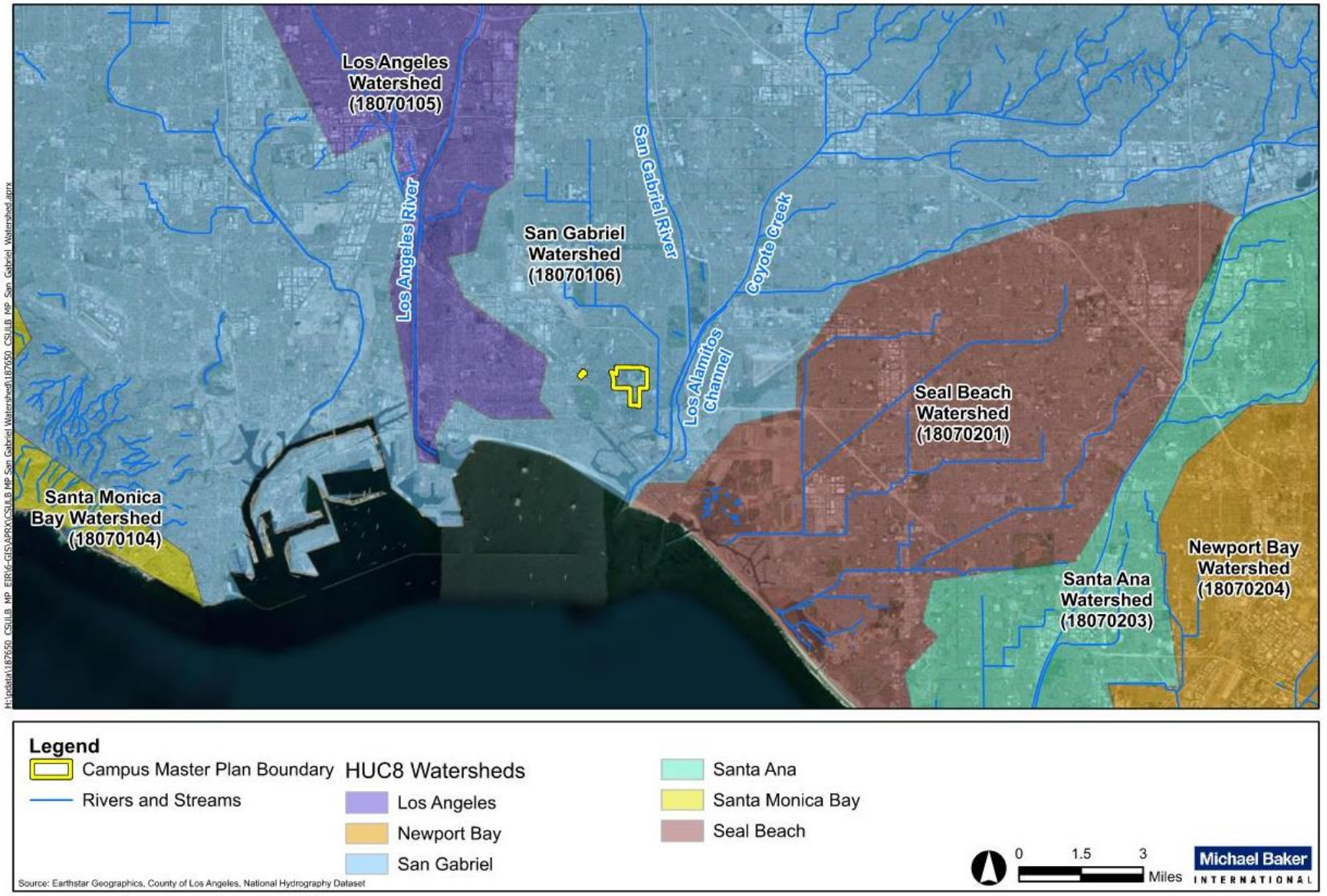

Figure 3.7-1: San Gabriel Watershed

Campus Hydrology

Bouton Creek, a Los Angeles County Flood Control District channel, runs diagonally and southeasterly across the CSULB main campus, and is a 35-foot wide and 8.5 feet deep open concrete box channel. The elevation of the channel bed is approximately one inch lower at the side than the center. Approximately 0.25 miles to the southeast, Bouton Creek flows into Los Cerritos Channel, which originates in Long Beach, flows near the eastern city boundary, and discharges into the Alamitos Bay. The Los Cerritos Channel and the San Gabriel River lie just east of the CSULB main campus, both of which are major stormwater drainage systems.

Water Quality

Impaired Water Bodies

The water quality of streams, creeks, ponds, and other surface water bodies can be greatly affected by pollution carried in contaminated surface water runoff. The middle and lower areas of the San Gabriel River watershed have impaired water quality due to dense clusters of residential and commercial activities.[10] Tertiary effluent, sourced from liquid waste or sewage discharge from several sewage treatment plants, enters the river in its partially channelized middle reaches, while two power generating stations discharge cooling water into the river's estuary. In addition, several landfills are located in the watershed. The watershed is covered under two municipal stormwater NPDES permits, with a majority of the 58 NPDES permittees in the watershed discharging directly to the San Gabriel River.

Section 303(d) of the federal CWA requires states to identify waterbodies that are "impaired," or those that do not meet water quality standards and are not supporting their beneficial uses. TMDLs are then designed to serve as pollution control plans for these specific pollutants. As provided in Table 3.7-1, several portions of the San Gabriel River are impaired with various pollutants and some TMDLs have already been developed for these impairments. None of the impaired waterbodies are located near the CSULB main campus or Beachside Village property.

