4.8 HYDROLOGY AND WATER QUALITY

This section of the EIR presents an analysis of the potential hydrology and water quality impacts associated with development and implementation of the proposed Master Plan, including five near-term development components (Project). This section presents the environmental setting, regulatory framework, impacts of the Project on the environment, and proposed measures to mitigate significant impacts or potentially significant impacts, if any are identified.

Agency comments related to hydrology and water quality were received during the public scoping period in response to the original Notice of Preparation (NOP). These comments address the use of sustainable water sources (i.e., water conservation programs, graywater treatment/recycling, stormwater reuse, low-flow water fixtures, and developing a separate water works system); methods to reduce impacts of stormwater runoff (i.e., Low-Impact Development [LID] measures, on-site water management and sharing facilities with neighboring property owners); and whether CSUMB has identified locations for potential bio swale treatment areas.

No additional public or agency comments related to hydrology and water quality were received during the public scoping period in response to the Revision to Previously Released NOP. For a complete list of public comments received during the public scoping periods refer to Appendix B.

4.8.1 Environmental Setting

4.8.1.1 Study Area

The study area for the evaluation of impacts related to hydrology and water quality includes the 1,396-acre CSUMB campus, located in the northwestern portion of the former U.S. Department of Army (Army) Fort Ord military base (former Fort Ord). The CSUMB campus falls within the jurisdiction of the Central Coast Regional Water Quality Control Board (Central Coast RWCQB), which administers water quality programs within the coastal watersheds of Santa Cruz, San Benito, Monterey, San Luis Obispo, and Santa Barbara Counties, as well as portions of San Mateo, Kern and Ventura Counties, a 11,274 square-mile area.

The campus consists of three distinct areas: Main Campus, East Campus Housing and East Campus Open Space (see Figure 3-2, Chapter 3, Project Description).[1] All university facilities, with the exception of the East Campus Housing, are located west of Eighth Avenue in the Main Campus. East Campus Open Space, a large, undeveloped natural open space, is bordered by Eighth Avenue on the west, Inter-Garrison Road to the north, and the campus boundary to the south and east. The East Campus Open Space is dominated by oak woodland and has an informal system of developed trails.

[1] CSUMB received title to the East Campus Open Space property with deed restrictions related to munitions cleanup from the Fort Ord Reuse Authority in 2020.

The East Campus Housing area is located north of Inter-Garrison Road and consists of two residential subdivisions, Schoonover and Frederick Park. The developments are situated along the ridges of gently sloping topography and are intermixed with several small neighborhood parks and undeveloped oak woodlands, chaparral, and pockets of grassland.

4.8.1.2 Regional Characteristics

Topography

The Salinas Valley is bounded by the Gabilan Mountains to the east and the Santa Lucia Mountains to the west. The former Fort Ord and the Project site lie to the west of the Salinas Valley and north of the Monterey Peninsula. The topography of former Fort Ord consists of rolling hills and canyons to the east and stabilized sand dunes to the west (DDA 2007). In the northwestern portion of former Fort Ord, the Project site slopes gently toward Monterey Bay, and consists of sand dunes and graded areas that were established for buildings and roads during the development of Fort Ord. In the northeastern portion of the Project site, the topography gently slopes to the northeast towards the Salinas River. The campus includes both developed and open space areas, with elevations ranging from 350 ft to 110 ft above mean sea level (Schaff & Wheeler 2006).

Climate

The region has a moderate, Mediterranean-type climate and is drought-prone (DDA 2007; Page 2020). Inland areas of the region experience warm, dry summers and cool, moist winters. Coastal areas have similar weather in winter, but summers are cooler with strong winds and fog. Average annual precipitation is approximately 14 inches at the former Fort Ord, concentrated mostly between October and April (Schaff & Wheeler 2006).

Hydrology

Watershed Characteristics

The former Fort Ord lies within the northwest portion of the Salinas River Watershed. The Salinas River flows southeast to northwest, from the Santa Margarita Reservoir in San Luis Obispo County to its outlet at Monterey Bay near Moss Landing (Monterey County 2008). Well-defined natural channels are minimal on former Fort Ord, but in the eastern portion there are small channels that have intermittent flow, and in the western portion the soils are highly permeable and rainfall is primarily absorbed directly rather than conveyed as surface flow (DDA 2007; Schaff & Wheeler 2006). The Project site is located south and west of the Salinas River (see Figure 4.8-1). The Salinas River Watershed drains to the northwest, entering the Salinas River Lagoon before entering Monterey Bay and the Pacific Ocean. According to the Central Coast RWQCB Basin Plan, there are a total of 9 defined subareas known as Hydrologic Areas within the Salinas Hydrologic Unit (No. 309.00) and the Project site lies within the Monterey Peninsula Hydrologic Area (No. 309.50), which drains toward Monterey Bay, however there are no natural drainage channels that lead to the Bay (Schaff & Wheeler 2006 and Central Coast RWQCB 2017a). See Section 4.8.1.3 for additional information about drainage on the CSUMB campus.

Table 4.8-1 shows the Hydrologic Areas that encompass the Project site as designated in the Central Coast RWQCB Basin Plan (also depicted in Figure 4.8-1)(Central Coast RWQCB 2017a). The Central Coast RWQCB Basin Plan identifies watersheds in a hierarchical system that represent watershed-based geographic boundaries and constitute the geographic basis around which many surface water quality problems and goals/objectives are defined in the Basin Plan.

Table 4.8-1
Watershed Designations by Agency/Source

Agency/Source	HUC/ Basin No.	Analysis Scale	Name	Size (Sq. Mi.)
Central Coast RWQCB Basin Plan	300	RWQCB Region	Central Coast	11,274
	309	Hydrologic Unit (HU)	Salinas	3,482
	309.50	Hydrologic Area (HA)	Monterey Peninsula	118
	309.10		Lower Salinas Valley	123

Sources: USGS 2019; Central Coast RWQCB 2017a.
Notes: HUC = hydrologic unit code; sq. mi = square miles

Beneficial uses, as designated in the Regional Basin Plan, for the surface waters and coastal waters receiving discharge from the Project site are listed in Table 4.8-2.

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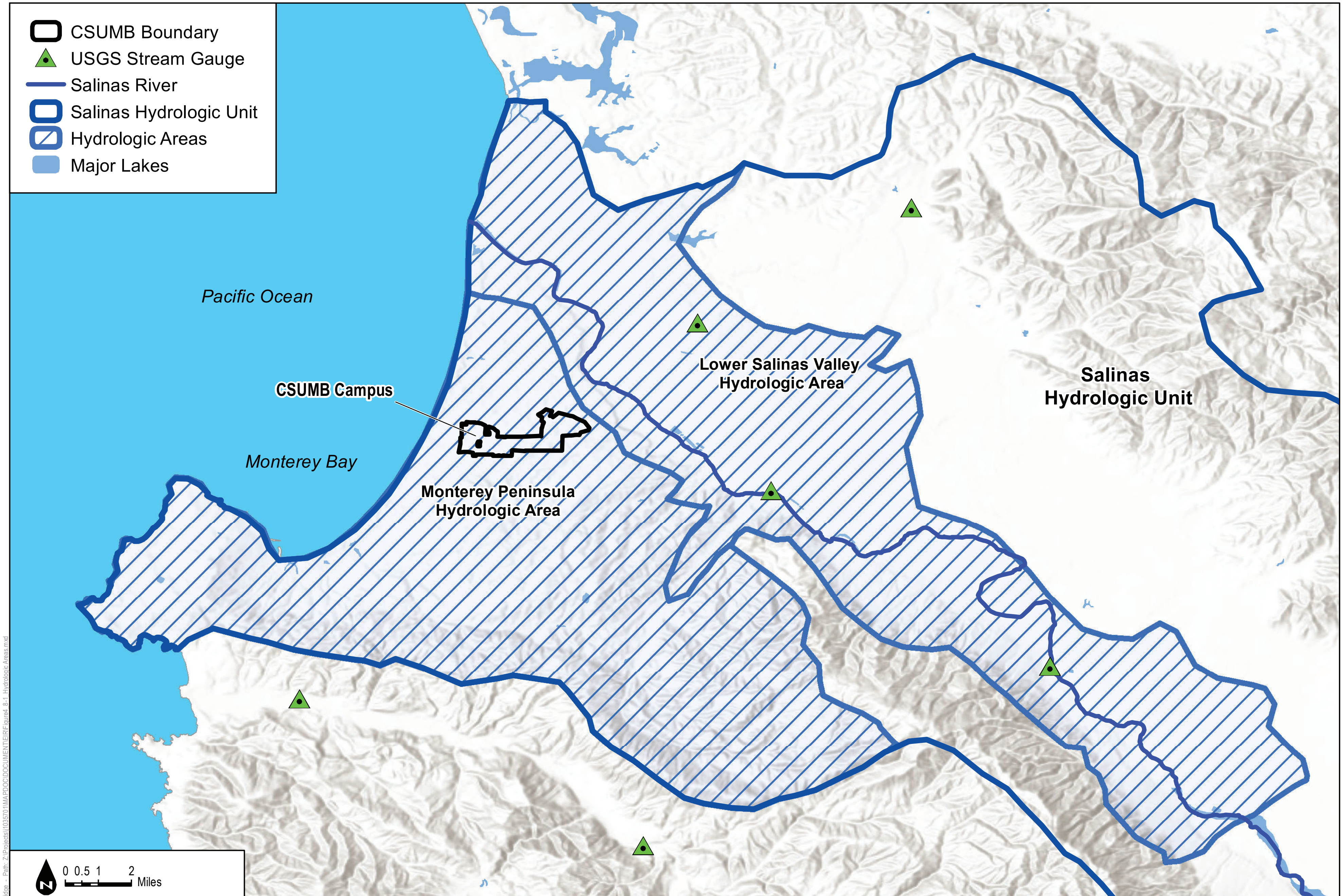

SOURCE: USGS; SANGIS

FIGURE 4.8-1

Hydrologic Areas

CSU Monterey Bay Master Plan EIR

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Table 4.8-2
Beneficial Uses for Surface and Coastal Waters

Surface of Coastal Water Body	Hydrologic Unit Basin Number	Beneficial Uses													
		MUN	AGR	REC1	REC2	WILD	COLD	WARM	MIGR	FRSH	COMM	IND	NAV	MAR	SHELL
Salinas River (Downstream of Spreckels Gage)	309.10	●	●	●	●	●	●	●	●	●	●				
Central Coast RWQCB Basin Plan	___			●	●	●					●	●	●	●	●