Table 3.7-1: San Gabriel River Watershed Impaired Waters

Water Body Name	Pollutant	Pollutant Category	TMDL Status
San Gabriel River Estuary	• Copper • Dioxin • Nickel • Oxygen, dissolved	• Metals/Metalloids • Other organics • Metals/Metalloids • Nutrients	• TMDL completed • TMDL required • TMDL required • TMDL required
San Gabriel River Reach 1 (Estuary to Firestone)	• Coliform bacteria • pH	• Pathogens • Miscellaneous	• TMDL required • TMDL required
San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	• Coliform Bacteria • Cyanide • Lead	• Pathogens • Other Inorganics • Metals/Metalloids	• TMDL required • TMDL required • TMDL completed

[10] California Water Boards, San Gabriel River Watershed, available at: https://www.waterboards.ca.gov/rwqcb4/water_issues/programs/regional_program/Water_Quality_and_Watersheds/san_gabriel_river_watershed/summary.shtml, accessed August 2022.

Table 3.7-1: San Gabriel River Watershed Impaired Waters

Water Body Name	Pollutant	Pollutant Category	TMDL Status
San Gabriel River Reach 3 (Whittier Narrows to Ramona)	• Indicator Bacteria	• Pathogens	• TMDL required
San Gabriel River, East Fork	Trash	Trash	TMDL completed

Source: California Environmental Protection Agency, 2022, San Gabriel River Watershed Impaired Waters, available at: https://www.waterboards.ca.gov/rwqcb4/water_issues/programs/regional_program/Water_Quality_and_Watersheds/san_gabriel_river_watershed/impaired_waters.shtml.

Campus Surface Water Quality

The quality of surface water is primarily a function of land uses in the vicinity of the campus. Stormwater runoff in urban areas typically contains oils, grease, fuel, antifreeze, and byproducts of combustion (such as lead, cadmium, nickel, and other metals), as well as nutrients, sediments, and other pollutants, such as fertilizers and pesticides. Table 3.7-2 lists potential pollutant activities and the resulting pollutants of concern specific to the CSULB main campus and Beachside Village property.

Table 3.7-2: Potential Pollutant Activity or Sources List

Activity/Source	Pollutants of Concern
Building Maintenance (washing, graffiti abatement)	Wash water, paint chips, acidic/caustic cleaning products, dirt and sediment
Chemical Spills	Various cleaning compounds, diesel, paint, hazardous materials, vehicle fluids
Construction / Renovation Activities	Concrete, drywall, paint, hydraulic fluids, vehicle fluids, sediment
Erosion	Sediment, organic matter
Food Service Operations	Wash-water, food residue, oil and grease
Grounds Maintenance	Green waste, fuel, oil, pesticides, herbicides, sediment
Impervious Areas	Increased flows and pollutant loading
Litter and Debris	Litter and debris
Loading/Unloading Areas	Petroleum products, fertilizers, pesticides, herbicides, cleaning solutions, paint
Outdoor Storage of Raw Materials	Sand, asphalt, soil, pesticides, herbicides, fertilizer, paint, solvents, fuel
Painting (indoor)	Paint or rinse water (oil and water based), paint thinner, solvents
Painting (outdoor)	Paint or rinse water (oil and water based), paint thinner, solvents
Parking Lot Runoff	Oil/grease, vehicle fluids, litter, heavy metals
Sewer Line Blockages	Raw sewage
Sewer Line Seepage	Raw sewage
Trash Storage Areas	Organic materials, hazardous materials, litter, debris
On-Campus Vehicle/Equipment Washing	Cleaning products, oil/grease, vehicle fluids

Table 3.7-2: Potential Pollutant Activity or Sources List

Activity/Source	Pollutants of Concern
Utility Line Maintenance and Repairs (water/ irrigation/ sewer)	Chloramines, chlorine, sediment, adhesive cements, primers & fire protection systems
Animal Feces	Coliform bacteria
Agricultural and Pest Control Activities	Fertilizers, pesticides, herbicides
Fleet Maintenance & Repair	Oil / Grease, vehicle fluids, fuels, cleaning products

Source: California State University, Long Beach, n.d., *Storm Water Management Plan*.

Groundwater

The CSULB main campus and Beachside Village property are located within the Central Basin, which is a groundwater aquifer spanning approximately 277 square miles in the mostly urbanized southern area of Los Angeles County. The Central Basin is bordered to the north by a surface divide called the La Brea High and to the northeast and east by tertiary rocks of the Elysian, Repetto, Merced and Puente Hills. The southeast boundary between the Central Basin and Orange County Groundwater Basin generally follows Coyote Creek, which is a regional drainage province boundary. The southwest boundary is formed by the Newport Inglewood fault system and the associated folded rocks of the Newport Inglewood uplift. The Los Angeles and San Gabriel Rivers drain the inland basins and flow across the surface of the Central Basin and eventually to the Pacific Ocean. Average precipitation throughout the Central Basin is approximately 12 inches, with a range from 11 to 13 inches.

The Central Basin is historically divided into forebay and pressure areas, with the Los Angeles forebay and the Montebello forebay. Groundwater replenishes the aquifers mostly through these forebay areas through surface and subsurface flow and direct percolation of precipitation, stream flow, and applied water. Natural replenishment is largely supplied from the surface inflow through the Whittier Narrows. Percolation into the Los Angeles forebay is restricted due to paving and surface development. Artificial recharge is supplied from imported water purchased from the Metropolitan Water District (MWD) and recycled water from the Whittier and San Jose Treatment Plants. Groundwater levels varied over a range of about 25 feet between 1961 and 1977 and have varied through a range of about 5 to 10 feet since 1996.[11] As a low priority groundwater basin, the Central Basin is not subject to groundwater sustainability plan.

Based on geotechnical reports conducted for various projects across the CSULB main campus, groundwater conditions vary across the CSULB main campus due to stratigraphic and hydrologic conditions and may change over time as a consequence of seasonal and meteorological fluctuations. The historical high groundwater level is considered to be at a depth of less than 10 feet below ground surface.

Groundwater Quality

The Long Beach Water Department (LBWD) treats the groundwater pumped from active wells around the Long Beach and Lakewood areas at their Groundwater Treatment Plant. As a result of required groundwater quality monitoring, the LBWD discovered 14 groundwater wells that were deemed vulnerable to perfluorooctanoic acid and perfluorooctane sulfonic acid, together known as per- and polyfluoroalkyl substances. The established notification levels for these two substances are 6.5 parts per trillion for perfluorooctane sulfonic acid and 5.1 parts per trillion for

[11] California Water Boards, 2004, *Coastal Plain of Los Angeles Groundwater Basin, Central Subbasin*.

perfluorooctanoic acid. As of 2021, the LBWD has not detected these substances in the groundwater since monitoring began in 2019.[12]

Campus Groundwater Supplies

The CSULB main campus and Beachside Village property combined domestic water and fire water system is solely served by LBWD's water system. The LBWD has three major sources of water: groundwater from the Central Basin Aquifer, imported water from MWD, and recycled water from the Long Beach Water Reclamation Plant. Roughly 60 percent of LBWD's water supply is sourced from local groundwater, while the rest of the water supply is sourced from imported water from the Colorado River and Northern California's Bay Delta region.

LBWD has the rights to pump 32,692 acre-feet of groundwater per year from the Central Basin Aquifer. The Central Basin Aquifer has been historically over-drafted and has since experienced strict limitations to groundwater extractions. However, due to the maintenance of sufficient storage in the Central Basin Aquifer, availability of non-MWD sources for replenishment, and restrictions of extractions, groundwater supplies from the aquifer are reliable, even during multiyear droughts. In addition, LBWD can extract groundwater it has stored in the aquifers, up to 20 percent of its water rights, and can extract up to another 20 percent in emergencies.[13]

Campus Stormwater Drainage

The existing CSULB main campus storm drainage system consists of several networks of reinforced concrete pipe and polyvinyl chloride pipe that were installed in the 1940s. The pipes collect stormwater from catch basins and area drains throughout the CSULB main campus and empty into the Bouton Creek Channel. There is also an area in the southeast section of the main campus that directs stormwater to pipes that connect to a City of Long Beach storm drain line near Seventh Street and East Campus Drive. In addition to stormwater flows generated on-site, the CSULB main campus also receives flows from the adjacent Veteran's Affairs Medical Center complex.[14]

There are approximately 200 point sources that drain into the storm drain system from the main campus.[15] These point source drainage areas include streets, parking lots, loading docks, roofs, athletics fields, and other surfaces that receive rainwater. Stormwater runoff from landscaping and impermeable surfaces on the main campus carries pollutants directly into local marine ecosystems, impacting wildlife and human health. The campus's existing conditions present challenges for stormwater management due to varied topography which creates flooding as water is directed to low-lying areas with poor soil drainage; limited tree canopy and root structure on steep slopes which increase the risk of flooding and erosion; and clay soil composition on the lower campus that prevents natural stormwater infiltration.

3.7.3 Methodology

The evaluation of potential hydrology and water quality impacts is based on a review of existing documents and studies that address water resources in the vicinity of the campus, including the CSULB SWMP, Landscape Master Plan, Utility Infrastructure Master Plan Update, and SWPPPs prepared for campus projects. Information obtained from these sources was reviewed and summarized to describe existing conditions and to identify potential environmental effects, based

[12] Long Beach Water District, 2021, *2021 Annual Water Quality Report*.
[13] California State University, Long Beach, 2008, *Final Environmental Impact Report, Campus Master Plan*.
[14] California State University, Long Beach, 2023 *Utility Infrastructure Master Plan Up*date.
[15] California State University, Long Beach, September 2012, *Landscape Master Plan*.

on the thresholds of significance presented in this section. Potential environmental effects were determined in a qualitative manner, partly based on the design of different development types under the Master Plan Update, and does not consider quantitative data, such as amounts of impervious surfaces, as such information is not known as this time. In determining the level of significance, the analysis assumes that implementation of the Master Plan Update would comply with relevant federal and state laws, ordinances, and regulations. Additionally, implementation of the Master Plan Update would adhere to BMPs in accordance with the CSULB SWMP or project specific- SWPPPs (for projects disturbing more than one acre of land), as listed above.

Project Design Features

The following Project Design Features (PDF) are currently implemented for projects on campus, and would apply to all projects associated with development of the Master Plan Update to minimize impacts to hydrology and water quality. The PDFs will be incorporated into the Mitigation Monitoring and Reporting Program prepared for the Master Plan Update that will be adopted by the CSU Board of Trustees when they consider approval of the Master Plan Update to ensure their implementation.

- PDF-HWQ-1: Develop project-specific Best Management Practices for all projects regardless of acreage, which may include treatment controls; operating procedures; practices to control site runoff, spills and leaks, sludge or waste disposal, or drainage from raw material storage; and structural and non-structural measures.
- PDF-HWQ-2: Implement effective stormwater management practices where feasible, such as installing inlet basin filters at parking lots, collecting and treating stormwater runoff in bioretention basins along Bouton Creek, and constructing bioswales.
- PDF-HWQ-3: Produce less runoff than pre-development conditions or match pre-development conditions at minimum.