Sources: Central Coast RWQCB 2017a.
Definitions:
Municipal and Domestic Supply (MUN) – Includes uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
Agricultural Supply (AGR) – Includes uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
Contact Water 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, water-skiing, skin and SCUBA diving, surfing, white water activities, fishing, or use of natural hot springs.
Non-contact Water Recreation (REC-2) – Includes the uses of water for recreational activities involving proximity to water, but not where there is generally no body contact with water, nor any likelihood of ingestion of water. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
Wildlife Habitat (WILD) – Includes uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
Cold Freshwater Habitat (COLD) – Includes uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.
Warm Freshwater Habitat (WRM) – Includes uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates. Includes support for reproduction and early development of warm water fish.
Migration of Aquatic Organisms (MIGR) – Includes uses of water that support habitats necessary for migration, acclimatization between fresh and salt water, or other temporary activities by aquatic organisms, such as anadromous fish.
Fresh Water Replenishment (FRSH) – Includes uses of water for natural or artificial maintenance of surface water quantity or quality (e.g., salinity) which includes a waterbody that supplies water to a different type of waterbody, such as streams that supply reservoirs and lakes, or estuaries; or reservoirs and lakes that supply streams. This includes only immediate upstream water bodies and not their tributaries.
Commercial and Sport Fishing (COMM) – Includes the uses of water for commercial or recreational collection of fish, shellfish, or other organisms intended for human consumption or bait purposes.
Industrial Service Supply (IND) – Includes uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.
Navigation (NAV) – Includes uses of water for shipping, travel, or other transportation by private, military, or commercial vessels. Any stream, lake, arm of the sea, or other natural body of water that is actually navigable and that, by itself, or by its connections with other waters, for a period long enough to be of commercial value, is of sufficient capacity to float watercraft for the purposes of commerce, trade, transportation, and including pleasure; or any waters that have been declared navigable by the Congress of the United States and/or the California State Lands Commission.
Marine Habitat (MAR) – Includes the use of waters that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).
Shellfish Harvesting (SHELL) – Includes uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters and mussels) for human consumption, commercial, or sport purposes.

Drainage Infrastructure

The developed portions of former Fort Ord are served by a storm drain system that the U.S. Army constructed between the years 1940 to 2000 (Schaaf & Wheeler 2006). The system discharged into the Monterey Bay, which was designated as a National Marine Sanctuary in 1991. Portions of the system have been decommissioned, maintained or upgraded, as needed. In particular, regional storm drainage systems that discharged to separate ocean outfalls were diverted in 2002 to percolation ponds between the ocean and Highway 1 (Creegan & D'Angelo 2005; FORA 2018). The diversion project was the implementation of Phase I of the Master Plan for Improvements to the Regional Storm Drainage System prepared for the City of Seaside and the Fort Ord Reuse Authority (FORA). The percolation basins were considered temporary with the long-term objective to percolate all storm water on the east side of Highway 1 as part of the redevelopment of the former Fort Ord.

The FORA Stormwater Master Plan (2005) was prepared pursuant to the 1997 Base Reuse Plan that required all ocean storm water discharge from development on Fort Ord be eliminated and all stormwater to be infiltrated east of Highway 1. The FORA Stormwater Master Plan provides specific guidelines for meeting these obligations outlined in the 1997 Base Reuse Plan, including acceptable types and design of infiltration facilities. Specifically, the Storm Water Master Plan states that infiltration basins are required to have the storage capacity to accommodate a 100-year storm event.

CSUMB now owns and operates the portion of the storm drainage system that serves the Project site (Schaaf & Wheeler 2006). See Section 4.8.1.3, Campus Setting, for additional information about drainage on the CSUMB campus.

Surface Water Quality

Overview

The quality of surface water is primarily a function of land uses in the Project vicinity. Pollutants and sediments are transported in watersheds by stormwater runoff that reaches streams, rivers, storm drains, and coastal estuaries. Local land uses influence the quality of the surface water through point source discharges (i.e., discrete discharge from a wastewater treatment plant) and nonpoint source discharges (e.g., storm runoff). The prominent water quality problems in the Project area are related to non-point source pollutants in urban runoff (i.e., municipal storm drain system discharges), agricultural activities (contributing elevated levels of pesticides, nutrients, and salinity in storm runoff and irrigation drainage), and hydromodification. Hydromodification is the primary contributor to problems related to excessive sediment and altered stream flow dynamics (e.g., flow volumes and velocities), primarily due to impervious surfaces, mass grading, and/or poor road designs (both urban and rural/unpaved).

In general, surface water quality in the former Fort Ord varies seasonally; the first heavy rains of the season tend to flush the highest concentration of pollutants into the stormwater system. This runoff from urbanized areas typically contains elevated levels of suspended solids, coliform bacteria, oil and grease, fertilizers and pesticides, and heavy metals; many of these pollutants are associated with the operation of motor vehicles. Storms later in the season tend to contribute to erosion and gullying in some areas, particularly drainages in the eastern half of the former Fort Ord. The system does not provide any water quality control measures, other than incidental improvements provided by natural depressions and catch basins that can settle out litter and debris (DDA 2007).

Impaired Water Bodies

Several water bodies within and adjacent to the Salinas River watershed are designated as "water quality-limited" for water quality impairments under the federal Clean Water Act's (CWA's) Section 303(d) (see Table 4.8-3). Being "water quality-limited" or "impaired" means that a water body is "not reasonably expected to attain or maintain water quality standards" without additional regulation. The law requires that the U.S. Environmental Protection Agency (USEPA) develop total maximum daily loads (TMDLs) for each impaired water body in the nation. The TMDLs specify the maximum amount of a pollutant a water body can receive and still meet water quality standards. A TMDL may also include a plan for bringing an impaired water body back within standards. The most recently approved Section 303(d) List of Water Quality Limited Segments, as listed in the 2014-2016 Integrated Report, lists the lower Salinas River, Salinas River Lagoon (North), and Salinas River Refuge Lagoon (South) as impaired water bodies under Section 303(d) of the CWA (SWRCB 2018).

The impairments in Table 4.8-3 are provided for information purposes because of the location of the associated impaired water bodies and the campus. However, there are no 303(d) impaired water bodies on the campus and the stormwater captured on the developed portion of the campus does not discharge to any 303(d)impaired water bodies (Schaaf & Wheeler 2006). Specifically, while the East Campus Housing portion of the campus is located within the Salinas River watershed, which has impaired water bodies (see Table 4.8-3), the developed East Campus Housing area drains to percolation ponds that surround the housing and does not discharge to the Salinas River.

Table 4.8-3
CWA Section 303(d) Impairments

Name	Pollutant/ Stressor	Potential Sources	TMDL Status	Year
Salinas River (lower, estuary to near Gonzales Rd. crossing, watersheds 309.10 and 309.20)	Benthic Community Effects	Channelization, Flow alteration/ regulation/ modification, hydromodification	Programmed	2027
	Chlordane	Unknown	Programmed	2027
	Chloride	Unknown	Programmed	2027
	Chlorpyrifos	Agriculture	Approved	2011
	DDE	Unknown	Programmed	2027
	DDT	Unknown	Programmed	2027
	Diazinon	Agriculture	Approved	2011
	Dieldrin	Unknown	Programmed	2027
	Enterococcus	Unknown	Programmed	2027
	Escherichia coli (E. coli)	Domestic Animals/ Livestock, Illegal dumping, Urban runoff/ storm sewers	Approved	2013
	Fecal Coliform	Domestic Animals/ Livestock, Illegal dumping, Urban runoff/ storm sewers	Approved	2012
	Nitrate	Domestic Animals/ Livestock, Illegal dumping, Urban runoff/ storm sewers	Approved	2015
	PCBs	Unknown	Programmed	2027
	pH	Unknown	Programmed	2027
	Sodium	Unknown	Programmed	2027
	Total Dissolved Solids	Unknown	Programmed	2027
	Toxaphene	Unknown	Programmed	2027
	Toxicity	Agriculture	Approved	2011
	Turbidity	Unknown	Programmed	2018
Salinas River Lagoon (North)	Chlorpyrifos	Agriculture	Approved	2011
	DDE	Unknown	Programmed	2018
	Nutrients	Agriculture	Approved	2015
	pH	Unknown	Programmed	2027
	Temperature, water	Unknown	Programmed	2023
	Toxicity	Agriculture	Approved	2011
Salinas River Refuge Lagoon (South)	pH	Unknown	Programmed	2027
	Turbidity	Unknown	Programmed	2023

Source: SWRCB 2018.
Notes: CWA = Clean Water Act; TMDL = Total Maximum Daily Load

The Main Campus is located in the Fort Ord Watershed, which is a small sub-watershed that drains toward, but does not discharge into, the Monterey Bay (Schaaf & Wheeler 2006). While the Monterey Bay is not identified as impaired, runoff into the bay is a factor in ocean water quality. Monterey Bay is a bay of the Pacific Ocean on California's Central Coast within Monterey Bay National Marine Sanctuary (MBNMS). The bay extends between the City of Santa Cruz and the Monterey Peninsula. MBNMS was designated in 1992 as a federally protected marine area off of California's Central Coast. It stretches from Marin to Cambria, encompasses a shoreline length of 276 miles and 4,601 square nautical miles of ocean, and extends an average distance of 30 miles from shore (MBNMS 2019). The shoreline of Monterey Bay is composed primarily of less resistant sand dune and sedimentary deposits that form the ancient sand dune terraces and provide the opportunity for farmland around the communities of Watsonville, Castroville, Marina, Sand City, and Seaside. The primary freshwater inputs to Monterey Bay are through the San Lorenzo, Pajaro, Salinas and Carmel Rivers. While the Project site is located approximately 1.5 miles inland of the Monterey Bay, runoff from the Project site does not enter the bay due to the diversion project described previously that decommissioned ocean outfalls associated with the former Fort Ord.

Overall, stormwater runoff from the developed portions of the campus percolates on and off campus and does not drain to any surface water body, based on implementation of the CSUMB Stormwater Master Plan (Schaaf & Wheeler 2006). See Section 4.8.1.3, Campus Setting for additional information.

Groundwater

Overview

The Salinas Valley Groundwater Basin (Basin), which extends from the Monterey Bay inland, is the source of all potable water supply for the former Fort Ord, and for the CSUMB campus (see Figure 4.8-2). Based on DWR Bulletin 118, the Basin consists of nine subbasins including the 180/400-Foot Aquifer Subbasin (3-004.01), East Side Aquifer Subbasin (3-004.02), Forebay Aquifer Subbasin (3-004.04), Upper Valley Aquifer Subbasin (3-004.05), Langley Area Subbasin (3-004.0), Monterey Subbasin (3-004.10), Seaside Subbasin (3-004.08), Paso Robles Subbasin (3-004.06), and the Atascadero Subbasin (3-004.11) (MCWD 2021; DWR 2016).