Thresholds of Significance

The significance thresholds used to evaluate the impacts of the Master Plan Update related to hydrology and water quality are based on Appendix G of the CEQA Guidelines. Based on Appendix G, a project would have a significant impact related to hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - Result in substantial erosion or siltation on- or off-site;
    - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; or
    - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Issues Not Evaluated Further

The Master Plan Update would not result in significant impacts related to the following CEQA Guidelines Appendix G checklist questions, as determined in the Initial Study (Appendix A), and therefore are not evaluated further in this Draft EIR.

- *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 through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?*

  A 100-year flood is defined as having a 1 percent chance of occurring in any given year. The CSULB main campus has the potential to be affected by flooding from the San Gabriel River and the Los Cerritos Channel; however, channel improvements have been completed in the last 50 years to improve flood flow capacity. The CSULB main campus has several low-lying areas that have had flooding in the past.[16]

  The northeastern section of the CSULB main campus is identified as an Area with Reduced Flood Risk Due to Levee, which is an area that is protected from the 1-percent-annual-chance or greater flood hazard by a levee system that has been provisionally accredited. The southwestern section of the CSULB main campus and the Beachside Village property are identified as being within an Area of Minimal Flood Hazard.[17] As such, the CSULB campus and the surrounding area is not at substantial risk for flooding. Implementation of the Master Plan Update would also include new or relocated connections to the existing stormwater drainage infrastructure to help direct flows to the Bouton Creek Channel. Implementation of the Master Plan Update would not impede or redirect flood flows, and the impact would be less than significant.

- *In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?*

  The CSULB main campus, Beachside Village property, and the surrounding area is not at substantial risk for flooding. Tsunamis are large ocean waves that are generated by major earthquakes, undersea landslides, volcanic eruptions, or other similar seismic activity. The campus is located approximately 2 miles north of the Pacific Ocean; however, tsunamis can travel upstream in coastal estuaries and rivers, extending the damaging wave farther inland.[18] Due to its proximity to the Los Cerritos Channel and Bouton Creek, run-up (i.e., the maximum height above sea level a tsunami reaches on shore) and inundation due to tsunamis could occur at the campus.[19] However, the Master Plan Update would include new or relocated connections to the existing stormwater drainage infrastructure to help direct flows to

16 California State University, Long Beach, August 2020, *Emergency Operations Plan 2020-2021*.

17 The California State University, Long Beach (CSULB) Emergency Operations Plan 2020-2021 was approved in August 2020. The Plan states that the CSULB campus is identified by the Federal Emergency Management Agency (FEMA) as being located in Zone X, which indicates an area where the annual flood risk is between one percent and 0.2 percent. However, FEMA issued an updated Flood Insurance Rate Map for the area containing the CSULB campus effective April 2021, which identifies the flood risks on the campus as "Reduced Flood Risk Due to Levee" and "Area of Minimal Flood Hazard". Thus, the description of the applicable flood hazards for the CSULB main campus in the Initial Study is based on the most current flood hazard information available from FEMA.

18 California State University, Long Beach, August 2020, *Emergency Operations Plan 2020-2021*.

19 Ibid.

the Bouton Creek Channel.

Seiches are large waves generated in enclosed bodies of water in response to ground shaking. No major water-retaining structures are located immediately upgradient of the campus. The Sepulveda Dam on the Los Angeles River and the Whittier Narrows Dam on the San Gabriel River are the closest dams to the CSULB campus, located approximately 33 miles northwest and approximately 15 miles northeast, respectively. According to the Army Corp of Engineers, the danger of any flooding to the CSULB campus due to dam failure from either of these dams is low as all floodwaters should be contained within flood control channels by the time it reaches the campus area.[20] Therefore, the risk of release of pollutants due to project inundation would be less than significant.

3.7.4 Impact Analysis

The impact analysis below is organized into a program-level analysis and a project-level analysis. For the program-level analysis, the Master Plan Update is evaluated as an overall program of development over a multi-year planning horizon for the CSULB campus. For the project level analysis, near- and mid-term development projects that would be implemented under the Master Plan Update are analyzed. The analysis of near- and mid-term projects below is organized to separately address renovation projects, which involve renovation of existing facilities and additions to existing facilities; replacement projects, which involve demolition and replacement of existing facilities in the same physical location; and new projects, which involve construction of new facilities with new uses.

HWQ-1 Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Program-Level Analysis for Master Plan Update

Construction

Construction activities for the Master Plan Update would involve demolition, renovation, landscaping, hardscaping, site preparation, and earthmoving activities. Construction activities may use grease, paints, solvents, diesel fuel, and gasoline, which could result in accidental spills. Site preparation activities such as tree removal, and earthmoving activities such as grading, paving, and excavation, would expose underlying soils to water and wind erosion. Excess sediment could increase runoff water turbidity and transport other pollutants such as nutrients, metals, oils, and greases. Construction activities for the Master Plan Update would have the potential to degrade water quality if pollutants or soils are transported to drainages or Bouton Creek, either through runoff or storm events.

All future development resulting from the Master Plan Update would be subject to the Construction General Permit. As required by the Construction General Permit, construction activities disturbing more than one acre of land must prepare and implement a SWPPP. Implementation of the SWPPP would avoid or minimize erosion, sedimentation, and release of hazardous materials from construction sites into local waterways. The SWPPP is required to include specific elements such as a site map(s) indicating the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP would also address the potential pollutants and their sources, such as sources of sediment associated with construction

[20] California State University, Long Beach, August 2020, *Emergency Operations Plan 2020-2021*.

and construction site erosion, and would include erosion and stormwater control measures that would be implemented on-site. BMPs may be implemented prior to, during, or after construction, as needed, or for the entirety of the project. As discussed above in Section 3.7.1, examples of typical BMPs that may be used for sediment control include installing silt fences, fiber rolls, and stabilizing construction entrances and exits; for erosion control include using mulch, drainage swales, and slope drains; and for materials management include stockpile management, spill prevention and control, and hazardous waste management.