As indicated in Section 4.14, Utilities and Energy, water service to CSUMB is currently provided by Marina Coast Water District (MCWD) in the Ord Community service area, which uses groundwater from the Salinas Valley Groundwater Basin. Specifically, MCWD's groundwater wells are located in the Monterey Subbasin. The Salinas Valley Groundwater Basin has been in an overdraft condition with seawater intruding at an estimated rate of 11,000 to 18,000 acre-feet per year (AFY) into the 180/400 Foot Aquifer Subbasin (MCWD 2021). The 180/400 Foot Aquifer

Subbasin has been declared by the State to be a high priority basin subject to "critical conditions of overdraft" (DWR 2016). Ongoing monitoring by Monterey County Water Resources Agency (MCWRA) indicates that the seawater intrusion continues to migrate inland, particularly in the 180-Foot Aquifer, but groundwater conditions appear to be improving in some areas south of the Salinas River (MCWD 2021).

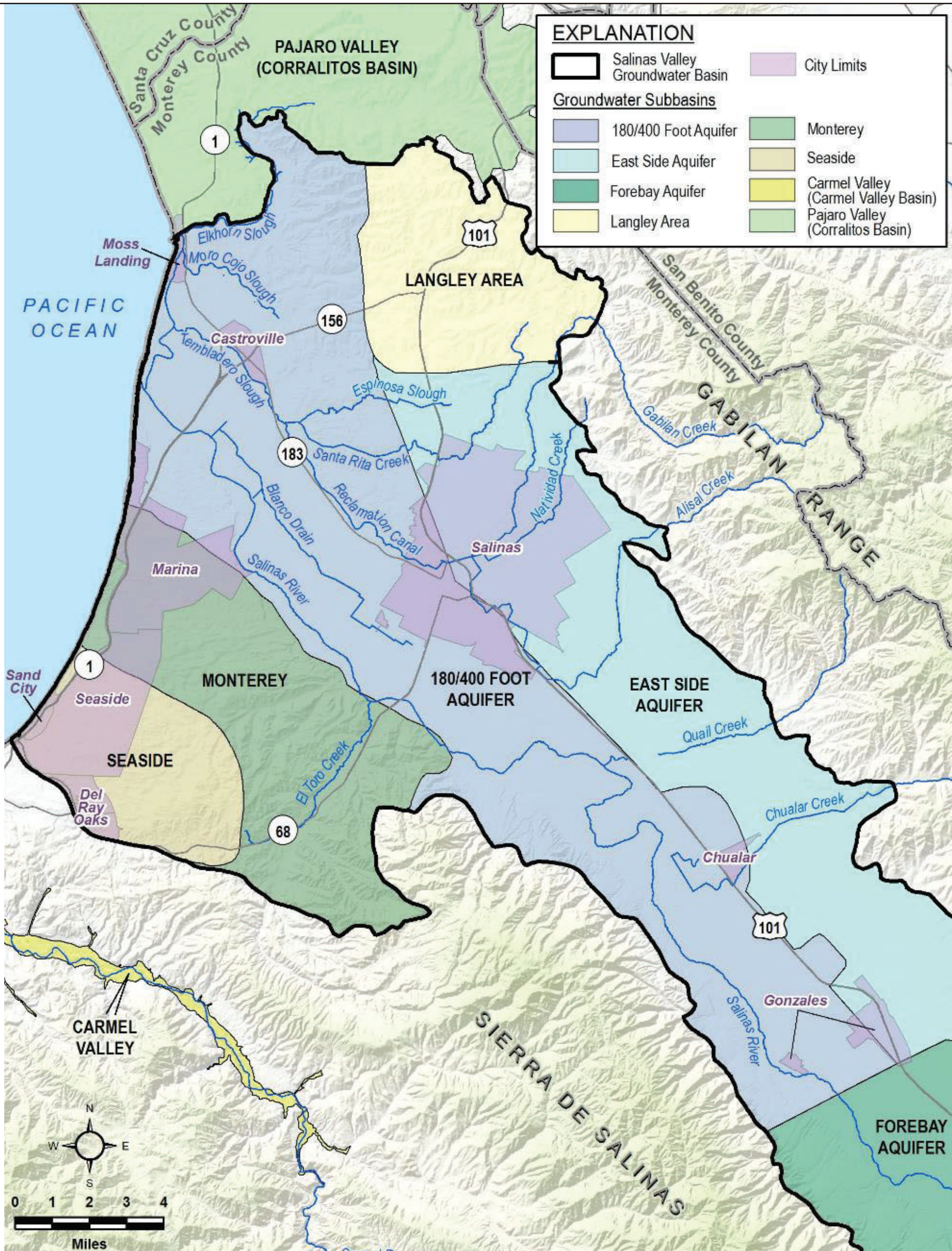
MCWD's groundwater withdrawals from the Monterey Subbasin, a medium priority subbasin of the Salinas Valley Groundwater Basin, are about 3,300 AFY or less than 1.0 percent of total annual Basin withdrawals of about 475,300 AFY (MCWD 2021). Within the Monterey Subbasin, MCWD production wells tap the Deep Aquifer and the 400-Foot Aquifer, which are further described below. Other than MCWD, only a small number of wells tap the Deep Aquifer, some of which also draw from the 400-Foot Aquifer.

Pursuant to state law, MCWD has prepared an Urban Water Management Plan (UWMP) and adopted an updated 2020 UWMP in 2021. The 2020 UWMP projects a water demand of 6,610 AFY in the Ord Community service area over the next 20 years, to the year 2040. The Ord Community service area is projected to slightly exceed its current Salinas Valley groundwater allocation by the year 2040, but would not exceed its allocation by 2035, the horizon year for the Project. By 2040, the total Ord Community allocated groundwater supply of 6,600 AFY is projected to fall short of the estimated demand of 6,610 AFY by 10 AFY. However, by 2035, the allocated supply would be sufficient to meet the estimated demand of 6,108 AFY. While sufficient production capacity exists to meet the projected demand within MCWD's service area, there is concern that seawater intrusion may eventually degrade water quality in the Marina-Ord Area of the Monterey Subbasin where MCWD's wells are located (MCWD 2021).

MCWRA and MCWD have taken actions to address and eliminate basin overdraft and seawater intrusion. MCWD also is exploring new alternative water sources to augment groundwater supplies, including recycled water, as described in Section 4.14, Utilities and Energy. Additionally, 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan (GSP) and the Monterey Subbasin GSP include additional strategies for reaching sustainability in these subbasins by 2040.

Marina and the former Fort Ord overlie three subbasins of the Salinas Valley Groundwater Basin: the 180/400 Foot Aquifer Subbasin, Monterey Subbasin, and Seaside Subbasin. Portions of MCWD's Ord Community service area extends into the Seaside Subbasin, which is an adjudicated aquifer,[2] but all of MCWD's current wells are located within the Monterey Subbasin (MCWD 2021). Conditions in both the 180/400-Foot Aquifer Subbasin and the Monterey Subbasin are described below given that these two subbasins are connected (MCWD 2021).

2 Adjudication refers to an action filed in the superior or federal district court to determine the rights to extract groundwater from a basin or store water within a basin.



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DUDEK

SOURCE: SVBGSA 2020

FIGURE 4.8-2
Salinas Valley Groundwater Basin

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180/400-Foot Aquifer Subbasin

The 180/400 Foot Aquifer Subbasin is delineated vertically into three distinct aquifer zones, consisting of aerially extensive, largely horizontally continuous, deposits of sand and gravel that exist at various depths below ground surface in the subbasin. These three aquifers are commonly referred to as the 180-Foot, 400-Foot and Deep Aquifers. The 180-Foot and 400-Foot Aquifers derive their names from the average depth below the valley floor at which the water bearing sand and gravel deposits are encountered. The Deep Aquifer consists of an aggregation of all sand and gravel deposits that exist below the 400-Foot Aquifer including aquifers in the Aromas Sand, the Paso Robles Formation and Purisima Formation, not all of which are hydraulically connected. The shallowest alluvial aquifer in the subbasin is the A-Aquifer, which is perched on top of the Salinas Valley Aquitard, above the 180-Foot Aquifer, and overlies most of the 180/400 Foot Aquifer Subbasin. Toward the coast, the A-Aquifer, also known as the Dune Sand Aquifer, is comprised of mostly dune sand deposits, which are largely unconfined in the coastal area of the basin. Natural recharge into the Dune Sand Aquifer recharges the 180-Foot Aquifer in some locations (MCWD 2021).

The 180-Foot Aquifer extends from Monterey Bay to Chualar beneath the Salinas Valley and westward from the valley under northern Ord Community and Central Marina. The 400-Foot Aquifer is comprised of geological materials assigned to older alluvium deposits and Aromas Sand. The aquifer system is present beneath the northern Salina Valley and also extends westward beneath the northern portions of the former Fort Ord and Central Marina. Both the 180-Foot Aquifer and 400-Foot Aquifer receive recharge from the Salinas River through the overlying recent alluvial deposits (MCWD 2021).

The Deep Aquifer system consists of two geologic formations, the Paso Robles and the underlying Purisima Formations. The Deep Aquifer system is commonly believed to begin at depths of approximately 600 feet below sea level and extend to depths of up to 2,000 feet or more in some locations. Non-water bearing Monterey Shale that constitutes the bottom of the Salinas Groundwater Basin underlies the Deep Aquifer system (MCWD 2021).

Because the overlying clay layers isolate the aquifer system in the 180/400 Foot Aquifer Subbasin from potential surface water recharge, most importantly the Salinas River, the primary mechanism for recharge is from lateral flow from the adjacent subareas. This means that most recharge for the aquifer systems in the 180/400 Foot Aquifer Subbasin comes from lateral flow from the Monterey, Eastside or Forebay Subbasins. Additionally, the Deep Aquifers are believed to be recharged in whole or in part by water that has moved through the overlying aquifers. Most the recharge from the 180/400 Foot Aquifer Subbasin derives from the Forebay Subbasin due to natural recharge from the Salinas River, which is augmented by MCWRA's active management of Nacimiento and San Antonio reservoir releases to maximize river recharge (MCWD 2021).

In a balanced condition, Salinas Valley Groundwater Basin groundwater would move through the basin and into the Monterey Bay through sea floor freshwater aquifer outcrop areas. As a result of basin-wide pumping, water levels in the 180/400 Foot Aquifer and East Side Subbasins have declined over time, contributing to a decrease in the amount of groundwater moving toward and into Monterey Bay and developing a trough or depression in groundwater levels in the East Side Subbasin. The basin currently experiences a landward groundwater gradient causing seawater intrusion, where seawater has contaminated coastal aquifers and wells. While historic groundwater pumping throughout the basin contributes to the overdraft, only the basin's coastal areas adjacent or near to the Monterey Bay experience seawater intrusion (MCWD 2021).

Groundwater conditions in the 180/400-Foot Aquifer Subbasin are further described below by the California Department of Water Resources' (DWR) six sustainability indicators (groundwater elevations, groundwater storage, seawater intrusion, groundwater quality, subsidence, and interconnected surface water), as presented in the 180/400-Foot Aquifer Subbasin GSP (SVBGSA 2020). See Section 4.8.2, Regulatory Framework, for additional information about this GSP.

Groundwater Elevations

Groundwater hydrographs show a general decline over time in groundwater elevations in the 180/400-Foot Aquifer Subbasin, with a fairly steady decline since 1998. Groundwater elevations have been chronically lowered due to pumping and are lowest during higher irrigation seasons. The lowered groundwater elevations are the cause of seawater intrusion in both the 180-Foot and the 400-Foot Aquifers.

Change in Groundwater Storage

Change in usable groundwater storage is defined in the GSP as the annual average increase or decrease in groundwater that can be safely used for domestic, industrial, or agricultural purposes. Change in usable groundwater storage is the sum of change in storage determined from groundwater elevation changes and the change in storage due to seawater intrusion. For the 180/400-Foot Aquifer Subbasin, the historical average annual loss of storage is approximately 11,700 acre-feet per year (AFY).

Seawater Intrusion

The 180-Foot and 400-Foot Aquifers have been subject to seawater intrusion for more than 70 years. MCWRA and others have implemented projects to slow seawater intrusion; however, it remains an ongoing threat. Seawater intrusion is less extensive in the 400-Foot Aquifer than in the 180-Foot Aquifer; however, between 2013 and 2017, the area impacted by intrusion in the 400-Foot Aquifer increased from approximately 12,500 acres to 18,000 acres. To date, seawater intrusion has not been reported in the Deep Aquifers.

Groundwater Quality

Elevated nitrate concentrations in groundwater were locally present in the 1960s and significantly increased in 1970s and 1980s. In 2005, nitrate levels exceeding the primary maximum contaminant level (MCL) were found in 32 percent of public water supply samples in the Salinas Valley Groundwater Basin. In 2018, nitrate levels exceeded the primary MCL in 26 percent of on-farm domestic wells and 21 percent of irrigation supply wells in the Subbasin, a majority of which originated from irrigated agricultural waste discharges. Other constituents found at levels of concern for either potable or irrigation uses include 1,2,3-trichloropropane, arsenic, cadmium, chloride, fluoride, hexavalent chromium, iron, manganese, methyl tert-butyl ether, perchlorate, total dissolved solids, and thallium.

Subsidence

Land subsidence, or the lowering of ground surface, can be caused by excessive groundwater withdrawals. No measurable subsidence has been recorded anywhere in the Subbasin between June 2015 and June 2018.

Interconnected Surface Water

Surface water that is connected to the groundwater flow system is referred to as interconnected surface water. If the groundwater elevation in an aquifer that is hydraulically connected to a stream (or other surface water body) is higher than the water level in the stream, the stream is said to be a gaining stream because it gains water from the surrounding underlying groundwater. If the groundwater elevation is lower than the water level in the stream, it is termed a losing stream because it loses water to the surrounding groundwater flow system. If the groundwater elevation is well below the streambed elevation and there is an unsaturated zone between the stream and the groundwater, the stream and groundwater are considered to be disconnected.

Although the Salinas Valley Aquitard inhibits hydraulic connectivity between the 180/400-Foot Aquifer and Salinas River, interconnection may exist in the two limited areas where groundwater is less than 20 feet below ground surface: near the southern boundary where the Salinas River enters the Subbasin and northern boundary where the River discharges into Monterey Bay. While this analysis is based on best available data, it contains significant uncertainty and data gaps that will be filled during GSP implementation.

Monterey Subbasin

As described in the Monterey Subbasin GSP (MCWD GSA 2021), the Monterey Subbasin is located at the northwestern end of the Salinas Valley Groundwater Basin, an approximately 90-mile-long alluvial basin underlying the elongated, intermountain valley of the Salinas River. The

Subbasin includes the portions of the Monterey Bay coastal plain, south of the approximate location of the Reliz Fault, as well as upland areas to the southeast of the coastal plain. The Subbasin is bordered by the 180/400-Foot Aquifer Subbasin to the northeast and by the adjudicated Seaside Subbasin to the southwest. The GSP establishes two management areas within the Monterey Subbasin including the Marina-Ord Area and the Corral de Tierra Area. The Marina-Ord Area consists of the lands within the City of Marina and the former Fort Ord, which are generally located north of State Route 68. This area is the focus of the information provided in this EIR given that MCWD's wells that serve the Ord Community service area are located in this area.

Within the Monterey Subbasin, the water-bearing strata includes river and sand dune deposits, the Aromas Sand and Paso Robles Formation, the Purisima Formation, and the Santa Margarita Formation. The Monterey Formation represents the relatively non-water-bearing bedrock that underlies the Subbasin. The deepest groundwater production wells in the Subbasin generally extend to depths within the Purisima or Santa Margarita Formations above the Monterey Formation, and are found closer to the coast. Along the northeastern boundary of the Subbasin, where the Monterey Formation is overlain by the Purisima Formation, the deepest groundwater extractions are from MCWD wells.

The principal aquifers defined in the Monterey Subbasin in the Marina-Ord Area include the same aquifers identified above for the 180/400-Foot Aquifer Subbasin including the Dune Sand Aquifer, 180-Foot Aquifer, 400-Foot Aquifer, and Deep Aquifers.

Groundwater conditions in the Monterey Subbasin are further described below by DWR's six sustainability indicators (groundwater elevations, groundwater storage, seawater intrusion, groundwater quality, subsidence, and interconnected surface water), as presented in the Monterey Subbasin GSP (MCWD GSA 2021). See Section 4.8.2, Regulatory Framework, for additional information about this GSP.

Groundwater Elevations

Groundwater elevations in the Dune Sand Aquifer have been generally stable for over three decades and do not show large seasonal variations. Most wells in this aquifer show slightly decreasing trends during the past 15 years following a prior period of increasing water levels. Groundwater elevations in the 180-Foot Aquifer have been stable in the past thirty years in wells in the Marina-Ord Area. Groundwater elevations in the 400-Foot Aquifer have also been stable in the past thirty years in wells in the northern Marina-Ord Area. However, two wells in the southwestern portion of the Marina-Ord Area show consistent decreasing trends over the past 15 years. Groundwater elevations in the Deep Aquifers have shown a consistent decline since the mid-2000s.

Change in Groundwater Storage

For the Monterey Subbasin, the average annual loss of storage is approximately 4,434 AFY during water years 2004 to 2018. The cumulative loss of storage over this 15-year period was estimated to be 66,517 AF.

Seawater Intrusion

As indicated previously, the 180-Foot and 400-Foot Aquifers have been subject to seawater intrusion for more than 70 years. MCWRA and others have implemented projects to slow seawater intrusion; however, it remains an ongoing threat. Within the Monterey Subbasin, seawater intrusion has been documented in the northern portion of the lower 180-Foot and 400-Foot Aquifers. There is no observed seawater intrusion in the upper portion of the 180-Foot Aquifer. Additionally, seawater intrusion has not been reported in the Deep Aquifers.

Depressed groundwater elevations in the 180/400 Foot Aquifer Subbasin are creating inland groundwater gradients that are contributing to seawater intrusion in the Monterey Subbasin. This observed inland gradient is generally parallel to the current seawater intrusion front. While seawater intrusion has not been reported in the Deep Aquifers, there is significant risk that seawater intrusion will occur in this aquifer since the groundwater elevations in the Deep Aquifers are lower than sea level. However, the locations and mechanisms of the Deep Aquifers recharge are not well understood. Therefore, the likelihood of and potential timeframe for seawater intrusion in the Deep Aquifers is unknown.

Groundwater Quality

The known groundwater quality concerns in the Marina-Ord Area aquifers are elevated chloride and total dissolved solids (TDS) concentrations and point-source contaminants such as Volatile Organic Carbons (VOCs) and per- and polyfluoroalkyl substances (PFAS). There are a number of active point-source contamination sites within the Subbasin, which are primarily located within the former Fort Ord and are a part of the Fort Ord's environmental cleanup program. Groundwater remedial action objectives and aquifer cleanup goals at Fort Ord are established within the Records of Decision (ROD) and subsequent Explanations of Significant Difference (ESD) prepared for each operable unit where groundwater impacts have been detected. These documents are part of the administrative record and have been endorsed by state and federal agencies. The ROD documents selected remedy and cleanup levels that complies with the federal and state requirements that are applicable or relevant and appropriate (ARAS) to the site, such as drinking water MCLs and Central Coast RWQCB Basin Plan Water Quality Objectives.

A well prohibition area has been established over the contamination plumes that have historically been identified in groundwater within former Fort Ord. These contamination plumes are primarily located within the Dune Sand and 180-Foot Aquifers. No contamination has been detected in the 400-Foot Aquifer and the Deep Aquifers. To date, no point-source contaminants have been detected above MCLs in domestic supply wells within the Subbasin.

Subsidence

No measurable subsidence has been recorded anywhere in the Subbasin between June 2015 and September 2019.

Interconnected Surface Water

Surface water streams within the Subbasin are generally small intermittent streams that flow only after storm events, and are unlikely to be connected to groundwater, except for the lower reaches of El Toro Creek and two potential locations along the Salinas River near the Monterey-180/400-Foot Aquifer Subbasin boundary where the Salinas River intercepts the Subbasin. Another type of surface water that exists within the Subbasin includes ponds and lakes located within the City of Marina and within the Fort Ord federal land area. These surface water features are known as vernal ponds and some of these features are known to contain open water well into the dry season. Groundwater elevations in the Dune Sand Aquifer in the vicinity of the City of Marina are within 20 feet of ground surface and are at similar levels in nearby Dune Sand Aquifer wells. Therefore, the ponds in the vicinity of City of Marina may be supported by groundwater in the Dune Sand Aquifer.

4.8.1.3 Campus Setting

Stormwater Drainage

The soils on the Project site are highly permeable and allow for infiltration rather than surface flow under normal rainfall conditions (Schaaf & Wheeler 2006). Surface flow occurs primarily in impervious areas and is transported through CSUMB-owned stormwater systems to existing on- and off-campus stormwater systems and infiltration facilities that lie both within and outside of the Project site (DDA 2007; Page 2020).

According to the Stormwater Master Plan for the campus, the East Campus Housing and East Campus Open Space are located in the Salinas River Watershed, while the Main Campus lies within the Fort Ord Watershed, a small sub-watershed, that drains toward, but not into, the Monterey Bay (Schaaf & Wheeler 2006). Eighth Avenue is considered the general dividing line between the Salinas River Watershed and the sub watersheds draining toward Monterey Bay (Schaaf & Wheeler 2006). East Campus Housing has a stormwater system that was built in the 1980s. Surface flow enters the East Campus Housing stormwater system, discharges to multiple percolation ponds located throughout the housing area. The percolation ponds have capacity for current conditions, and the storm drain system has been considered functional except for maintenance issues including sedimentation and missing grates (DDA 2007).