Projects that would not disturb one acre and do not require development and implementation of a SWPPP would be required to comply with CSULB's SWMP and implement PDF-HWQ-1, which provides BMPs for municipal and small construction activities, and identifies methods to reduce the discharge of identified pollutants into the storm drain system and associated water ways, including Bouton Creek. All projects would develop project-specific BMPs for treatment controls; operating procedures; practices to control site runoff, spills and leaks, sludge or waste disposal, or drainage from raw material storage; and post-construction structural and non-structural measures. Additionally, CSULB would comply with existing plan policies, including the CSULB Water Action Plan and systemwide general requirements, to implement storm water management practices to minimize runoff, increase on-site retention and infiltration of water, and implement temporary erosion and sediment controls.

As discussed in Section 3.7.1, CSULB is considered a Non-Traditional MS4 permittee and therefore, is subject to the Small MS4 Permit. The Small MS4 Permit requires the implementation of BMPs, which include measures for erosion control (e.g., chemical stabilization, compost blankets, and mulching), runoff control (e.g., check dams, grass-lined channels, land grading), and sediment control (e.g., brush barriers, compost filter berms, and fiber rolls). As CSULB would be subject to the conditions under the Small MS4 Permit including the BMPs, all future construction under the Master Plan Update would be subject to the requirements of the Small MS4 Permit.

With compliance with existing permits, plans, and regulations, such as the Construction General Permit, Small MS4 Permit, SWPPPs, associated BMPs, and the CSULB SWMP, implementation of the Master Plan Update would not violate any water quality standards or waste discharge requirements during construction. Therefore, impacts would be less than significant.

Operation

Projects implemented under the Master Plan Update include renovation of existing facilities and additions to existing facilities, demolition and replacement of facilities, and construction of new facilities within the existing campus boundaries. Upon completion of construction, areas subject to development within the CSULB main campus and Beachside Village property would either be paved, landscaped, or built upon, similar to existing conditions. Exposed areas of soil would be limited, thus minimizing the potential for erosion and sedimentation. The primary source of pollutants would be similar to existing conditions and could include incidental leaks and spills of oils, grease, general maintenance products, pesticides, herbicides, and fertilizers. As under existing conditions, vehicle parking could result in minor petroleum leaks onto paved surfaces. General maintenance products include paints, solvents, fuel, oils, and lubricants, which if not handled and stored properly, could result in incidental spills to paved and/or unpaved areas. Similarly, storage and use of landscaping chemicals could result in small incidental spills of such products and/or leaching of the chemicals into underlying soils and surface runoff if not properly handled.

However, the potential for development sites to generate polluted runoff would be minimized

through mandatory compliance with project-specific SWPPPs, which would outline post-construction stormwater management BMPs. These include permanent structural BMPs, such as sediment basins, as well as permanent non-structural BMPs, such as vegetation. In addition, CSULB would comply with the requirements of the Small MS4 Permit, which requires projects that create and/or replace 5,000 square feet or more of impervious surface to implement LID standards, such as site planning (e.g., reduce impervious areas, preserve open space, minimize land disturbance) and post-construction structural BMPs (e.g., bioretention swales, pervious pavements, cisterns), to reduce potential runoff.

In addition, the Sustainability and Resilience Framework of the Master Plan Update includes strategies to improve stormwater management that build upon existing stormwater infrastructure and interventions. Goals include creating planting zones in drainage areas to comply with LID practices, filtering pollutants to reduce toxic runoff into Bouton Creek, ensuring that new developments produce less runoff than pre-development conditions or match pre-development conditions at minimum, evaluating the impacts of landscape and hardscape practices on runoff and develop a strategy for mitigating surface runoff, and developing a strategy for mitigating incidental runoff. Development under the Master Plan Update would require PDF-HWQ-2 to implement effective stormwater management practices where feasible, such as installing inlet basin filters, collecting and treating stormwater runoff in bioretention basins along Bouton Creek, and constructing bioswales, and PDF-HWQ-3 to produce less runoff than pre-development conditions or match pre-development conditions at a minimum. Additionally, CSULB is working to expand strategies beyond localized filtration planters or permeable hardscape surfaces, considering expansion of the urban forest, evolving landscape maintenance practices, and evaluating the benefits of existing water-efficient landscape projects to support robust stormwater management practices. Such strategies to manage, prevent, and treat stormwater runoff would be incorporated into the design of future projects under the Master Plan Update. Therefore, through compliance with the PDFs and all applicable regulations, including the Construction General Permit, Small MS4 Permit, SWPPPs, CSULB SWMP, and with implementation of goals as part of the Master Plan Update, impacts on water quality during operations would be less than significant.

Project-Level Analysis for Near- and Mid-Term Development Projects

Construction

Construction activities associated with the proposed near- and mid-term development projects would result in similar impacts to those described above at the program level for implementation of the Master Plan Update.

The following near- and mid-term projects would require only interior renovations: Lecture Hall 150-151 Renovation, Fine Arts 1/2 Renovation, Fine Arts 4 Renovation, Theatre Arts Renovation, University Theatre Renovation, Microbiology Student Success Center Renovation, Nursing Building Renovation, and Engineering Tech Renovation. These projects would not require earthmoving activities that could degrade water quality. Therefore, impacts to surface or groundwater quality with construction of these near- and mid-term projects would be less than significant.

Construction activities associated with some of the near- and mid-term development projects would include site preparation and earthmoving activities, and demolition and replacement of some existing structures, which would have potential impacts related to erosion, sedimentation, and release of pollutants. The projects that would involve such activities include the replacement projects (Engineering Replacement Building and New Parkside Housing Village), new projects

(Faculty and Staff Housing, New 7th St. Community Outreach Facility), and renovation projects that include additions and/or renovations to the exterior of existing facilities (USU Renovation/Addition and Cafeteria Replacement, Hillside College Renovations/Addition, Beachside Housing, Aquatics Center and Pool Renovation, College of the Arts Replacement Building, Jack Rose Track/Commencement Facilities, Walter Pyramid Renovation, Pedestrian/Bike Lane Improvements, Liberal Arts 5 Renovation, Student Health Services Addition, Corporation Yard Renovations, Friendship Walk Stairs Revitalization, Improved Campus Entrance and Gateway, University Music Center Renovation/Addition, and Redefining the Campus Quad). Construction associated with these near- and mid-term development projects would comply with the Construction General Permit, Small MS4 Permit, SWPPPs, associated BMPs, and/or the CSULB SWMP, as applicable. Additionally, construction of these development projects would implement PDF-HWQ-1 to develop project-specific BMPs to minimize erosion, sedimentation, and release of pollutants. Compliance with these permits and implementation of BMPs would avoid or minimize erosion, sedimentation, and release of pollutants from individual project construction sites.

The Pedestrian/Bike Lane Improvements project, in particular, would have the potential to degrade water quality because of its proximity to Bouton Creek, if pollutants or soils are transported to the creek either through runoff or storm events. The Pedestrian/Bike Lane Improvements project would propose new paths, including an enhanced diagonal crossing at Determination Drive which would facilitate crossing from the south side of the creek to the north side. Similar to other near- and mid-term projects that would require earthmoving, the Pedestrian/Bike Lane Improvements project would comply with the Construction General Permit, Small MS4 Permit, SWPPPs, associated BMPs, and/or the CSULB SWMP, as applicable. Compliance with these permits and implementation of BMPs would avoid or minimize erosion, sedimentation, and release of pollutants from construction of the Pedestrian/Bike Lane Improvements project. Additionally, construction of these development projects would implement PDF-HWQ-1 to develop project-specific BMPs to minimize erosion, sedimentation, and release of pollutants. Therefore, impacts to water quality construction of the proposed near- and mid-term development projects would be less than significant.

Operation

Following completion of construction activities, the majority of the near- and mid-term development projects would result in replacement or renovated buildings that have similar uses compared to existing conditions. Therefore, the replacement and renovation projects would result in similar water quality conditions compared to existing conditions, such as types of pollutants, amount of pervious and impervious surfaces, and sources of runoff. Although the new projects (Faculty and Staff Housing, New 7th St. Community Outreach Facility) would provide new uses, new projects would not be expected to result in significant water quality impacts as implementation of the Master Plan Update is located within the boundaries of the urbanized and developed campus and is considered infill development which would not significantly change the water quality or hydrological conditions of the campus. Additionally, development under the Master Plan Update would require PDF-HWQ-2 to implement effective stormwater management practices where feasible, such as installing inlet basin filters, collecting and treating stormwater runoff in bioretention basins along Bouton Creek, and constructing bioswales, and PDF-HWQ-3 to produce less runoff than pre-development conditions or match pre-development conditions at a minimum. Upon completion of construction, the near- and mid-term development projects may result in improved water quality conditions due to new post-construction stormwater management BMPs and/or post-construction LID standards. The project specific SWPPPs would outline post-construction stormwater management BMPs, including permanent structural BMPs, such as

sediment basins, as well as permanent non-structural BMPs, such as vegetation. In addition, CSULB would comply with the Small MS4 Permit, which requires projects that create and/or replace 5,000 square feet or more of impervious surface to implement LID standards, such as site planning (e.g., reduce impervious areas, preserve open space, minimize land disturbance) and post-construction structural BMPs (e.g., bioretention swales, pervious pavements, cisterns), to reduce potential runoff.

In addition, the Sustainability and Resilience Framework of the Master Plan Update includes strategies to improve stormwater management. Therefore, with implementation of the Master Plan Update strategies pertaining to stormwater management and through compliance with the PDFs and all applicable regulations, including the Construction General Permit, the Small MS4 Permit, SWPPPs, CSULB SWMP, impacts to water quality would be less than significant during operation of the near- and mid-term development projects.

HWQ-2 Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Program-Level Analysis for Master Plan Update

As discussed above in 3.7.2, Environmental Setting, LBWD, the water provider for the campus has the rights to pump 32,692 acre-feet of groundwater per year from the Central Basin and can extract additional groundwater it has stored in the aquifers if needed. Groundwater supplies from the aquifer are reliable even during multiyear droughts due to the maintenance of sufficient groundwater storage in the Central Basin, availability of non-MWD sources for replenishment, and restrictions of extractions. Additionally, no on-site groundwater wells currently exist within the campus and none are proposed as part of the Master Plan Update. Therefore, implementation of the Master Plan Update would not substantially decrease groundwater supplies.

In addition, although the Central Basin underlies the CSULB campus and Beachside Village property, the campus is completely developed and therefore, does not have much groundwater recharge potential. Development under the Master Plan Update would be considered infill development that would occur mostly on already paved sites; thus, development under the Master Plan Update would not change the conditions (i.e., less impervious surfaces for water to infiltrate into the ground) that allow for groundwater recharge compared to existing conditions. Therefore, implementation of the Master Plan Update would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge, and impacts would be less than significant.