Most of Main Campus surface flow that does not infiltrate on campus drains through existing regional Systems C (54" outfall) and D (48" outfall), which have the capacity to transport the two-year storm event (DDA 2007; Page 2020). Larger storms may discharge and percolate in open space areas or ponds in low lying areas of former Fort Ord development (DDA 2007). The Stormwater Master Plan identified discharge paths on the Main Campus in greater detail using the following sub areas, which have been somewhat refined, as the Stormwater Master Plan has been implemented over time (Schaaf & Wheeler 2006; Page 2020) (see Figure 4.8-3):

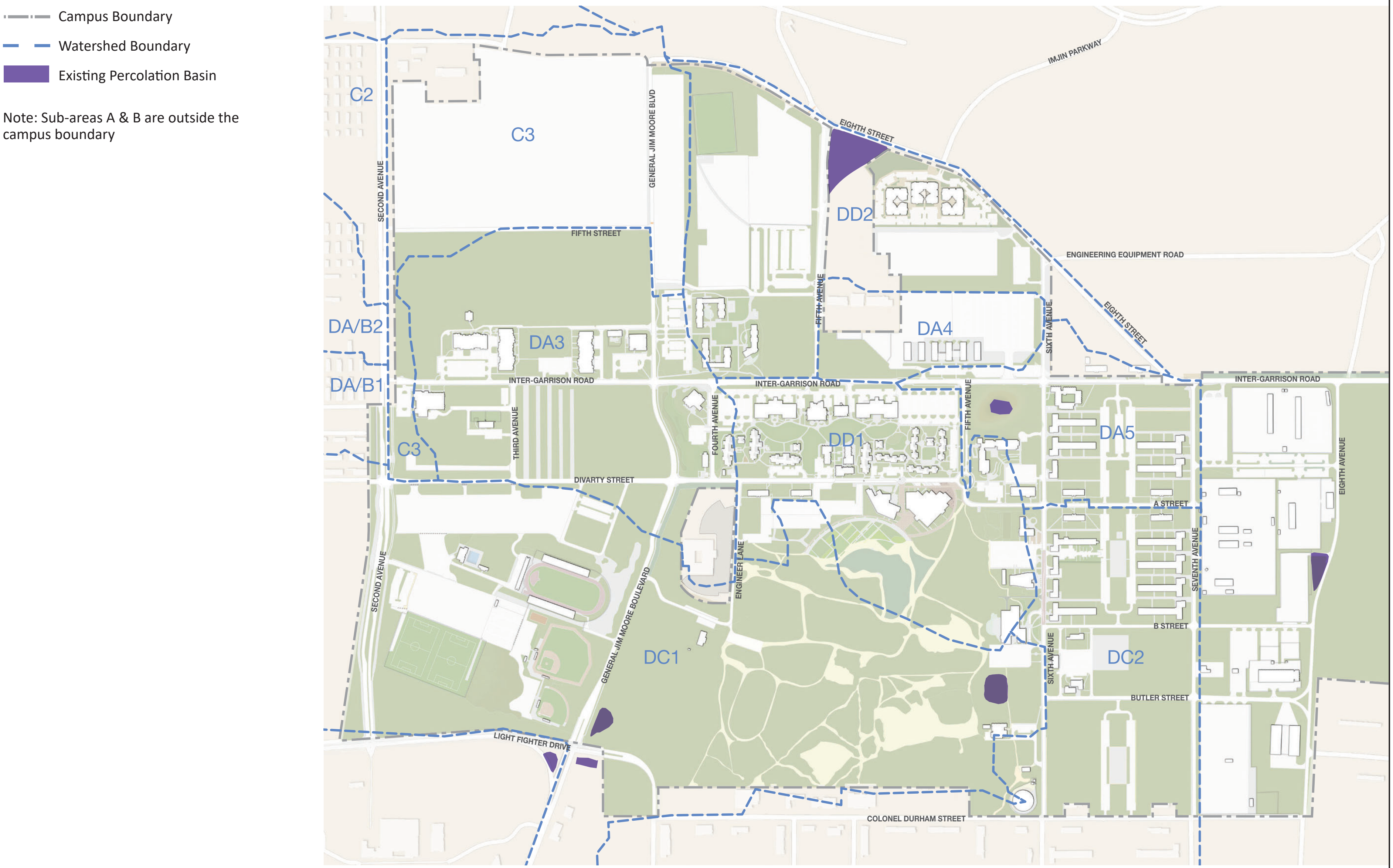
- *Sub-area C3* - This area is in the northwestern portion of the Main Campus, which drains to regional System C via an 18" storm drain. Excess runoff drains to a low elevation area on the southeast corner of Second Avenue and Eighth Street, or westward across Second Avenue. This sub-area drains to regional System C.
- *Sub-areas DA3, DA4, and DA5* - These areas span the midsection of the Main Campus, and drain west across Second Avenue via regional System D.
- *Sub-areas DC1 and DC2* - These areas span the southern section of the Main Campus and drain west across General Jim Moore Boulevard before discharging into regional System D.
- *Sub-areas DD1 and DD2* - DD1 is in the center of the Main Campus and DD2 is at the northeast edge of this portion of the campus. Both drain to an existing City of Marina percolation pond that lies outside of the Project site.
- *East of DA5 and East of DC2* - These areas are located in the eastern portion of the Main Campus and drain to open space owned by Monterey County on the east side of Inter-Garrison Road.

CSUMB's inherited stormwater infrastructure from Fort Ord and regional systems C and D are functional although ongoing maintenance and upgrades are necessary. The CSUMB Stormwater Master Plan specifies that campus redevelopment will allow infiltration of 100 percent of runoff from a hundred-year storm on the Project site, reducing CSUMB's reliance on the offsite regional stormwater facilities (Schaaf & Wheeler 2006). This infiltration requirement is consistent with FORA's plans for the land west of Highway 1, which abandoned the regional storm drainage system and now percolates all or most of the stormwater generated in the area locally (Creegan & D'Angelo 2005). The CSUMB Stormwater Master Plan infiltration requirement is being implemented as new construction projects on the campus are implemented. For example, recent campus developments, including the Library; Science & Academic Center; the Business Information and Technology Building (Academic II); Parking Lot 59; Academic III; and Student Union have been built on existing parking lots or paved areas and included on-campus infiltration facilities, which have employed low impact development (LID)[3] approaches, as well as more conventional infiltration basins. The campus has also constructed several stand-alone percolation ponds (see Figure 4.8-3). These developments and features have contributed to reducing campus stormwater flows in the existing storm drain system and in the existing off-campus stormwater systems and percolation ponds.

Flooding/Tsunami Inundation

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) identify flood zones and areas that are susceptible to 100-year (one percent annual chance of occurrence) and 500-year floods (0.2 percent annual chance of occurrence). These areas are referred to as Special Flood Hazard Areas (SFHAs) and Moderate Flood Hazard Areas, respectively. While campus areas located south of Divarty Street and West of General Jim Moore Boulevard are designated as Zone X due to minimal flood risk (<0.2 percent annual chance of flooding), no proposed structures nor development sites are listed for flood risk (FEMA 2018). Additionally, campus elevations, from 110 feet to 350 feet above mean sea level, place the campus outside of a tsunami risk area.

[3] The term low impact development (LID) refers to systems and practices that protect water quality and associated aquatic habitat by using or mimicking natural processes in the infiltration, evapotranspiration, or use of stormwater. The implementation of LID techniques can greatly improve the quality of stormwater runoff, restore the infiltration of water to the aquifer, eliminate costs associated with conventional drainage systems, and reduce development impacts such as erosion and flooding.



DUDEK

SOURCE: Schaaf & Wheeler 2020

FIGURE 4.8-3

Existing Drainage Sub-Areas

CSU Monterey Bay Master Plan EIR

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Groundwater

The Project site overlies the Salinas Valley Groundwater Basin – Monterey subbasin (3-004.10), as designated by DWR (DWR 2016). Previously, the groundwater basin boundary configurations were such that the Project site was located over the Salinas Valley – Seaside Area subbasin (3-04.08), as indicated in the Basin Plan (DWR 2003; Central Coast RWQCB 2017a).

Groundwater underlying the campus is not used for domestic uses given the existence of groundwater contamination that dates back to the former Fort Ord, as previously described (see also Section 4.7, Hazards, Hazardous Materials and Wildfire for additional information). The Central Coast RWQCB has concluded that there are no pathways for exposure to the groundwater contamination by campus property users, given that the groundwater is not used as a drinking water source, which is prohibited in a deed restriction that applies to the campus property (Andersen Environmental 2012). Additionally, based on review of recent groundwater monitoring reports from the former Fort Ord landfill, groundwater occurs at approximately 165 feet below ground surface and flows in a westerly direction (DDA 2016). Additionally, based on geotechnical reports prepared on the Project site, shallow groundwater does not exist on the campus (see Section 4.5, Geology and Soils).

As indicated above, water service to CSUMB is currently provided by MCWD in the Ord Community service area, which uses groundwater from the Monterey Subbasin of the Salinas Valley Groundwater Basin. CSUMB was allocated 1,035 AFY of potable water by the FORA shortly after the closure of Fort Ord, and a recycled allocation of 87 AFY. Total potable water use at CSUMB in 2018 was approximately 318 AFY, for all uses, including residential uses in the East Campus Housing and irrigation on both the Main and East Campuses (MCWD 2021). Based on campus data, total potable water use at CSUMB in Fiscal Year 2018-2019 was approximately 316 AFY, of which 219 AFY was related to building use and 97 AFY was related to irrigation. See Section 4.14, Utilities and Energy, for additional information about campus water use.

4.8.1.4 Near-Term Development Site Conditions

The existing hydrology and water quality setting for the near-term development component sites is generally described above. Additional information is provided below related to specific conditions on each site, including existing development conditions, slope and associated runoff direction and landscaping. Chapter 3, Project Description provides additional information about the location and characteristics of each development component site.

Student Housing Phase III

The approximately 6.4-acre Student Housing Phase III site and potential staging area are located primarily in sub-area DA3, which drains west across Second Avenue via regional System D. The eastern edge of the site is located in sub-area DD2, which drains to the existing City of Marina percolation pond that lies northeast of the site at the intersection of Fifth Avenue and Eighth Street. The potential staging area is in sub-area C3. The site is flat to gently sloping and mostly paved with an existing surface parking lot and an unused paved area. Vegetation and paved pathways border the development site on the west and south.

Academic IV

The approximately 4.0-acre Academic IV site is located in sub-areas DD1 and DA5. The western half of the site is located in subarea DD1 and the eastern half of the site is located in sub-area DA5. Both of these subareas drain west across General Jim Moore Boulevard before discharging into regional System D. The site gently slopes down to the northeast and is mostly paved or developed. Vegetation and paved pathways border the development site on all sides. The two potential staging areas are located on flat sites; the staging area on the west is paved and the staging area on the east is mostly unpaved.

Student Recreation Center Phases I and II

The approximately 8.5-acre Student Recreation Center site is located in sub-areas DD1 and DC1. The parking lot and a portion of the potential staging area are located in sub-area DC1, which drains west across General Jim Moore Boulevard before discharging into regional System D. The remainder of the site is located in sub-area DD1, which drains to the existing City of Marina percolation pond that lies north of the site. Most of the site slopes gently down to the north and is partially paved or developed. Vegetation and paved pathways border the development site on the north and west sides of the site. The parking lot and staging area along the south of the site slopes gently down to the north and is mostly unpaved and vegetated.

Student Housing Phase IIB

The approximately 7.2-acre Student Housing Phase IIB site and potential staging area are located in sub-area DD2, which drains to the existing City of Marina percolation pond that lies northwest of the site. The site is relatively flat and mostly paved. Vegetation borders a portion of the entire site on the north, west and south.

Academic V

The approximately 2.7-acre Academic V site is located in sub-area DD1, which drains to the existing City of Marina percolation pond that lies north of the site. The site is relatively flat and partially paved or developed. Vegetation and paved pathways border the development site on all sides. Construction staging for this development would likely use the same potential staging area as that identified for the Student Recreation Center.

4.8.2 Regulatory Framework

4.8.2.1 Federal

Clean Water Act

The Clean Water Act or CWA (33 USC § 1251 *et seq*.), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Key sections of the act 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 TMDLs for each pollutant/stressor. While water quality impairments of nearby receiving waters and associated TMDLs are shown in Table 4.8-3, the campus stormwater does not drain to these receiving waters.
- 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), who have several programs that implement individual and general permits related to construction activities, municipal stormwater discharges, and various kinds of non-stormwater discharges. State and regional water quality related permits and approvals, including through NPDES, are shown in Table 4.8-4 (see Section 4.8.2.2).
- 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 and the Environmental Protection Agency (USEPA).

Numerous agencies have responsibilities for administration and enforcement of the CWA. At the federal level this includes the USEPA and the U.S. Army Corps of Engineers (USACE). At the state level, with the exception of tribal lands, the California Environmental Protection Agency (CalEPA) and its sub-agencies, including the SWRCB, have been delegated primary responsibility for administering and enforcing the CWA in California.

Federal Antidegradation Policy

The Federal Antidegradation Policy (40 CFR §131.12) requires states to develop statewide antidegradation policies and identify methods for implementing them. Pursuant to the Code of Federal Regulations (CFR), state antidegradation policies and implementation methods shall, at a minimum, protect and maintain: (1) existing in-stream water uses; (2) existing water quality where the quality of the waters exceeds levels necessary to support existing beneficial uses, unless the state finds that allowing lower water quality is necessary to accommodate economic and social development in the area; and (3) water quality in waters considered an outstanding national resource.

4.8.2.2 State

California Porter-Cologne Water Quality Control Act

Since 1973, the California State Water Resources Control Board and its nine RWQCBs have been delegated the responsibility for administering permitted discharge into the waters of California. The CSUMB campus falls within the jurisdiction of the Central Coast RWCQB, as indicated in Section 4.8.1.1. The Porter-Cologne Water Quality Act (Cal. Water Code § 13000 *et seq*.; Cal. Code Regs. tit. 23, chapters 3 and 15) provides a comprehensive water-quality management system for the protection of California waters. Under the Act, "any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state" 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 non-point source pollution. When regulating discharges that are included in the Federal Clean Water Act, the state essentially treats Waste Discharge Requirements (WDRs) and NPDES as a single permitting vehicle. In April 1991, the State Water Resources Control Board and other state environmental agencies were incorporated into the CalEPA.

The Porter-Cologne Water Quality Control Act is the primary state regulation addressing water quality and waste discharges on land. Permitted discharges must be in compliance with the regional Basin Plan (Central Coast RWQCB 2017a), which includes Monterey County and the CSUMB campus. Each RWQCB implements the Basin Plan to ensure that projects consider regional beneficial uses (see Table 4.8-2), water quality objectives, and water quality problems (see Table 4.8-3). Table 4.8-4 provides the general water quality objectives for the Central Coast Region, which apply to freshwater and marine inland surface waters, enclosed bays and estuaries. CSUMB does not drain to any surface waters, bays or estuaries.

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.

Table 4.8-4
General Water Quality Objectives for the Central Coast Region

Constituent	Unit	Water Quality Objective
Color	units	15
pH[1]	—	6.5-8.3
Dissolved Oxygen	mg/L	5.0
Unionized ammonia (NH3)	mg/L	0.025
Methylene Blue Activated Substances	mg/L	0.2
Phenols	mg/L	0.1
Polychlorinated biphenyls	µg/L	0.3
Phthalate Esters	µg/L	0.002
Phenol	µg/L	1
Fecal Coliform[2]	MPN/100 ml, mean	200 (2000)
	MPN/100 ml, max	400 (2000)

Source: Central Coast RWQCB 2017a.
Acronyms: mg/L = milligrams per liter; ml = milliliters; MPN = most probable number; µg/L = micrograms per liter
Notes: Concentrations not to be exceeded more than 10 percent of the time during any 1-year period.
1 For waters with the beneficial use of non-contact or water-contact recreation. For waters without beneficial uses specified, the pH objective is 7.0 - 8.5.
2 The first objective applies to areas with water-contact recreation, and the second objective applies to areas with non-contact recreation.

Under the NPDES permit regulations, Best Management Practices (BMPs) are required as part of a Stormwater Pollution Prevention Plan (SWPPP). The EPA defines BMPs as "schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of Waters of the United States." BMPs include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage" (40 CFR §122.2).

California Antidegradation Policy

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

California Toxics Rule

The USEPA has established water quality criteria for certain toxic substances via the California Toxics Rule. The California Toxics Rule established acute (i.e., short-term) and chronic (i.e., long-term) standards for bodies of water, such as inland surface waters and enclosed bays and estuaries, that are designated by each RWQCB as having beneficial uses protective of aquatic life or human health.

Basin Planning

The California legislature has assigned the primary responsibility to administer and enforce statutes for the protection and enhancement of water quality, including the Porter–Cologne Act and portions of the CWA, to the SWRCB and its nine RWQCBs. The SWRCB provides state-level coordination of the water quality control program by establishing statewide policies and plans for implementation of state and federal regulations. The nine RWQCBs throughout California adopt and implement Basin Plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The Central Coast RWQCB is responsible for the protection of the beneficial uses of waters within the coastal watersheds of Santa Cruz, San Benito, Monterey, San Luis Obispo, and Santa Barbara Counties, as well as portions of San Mateo, Kern and Ventura Counties. This jurisdiction includes the Project site.

The Water Quality Control Plan for the Central Coast Basin (Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (Cal. Water Code §§ 13240–13247) (Central Coast RWQCB 2017a). The Central Coast RWQCB Basin Plan must conform to the policies set forth in the Porter-Cologne Act as established by the SWRCB in its state water policy. The Porter-Cologne Act also provides the RWQCBs with authority to include within their basin plan water discharge prohibitions applicable to particular conditions, areas, or types of waste. The Basin Plan is continually being updated to include amendments related to implementation of TMDLs of potential pollutants or water quality stressors, revisions of programs and policies within the Central Coast RWQCB region, and changes to beneficial use designations and associated water quality objectives.

NPDES and WDR Permits

The NPDES and WDR programs regulate construction, municipal, and industrial stormwater and non-stormwater discharges under the requirements of the CWA and the Porter–Cologne Water Quality Control Act. Table 4.8-5 lists the water-quality-related permits that would apply directly or indirectly to the Project, each of which is further described below. As indicated in the table, CSUMB has a waiver from the requirements of the Municipal Stormwater Program (Central Coast RWQCB 2017b).

Table 4.8-5
State and Regional Water Quality-Related Permits and Approvals

Program/ Activity	Order Number/ NPDES Number	Permit Name	Affected Area
Construction Stormwater Program	2009-0009-DWQ/ CAS000002, as amended	NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit)	Statewide
Municipal Stormwater Program	SWRCB Order No. R3-2013-0001-DWQ	WDRs for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)	Statewide[1]
Discharge of Groundwater from Construction and Project Dewatering to Surface Waters	Central Coast RWQCB Order No. R3-2017-0042	WDRs General Permit for Discharges with Low Threat to Water Quality	Central Coast Region

Definitions: NPDES = National Pollutant Discharge Elimination System; MS4 = Municipal Separate Storm Sewer System; WDR = Waste Discharge Requirement
Notes:
1 CSUMB has a waiver from the requirements of the Municipal Stormwater Program (Central Coast RWQCB 2017b).

Construction General Permit (SWRCB Order 2009-0009)

For stormwater discharges associated with construction activity in the State of California, the SWRCB has adopted the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) to avoid and minimize water quality impacts attributable to such activities. The Construction General Permit applies to all projects in which construction activity disturbs one acre or more of soil. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling and excavation. The Construction General Permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP), which would include and specify water quality BMPs designed to prevent pollutants from contacting stormwater and keep erosion from moving off site into receiving waters. Routine inspection of all BMPs is required under the provisions of the Construction General Permit, and the SWPPP must be prepared and implemented by qualified individuals as defined by the SWRCB.

As individual developments under the Project are pursued in the future, they will be required to comply with the Construction General Permit, if more than 1 acre of a given development site will need to be disturbed for construction activity. A "Notice of Intent" must be submitted to the Central Coast RWQCB and the preparation of a SWPPP is required prior to construction.

Waste Discharge Requirements General Permit for Discharges with Low Threat to Water Quality (Central Coast RWQCB Order No. R3-2017-0042)

This general order is intended to authorize discharges of treated or untreated groundwater generated from permanent or temporary dewatering operations or other applicable wastewater discharges not specifically covered in other general or individual NPDES permits. Discharges from facilities to waters of the United States that do not cause, have the reasonable potential to cause, or contribute to an in-stream excursion above any applicable state or federal water quality objectives/criteria or cause acute or chronic toxicity in the receiving water are authorized discharges in accordance with the conditions set forth in this order. To demonstrate coverage under the order, dischargers must submit documentation to show that the discharge would not cause or contribute to a violation of any applicable water quality objective/criteria for the receiving waters, or any other discharge prohibition listed in the order. In addition, discharges must perform reasonable potential analysis using a representative sample of groundwater or wastewater to be discharged. The sample shall be analyzed and the data compared to the water quality screening criteria for the constituents listed in the order, and if results show exceedance of water quality screening criteria, the discharge will be required to treat the wastewater to acceptable standards prior to discharge.