Project-Level Analysis for Near- and Mid-Term Development Projects

Project-level impacts related to groundwater supplies and groundwater recharge are similar to those discussed under the program-level analysis. As discussed above, LBWD would have 12,076 MG per year of water surplus that would offset the extra increased water demand generated by the increase in total campus population that would be served by the Master Plan Update's proposed near- and mid-term development projects.

In addition, implementation of the near- and mid-term development projects involving replacement and renovation would serve similar uses compared to existing conditions and thus, would result in similar impacts to groundwater use. Although the near- and mid-term development projects involving construction of new facilities would provide new uses, new projects would not substantially change the groundwater conditions of the campus. Additionally, implementation of the near- and mid-term development projects may result in improved groundwater conditions due to new post-construction BMPs and/or post-construction LID standards. Therefore, impacts to

groundwater supplies or groundwater recharge would be less than significant for the Master Plan Update's near- and mid-term development projects.

HWQ-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 or through the addition of impervious surfaces, in a manner which would result in (i) substantial erosion or siltation on- or off-site, (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, or (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Program-Level Analysis for Master Plan Update

Construction

Construction activities associated with development of the Master Plan Update would include demolition, ground disturbance, and paving, which may temporarily alter drainage patterns. These activities could expose bare soil to rainfall and stormwater runoff, which could accelerate erosion and result in sedimentation of stormwater. For example, vegetation removal, excavation, grading, and stockpiling of soils would create soil disturbance that could accelerate erosion. Although grading activities may alter current surface runoff patterns, thus resulting in a temporary increase in the potential for on-site erosion or sedimentation to occur, development under the Master Plan Update would be subject to the requirements of the Construction General Permit, Small MS4 Permit, and PDF-HWQ-1 requiring project-specific SWPPPs. The MS4 permit requires new development and redevelopment projects to retain a specified volume of stormwater runoff from a design storm event on site. The project-specific SWPPPs would include construction BMPs for erosion, sediment, and runoff flow control, such as preserving existing vegetation when feasible, using mulch to stabilize construction areas, and stabilizing stream banks. In addition, the CSULB SWMP requires implementation of minimum control measures for development, including the NPDES Phase II requirement of construction site stormwater runoff control measures. With implementation of these BMPs, construction activities associated with the Master Plan Update would not result in substantial erosion or siltation on- or off-site, substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Operation

There are nearly 70 acres of exposed, impervious parking surfaces largely contributing to stormwater runoff on campus. As discussed, development under the Master Plan Update would require PDF-HWQ-2 to implement effective stormwater management practices where feasible, such as installing inlet basin filters, collecting and treating stormwater runoff in bioretention basins along Bouton Creek, and constructing bioswales. These types of infrastructure would allow for stormwater to be contained and treated on-site, then released to Bouton Creek, ensuring that additional sources of polluted runoff would not occur. Additionally, implementation of PDF-HWQ-3 would ensure that the Master Plan Update would produce less or the same amount of runoff than pre-development conditions.

Furthermore, the potential for development sites to generate polluted runoff would be minimized through mandatory compliance with the Construction General Permit and Small MS4 Permit and implementation of PDF-HWQ-1. Development under the Master Plan Update that would disturb more than one acre of land would also be required to develop a project-specific SWPPP, which

may include stormwater runoff monitoring, and implement BMPs for post-construction. All development under the Master Plan Update regardless of acreage would be required to develop project-specific BMPs to minimize erosion or siltation as required by PDF-HWQ-1. Additionally, development under the Master Plan Update would not involve the alteration of a stream or river, and would not be expected to substantially increase runoff compared to existing conditions because all development projects that create and/or replace 5,000 square feet or more of impervious surface under the Master Plan Update would be required to implement LID practices. In addition, the Sustainability and Resilience Framework of the Master Plan Update outlines goals to implement LID practices. Therefore, with the implementation of LID features and compliance with all applicable permits and plans, operation associated with the Master Plan Update would not result in substantial erosion or siltation on- or off-site, substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Project-Level Analysis for Near- and Mid-Term Development Projects

Construction

As discussed in Threshold HWQ-1, the following near- and mid-term projects would require only interior renovations: Lecture Hall 150-151 Renovation, Fine Arts 1/2 Renovation, Fine Arts 4 Renovation, Theatre Arts Renovation, University Theatre Renovation, Microbiology Student Success Center Renovation, Nursing Building Renovation, and Engineering Tech Renovation. These projects would not require earthmoving activities that would alter the existing drainage pattern of the individual project site or area. Therefore, impacts related to the existing drainage pattern with construction of these near- and mid-term projects would be less than significant.

Construction activities associated with some of the near- and mid-term development projects would include site preparation and earthmoving activities, and demolition and replacement of some existing structures, which may temporarily alter drainage patterns and result in impacts related to erosion and stormwater runoff. The projects that would involve such activities include the replacement projects (Engineering Replacement Building and New Parkside Housing Village), new projects (Faculty and Staff Housing, New 7th St. Community Outreach Facility), and renovation projects that include additions and/or renovations to the exterior of existing facilities (USU Renovation/Addition and Cafeteria Replacement, Hillside College Renovations/Addition, Beachside Housing, Aquatics Center and Pool Renovation, College of the Arts Replacement Building, Jack Rose Track/Commencement Facilities, Walter Pyramid Renovation, Pedestrian/Bike Lane Improvements, Liberal Arts 5 Renovation, Student Health Services Addition, Corporation Yard Renovations, Friendship Walk Stairs Revitalization, Improved Campus Entrance and Gateway, University Music Center Renovation/Addition, and Redefining the Campus Quad). However, as discussed above, construction associated with these projects would be required to comply with PDFs, the Construction General Permit, Small MS4 Permit, project specific- SWPPPs, associated BMPs, and the CSULB SWMP, as applicable. Compliance with permit requirements and implementation of BMPs would avoid or minimize erosion and changes in surface runoff.