California Green Building Standards Code

The California Green Building Standards Code (CALGreen Code), Part 11 of the California Building Standards Code (Title 24) is designed to improve public health, safety, and general welfare by utilizing design and construction methods that reduce the negative environmental impact of development and to encourage sustainable construction practices (Cal. Code Regs. Tit 24, part 11).

The CALGreen Code provides mandatory direction to developers of all new construction and renovations of residential and non-residential structures with regard to all aspects of design and construction, including, but not limited to, site drainage design, stormwater management, and water use efficiency. Required measures are accompanied by a set of voluntary standards designed to encourage developers and cities to aim for a higher standard of development.

California Water Plan

Required by the California Water Code Section 10005(a), the California Water Plan, prepared by the DWR, is the state government's strategic plan for managing and developing water resources statewide for current and future generations and provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future. The California Water Plan, which is updated every five years, 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 supplies and uses. The California Water Plan also identifies and evaluates existing and proposed statewide demand management and water supply augmentation programs and projects to address the state's water needs.

The goal for the California Water Plan Update is to meet California Water Code requirements, received broad support among those participating in California's water planning, and is a useful document for the public, water planners throughout the state, legislators, and other decision-makers.

Sustainable Groundwater Management Act

In 2014, California enacted the Sustainable Groundwater Management Act (Cal. Water Code § 10720-10737.8 *et seq*.) to bring the state's groundwater basins into a more sustainable regime of pumping and recharge. The legislation provides for the sustainable management of groundwater through the formation of local groundwater sustainability agencies (GSAs) and the development and implementation of groundwater sustainability plans (GSPs), and requires GSAs and GSPs for all groundwater basins identified by the DWR as high or medium priority. Additionally, the legislation establishes criteria for the sustainable management of groundwater and authorizes DWR to establish best management practices for groundwater (DWR 2016). See Section 4.8.2.4 for additional information about existing and pending GSPs that apply to the Project area.

4.8.2.3 CSUMB

The CSUMB Stormwater Master Plan specifies that campus redevelopment will infiltrate 100 percent of runoff from a hundred-year storm on the Project site, reducing CSUMB's reliance on the offsite regional stormwater facilities (Schaaf & Wheeler 2006). As indicated previously, this requirement is being implemented as new construction projects on the campus are implemented. For example, recent campus developments have included on-site infiltration facilities, which have employed LID approaches, as well as more conventional infiltration basins.

4.8.2.4 Regional

Groundwater Sustainability Plans

Under SGMA, several GSAs have been formed in the region. The Salinas Valley Basin GSA (SVBGSA)[4] covers all of the SVGB within Monterey County, except the adjudicated Seaside Basin and the lands within MCWDs GSA. The MCWD GSA covers the portion of the Monterey and 180/400 Foot Aquifer Subbasins within their service area. The Salinas Valley Groundwater Basin consists of nine subbasins, as described in Section 4.8.1, Environmental Setting, of which six fall entirely or partially under the SVBGSA's jurisdiction. One of the nine subbasins, the Seaside Subbasin, is adjudicated and not managed by the SVBGSA. Another two subbasins, the Paso

4 The SVBGSA is a Joint Powers Authority (JPA). The JPA membership is composed of the MCWRA, City of Salinas, City of Soledad, City of Gonzales, City of King (King City), the Castroville Community Services District (CSD), and M1W (SVBGSA 2020).

Robles and Atascadero Subbasins, lie completely in San Luis Obispo County and are managed by other groundwater sustainability agencies.

Under a 2018 agreement between the MCWD GSA and the SVBGSA, the GSP for the 180/400-Foot Aquifer Subbasin and a portion of the Monterey Subbasin outside of the MCWD service area has been prepared by the SVBGSA, and the GSP for the Monterey Subbasin in the Marina and Ord Management Areas is being prepared by the MCWD GSA (MCWD 2021). The Monterey Subbasin GSP is required to be prepared and submitted to DWR by January 31, 2022. The Monterey Subbasin GSP was prepared by the MCWD GSA and released in draft form in September 2021. The 180/400-Foot Aquifer Subbasin GSP was prepared by SVBGSA in coordination with the MCWD GSA and was approved by DWR on June 3, 2021. Both of these subbasin GSPs describe current groundwater conditions, develop a hydrogeologic conceptual model, establish a water budget, outline local sustainable management criteria, and provide projects and programs for reaching sustainability in the Subbasins by 2040 (SVBGSA 2020; MCWD GSA 2021). Details about the projects and actions for reaching sustainability identified in the 180/400 Foot Aquifer Subbasin GSP and in the Monterey Subbasin GSP, are provided below.

The SVBGSA is developing five other subbasin plans, including for a portion of the Monterey Subbasin not within the jurisdiction of the MCWD GSA, which have to be prepared and submitted to DWR by January 31, 2022. The five other subbasins are not in critical overdraft conditions. Together, the six Subbasin plans under the SVBGSA will be integrated into the Salinas Valley Integrated Groundwater Sustainability Plan (SVBGSA 2020). While GSPs for these other subbasins have been released in public draft form they are not reviewed in detail in this EIR given that the MCWD does not draw groundwater from these other subbasins.

180/400-Foot Subbasin GSP

The 180/400-Foot Subbasin GSP provides projected sustainable yield for the subbasin, which is the amount of long-term pumping that can be sustained over the planning horizon once all undesirable results have been addressed. It is not the amount of pumping needed to stop undesirable results and does not account for temporary pumping reductions that may be necessary to achieve the higher groundwater elevations that help mitigate seawater intrusion. The SVBGSA recognizes that, dependent on the success of various proposed projects and management actions, there may be a number of years when pumping might be held at a lower level to achieve necessary rises in groundwater elevation. The actual amount of allowable pumping from the Subbasin will be adjusted in the future based on the success of projects and management actions.

The historical sustainable yield of the Subbasin is 97,200 AFY, and the projected sustainable yield for 2030 is 107,200 AFY and the projected sustainable yield for 2070 is 112,000 AFY (SVBGSA 2020). The projected sustainable yields for 2030 and 2070 would require pumping reductions of approximately 7 percent (SVBGSA 2020), which would be accomplished with the projects and management actions further described below. The sustainable yield value, which currently has significant uncertainty, will be modified and updated as more data are collected, and more analyses are conducted through implementation of GSP monitoring programs (SVBGSA 2020).

Goals and Sustainable Management Criteria

The goal of the GSP is to manage the groundwater resources of the 180/400-Foot Aquifer Subbasin for long-term community, financial, and environmental benefits to the Subbasin's residents and businesses. The GSP describes six sustainability indicators including groundwater elevations, groundwater storage, seawater intrusion, groundwater quality, subsidence, and interconnected surface water. Sustainable management criteria are identified for each sustainability indicator and include the following:

- **Minimum thresholds** – specific, quantifiable values for each sustainability indicator used to define undesirable results *(i.e., indicators of unreasonable conditions that should not be exceeded)*
- **Measurable objectives** – specific, quantifiable goals that provide operational flexibility above the minimum thresholds *(i.e., goals the GSP is designed to achieve)*
- **Undesirable results** – Undesirable result means one or more of the following effects caused by groundwater conditions occurring throughout the basin:
    - Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon.
    - Significant and unreasonable reduction of groundwater storage.
    - Significant and unreasonable seawater intrusion.
    - Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.
    - Significant and unreasonable land subsidence that substantially interferes with surface land uses.
    - Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

The 180/400-Foot Subbasin GSP identifies a water charges framework, groundwater management actions, and proposed projects that will allow the subbasin to attain sustainability. The projects and actions included in the 180/400-Foot Subbasin GSP are defined as a toolbox of options. Specific details need to be developed for stakeholders to determine which projects and actions to implement. The projects and management actions described in the 180/400-Foot Subbasin GSP constitute an integrated management program for the entire Salinas Valley Groundwater Basin.

Water Charges Framework

The 180/400-Foot Subbasin GSP proposes a water charges framework with a tiered structure of charges[5] that provides incentives to constrain groundwater pumping to the sustainable yield while generating funds for project implementation (SVBGSA 2020). The stated intent in the GSP is that a similar water charges framework will be applied in all subbasins of the Salinas Valley Groundwater Basin. However, details such as pumping allowance quantities and tier charges will be different for each subbasin because the demand and sustainable yield varies by subbasin. Each subbasin's water charges framework will reflect the specific hydrogeology and conditions of that subbasin. Pumping allowances are not water rights but would be established to incentivize pumping reductions. There are a range of specific details about the water charges framework that are open for negotiation during the first three years of GSP implementation.

Management Actions

The /180/400-Foot Subbasin GSP identifies six management actions that are the most reliable, implementable, cost-effective, and acceptable to stakeholders. The first three would benefit the entire Salinas Valley; the last three are specific to the 180/400-Foot Aquifer Subbasin:

- Agricultural land and pumping allowance retirement
- Outreach and education for agricultural BMPs
- Reservoir reoperation
- Restrict pumping in Castroville Seawater Intrusion Project (CSIP) area (see Section 4.13, Utilities and Energy for information about this project)
- Support and strengthen MCWRA restrictions on additional wells in the Deep Aquifers
- Establish a seawater intrusion technical working group

Specific Priority Projects

The 180/400-Foot Subbasin GSP identifies nine priority projects, categorized below by type of project. Details of each project can be found in the 180/400-Foot Subbasin GSP. A preliminary ranking based on cost effectiveness is noted after each project:

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5 The tiered structure of charges includes three tiers. The Tier 1 rate is for groundwater pumped within the sustainable pumping allowance. Sustainable pumping allowances are a base amount of groundwater pumping assigned to each non-exempt groundwater pumper. The Tier 2 rate is for groundwater pumped in excess of the sustainable pumping allowance, at a transitional pumping allowances, which is the difference between current assumed pumping and the sustainable pumping allowance. The Tier 3 rate is for groundwater pumped above the transitional pumping allowance.