Therefore, the proposed near- and mid-term development projects would have less than significant impacts with regard to substantial erosion or siltation, increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, or increase in runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Operation

Similar to the activities described under the program level analysis above, operation and routine maintenance of the near- and mid-term development projects would occur within existing paved/developed areas. Therefore, the amount of impervious surfaces and associated stormwater runoff would not be expected to substantially increase with these developments. Additionally, implementation of PDF-HWQ-3would ensure that the Master Plan Update would produce less or the same amount of runoff than pre-development conditions. Furthermore, compliance with the post-construction requirements of the Construction General Permit, Small MS4 Permit, site-specific SWPPPs, and implementation of LID features would minimize the potential for erosion or increase in runoff rates or volumes. Therefore, operation associated with the proposed near- and mid-term development projects would not result in substantial erosion or siltation on- or off-site, substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

HWQ-4 Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Program-Level Analysis for Master Plan Update

The Los Angeles RWQCB's Basin Plan is the water quality control plan for the region. As provided in Table 3.7-1, San Gabriel River Watershed Impaired Waters, the portions of the San Gabriel River that are impaired with various pollutants and some TMDLs are not located in the vicinity the CSULB main campus or Beachside Village property. Therefore, development from the Master Plan Update would not impact impaired waterbodies, and through compliance with existing regulations, would be consistent with the Basin Plan.

Additionally, as discussed, construction activities associated with projects under the Master Plan Update would be required to comply with the Construction General Permit and project-specific SWPPPs that would include typical BMPs for erosion control, sediment control, and waste management. Operational activities associated with development projects under the Master Plan Update would be required to meet Small MS4 Permit requirements and implement LID standards, as applicable.

The Central Basin which underlies the CSULB main campus and Beachside Village property is classified as a very low priority groundwater basin, and thus, is not subject to a sustainable groundwater management plan. Nonetheless, as discussed in Threshold HWQ-2, by 2040, LBWD is projected to have a water surplus that would offset the extra increased water demand generated by the total population increase of the campus. LBWD has the rights to pump 32,692 acre-feet per year of groundwater and an additional amount of groundwater if needed; groundwater supplies from the aquifer are reliable even during multiyear droughts. No on-site groundwater wells currently exist within the campus and none are proposed as part of the Master Plan Update. In addition, although the Central Basin underlies the CSULB campus and Beachside Village property, the majority of the campus is developed and therefore, does not have much groundwater recharge potential. Therefore, implementation of the Master Plan Update would not conflict with a water quality control plan or sustainable groundwater management plan and impacts would be less than significant.

Project-Level Analysis for Near- and Mid-Term Development Projects

Similar to the analysis for the program-level for the Master Plan Update above, operation of and

routine maintenance for the near- and mid-term development projects would be required to comply with the post-construction requirements of the Construction General Permit, project specific- SWPPPs that would include BMPs, the Small MS4 Permit, and LID standards. These requirements would ensure that the near- and mid-term development projects would not significantly degrade water quality. In addition, the Central Basin which underlies the CSULB main campus and Beachside Village property is not subject to a sustainable groundwater management plan. Nonetheless, implementation of the near- and mid-term development projects would not significantly impact groundwater supplies as LBWD would have sufficient water supplies by 2040. Therefore, implementation of the of the near- and mid-term development projects under the Master Plan Update would not conflict with a water quality control plan or sustainable groundwater management plan and impacts would be less than significant.

3.7.5 Mitigation Measures

No mitigation measures would be required.

3.7.6 Level of Significance After Mitigation

Impacts would be less than significant.

3.7.7 Cumulative Impacts

The development projects associated with the Master Plan Update, in combination with other projects requiring ground-disturbing activities in the vicinity of the campus or resulting in additional water demand in the region could result in cumulative impacts to hydrology and water quality. Significant impacts to hydrology and water quality resulting from the implementation of the Master Plan Update are not anticipated. As discussed in Section 3.7.4 above, all future development under the Master Plan Update would be subject to the requirements of the Construction General Permit, compliance with the Small MS4 Permit, and PDF-HWQ-1 through PDF-HWQ-3. Through compliance with PDFs and existing permits, plans, and regulations, such as the General Permit, Small MS4 Permit, SWPPPs, associated BMPs, and the CSULB SWMP, implementation of the Master Plan Update would not violate any water quality standards or waste discharge requirements, or substantially alter the existing drainage pattern of future project sites or areas.

Furthermore, as evaluated in Section 3.7.4 above, LBWD would have sufficient water supply to meet water demand generated by the increase in total campus population that would be served by the Master Plan Update, and future groundwater supplies from the Central Basin Aquifer would remain reliable. Therefore, impacts related to groundwater supply or recharge and applicable water quality control plans would be less than significant.

Further, related projects in the campus vicinity would also be required to comply with the requirements of the NPDES. Depending on the project type and scope, related projects may also be required to implement a SWPPPs and/or BMPs. As a result, implementation of the Master Plan Update, taking into account related projects, would not result in a considerable contribution to significant cumulative impacts. Cumulative impacts on hydrology and water quality would be less than significant.