- **Project Type 1:** In-lieu recharge[6] through direct delivery of water to replace groundwater pumping – projects that use available water supplies for irrigation in lieu of groundwater (see Section 4.13, Utilities and Energy for information about these projects).
    - Optimize CSIP Operations (#2)
    - Modify Monterey One Water (M1W) Regional Wastewater Treatment Plant (#3)
    - Expand Area Served by CSIP (#4)
    - Maximize Existing Salinas River Diversion Facility (SRDF) Diversion (#5)
- **Project Type 2:** Direct recharge through recharge basins or wells – projects that fill large artificial ponds with water to percolate from the basin into the groundwater system or construct injection wells.
    - 11043 Diversion Facilities Phase I: Chualar (#7)
    - 11043 Diversion Facilities Phase II: Soledad (#8)
    - SRDF Winter Flow Injection (#9)
- **Project Type 3:** Indirect recharge through decreased evapotranspiration or increased infiltration – projects to remove invasive species, *arundo donax* and other non-native invasive plant species, from riparian corridors along the Salinas River to decrease evapotranspiration or to capture stormwater to increase percolation.
    - Invasive Species Eradication (#1)
- **Project Type 4:** Hydraulic barrier to control seawater intrusion – project to construct a hydraulic barrier consisting of a series of wells drilled a short distance inland from the coast and aligned approximately parallel to the coast. It could be operated as a recharge barrier that injects water into wells, or an extraction barrier that pumps water from wells, both of which would create a hydraulic barrier to seawater intrusion.
    - Seawater Intrusion Pumping Barrier (#6)
- **Alternative Projects**: Additionally, the SVBGSA identified a number of alternative projects, including: desalination of water from the seawater barrier extraction wells, recharge local runoff from Eastside Range, winter potable reuse water injection, and seasonal water storage in 180/400-Foot Aquifer.

6 In-lieu use means the use of surface water by persons that could otherwise extract groundwater in order to leave groundwater in the basin.

Other Groundwater Management Activities

Although not specifically funded or managed by the SVBGSA, a number of associated groundwater management activities will be promoted and encouraged by the GSA as part of general good groundwater management practices. These include: continuing urban and rural residential conservation, promoting stormwater capture, supporting well destruction policies, and watershed protection and management.

Mitigation of Overdraft

The water charges framework is specifically designed to promote pumping reductions. If adequate pumping reductions are not achieved to mitigate all overdraft, funds collected through the water charges framework will support recharge of imported water, either through direct recharge or in-lieu means. Therefore, the water charges framework in association with the projects and management actions listed above will mitigate overdraft through a combination of pumping reduction and enhanced recharge. The priority projects listed above and in the GSP include more than ample supplies to mitigate existing overdraft (SVBGSA 2020).

Implementing the 180/400-Foot Subbasin GSP will require the following activities: monitoring and reporting groundwater data; refining and implementing the groundwater charges framework; addressing identified data gaps; expanding and improving the existing monitoring networks; updating the data management system; reviewing and implementing the new upcoming USGS model for the Salinas Valley; and refining the projects and management actions identified above.

Monterey Subbasin GSP

As indicated in Section 4.8.1, Environmental Setting, this EIR focuses on the Marina-Ord Area of the Monterey Subbasin, which consists of the lands within the City of Marina and the former Fort Ord, which are generally located north of State Route 68. This area is the focus of the information provided in this EIR given that MCWD's wells that serve the Ord Community service area are located in this area.

The Monterey Subbasin GSP indicates that the sustainable yield of the Monterey Subbasin is significantly affected by recharge, pumping, and conditions in adjacent subbasins (e.g., the 180/400-Foot Subbasin). As such, the sustainable yield based on historical overdraft has significant uncertainty and does not address all undesirable results. Groundwater conditions in adjacent subbasins are projected to change as these subbasins move toward sustainability. Future projected sustainable yield of the Marina-Ord Area, which includes projected demands from MCWD 2020 UWMP for 2020 through 2040 and other pumping projections, ranges between approximately 4,400 AFY and 9,900 AFY if adjacent subbasins are managed sustainably and the 180/400-Foot Aquifer Subbasin reaches its sustainable management criteria. The GSP indicates that confirmation that these quantities could be extracted without inducing seawater intrusion needs to be verified (MCWD GSA 2021).

Goals and Sustainable Management Criteria

The sustainability goal of the Monterey Subbasin GSP is to manage groundwater resources for long-term community, financial, and environmental benefits to the Subbasin's residents and businesses. In addition, because the Monterey Subbasin is hydrologically connected with other Salinas Valley Basin Subbasins, the GSP aims to develop a coordinated approach to groundwater management within this Subbasin and neighboring Subbasins (MCWD GSA 2021). Like the 180/400-Foot Aquifer Subbasin GSP, the Monterey Subbasin GSP describes sustainable management criteria (i.e., minimum thresholds, measurable objectives, and undesirable results) for the same six sustainability indicators including groundwater elevations, groundwater storage, seawater intrusion, groundwater quality, subsidence, and interconnected surface water.

The Monterey Subbasin GSP identifies several projects and management actions that will allow the Subbasin to attain sustainability by diversifying the Subbasin's water supply portfolio, increasing supply reliability, and protecting the Subbasin's groundwater resources against seawater intrusion. The Subbasin's historical efforts to invest in water conservation will continue under the GSP.

Projects and Management Actions

The projects and management actions for this GSP include: multi-subbasin projects that are generally identified in multiple Salinas Valley Subbasin GSPs and expand upon how the project would be applied in the Monterey Subbasin; Marina-Ord Area local projects and management actions led by MCWD (or Marina-Ord Area agencies) that will primarily benefit this area; and Corral de Tierra Area local projects and management actions that will primarily benefit this area. As indicated previously, this EIR focuses on the Monterey Subbasin GSP elements related to the Marina-Ord Area. These projects and actions include the following:

- **Multi-Subbasin Projects:**
  - <u>Winter Releases from Reservoir to Maximize Diversions from SRDF.</u> Winter release water will be diverted at the SRDF, treated at a new water treatment plant, and (1) injected through Aquifer Storage and Recovery (ASR) injection wells and/or (2) delivered directly to municipalities as supply augmentation. This project correlates to Priority Project #9 (SRDF Winter Flow Injection Project) listed above from the 180/400-Foot Aquifer Subbasin GSP.
  - <u>Regional Municipal Supply Project.</u> This project would construct a regional desalination plant to treat the brackish water extracted from the proposed seawater intrusion barrier in the 180/400-Foot Aquifer Subbasin. This project correlates to Priority Project #6 (Seawater Intrusion Pumping Barrier) listed above from the 180/400-Foot Aquifer GSP.

- Multi-Benefit Stream Channel Improvements. Proposed stream channel improvements include: removing dense vegetation and reducing the height of sediment bars; removing invasive species *Arundo donax* (arundo) and *Tamarix sp.* (tamarisk) throughout the Salinas River watershed; and enhancing the recharge potential of floodplains along the Salians River. This project correlates to Priority Project #1 (Invasive Species Eradication) listed above from the 180/400-Foot Aquifer GSP.

- **Marina-Ord Area Local Projects:**
  - Stormwater Recharge Management. As future development and redevelopment within the Marina-Ord Area occurs, additional stormwater from urbanized areas and construction sites will be captured and infiltrated, providing recharge to the groundwater basin, per the FORA Stormwater Master Plan, which has the long-term objective to percolate all storm water on the east side of Highway 1 as part of the redevelopment of the former Fort Ord.
  - MCWD Demand Management Measures. MCWD plans to continue to implement conservation efforts within its service area including implementation of design standards for new construction that exceed the State's plumbing code; implementation of 2020 UWMP demand management measures; and replacement of portions of the water distribution system that are over 50-years old to reduce system water losses.
  - Recycled Water Reuse through Landscape Irrigation and Indirect Potable Reuse. The project consists of recycled water reuse through landscape irrigation and/or indirect potable reuse (IPR) within MCWD's service area. The source water for these options is recycled water from the M1W regional wastewater treatment plant, which would undergo advanced treatment to meet criteria under Title 22 of the California Code Regulations (CCR) for subsurface applications of recycled water. Reuse of this water through IPR involves injection into a groundwater aquifer and recovery through an appropriately permitted Groundwater Replenishment Reuse Project (GRRP), which provides seasonal storage and generates potable water that can meet a larger portion of MCWD's water demand beyond irrigation and non-potable needs.
  - Drill and Construct Monitoring Wells. This project includes drilling and construction of monitoring wells screened in the 400-Foot Aquifer and the Deep Aquifers near the southwestern portion of the Subbasin to fulfill monitoring network data gaps.

Mitigation of Overdraft

Projected GSP water budget results indicate that if adjacent subbasins are managed sustainably and the 180/400 Foot Aquifer Subbasin reaches it sustainable management criteria, the Marina-Ord Area of the Monterey Subbasin will not be in overdraft during the 30-year post-GSP implementation period. However, projected water level results indicate that further analysis and implementation of projects and/or management actions may be required to reach the sustainable management criteria in the Marina-Ord Area, depending upon boundary conditions achieved in adjacent subbasins.

The projects presented above are adequate to meet the entirety of the Marina-Ord Area's projected groundwater demand. The MCWD GSA and SVBGSA will be directly leading joint efforts to achieve sustainability and mitigate any residual overdraft. Multi-subbasin projects and management actions will need to be coordinated. For example, in the event that a seawater intrusion extraction barrier is constructed in the 180/400 Foot Aquifer Subbasin, impacts to groundwater levels, seawater intrusion, and cross-boundary flows will need to be assessed. The MCWD GSA will support projects and actions in adjacent subbasins, particularly those that will improve groundwater conditions near Monterey Subbasin boundaries and reduce the potential for seawater intrusion and decrease cross-boundary outflows from the Monterey Subbasin.

MCWD GSA and SVBGSA intend to coordinate implementation of the Monterey Subbasin GSP, through the development of an Implementation Agreement. MCWD GSA will implement the GSP within the Marina-Ord Area and the SVBGSA will implement the GSP within the Corral de Tierra Area. Given SVBGSA's role in the Corral de Tierra Area, the water charges framework identified in SVBGAS subbasin GSPs will be implemented in this area to promote voluntary pumping reductions. The MCWD GSA will likely meet estimated costs for GSP implementation through a combination of contributions through rate payers and from any available grant funding.

4.8.3 Impacts and Mitigation Measures

This section presents the evaluation of potential environmental impacts associated with the Project related to hydrology and water quality. The section includes the thresholds of significance used in evaluating the impacts, the methods used in conducting the analysis, and the evaluation of Project impacts and the Project's contribution to significant cumulative impacts. In the event significant impacts within the meaning of CEQA are identified, appropriate mitigation measures, where feasible, are identified.

4.8.3.1 Standards of Significance

The significance thresholds used to evaluate the impacts of the Project related to hydrology and water quality are based on Appendix G of the CEQA Guidelines. Based on Appendix G, a significant impact related to hydrology and water quality would occur if the Project would:

A. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater water quality.

B. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

C. 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:

   i) Result in 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.

   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.

   iv) Impede or redirect flood flows.

D. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

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

4.8.3.2 Analytical Method

Program- and Project-Level Review

The hydrology and water quality impact analysis in this section includes a program-level analysis under CEQA of the proposed Master Plan and project design features (PDFs), as described in Chapter 3, Project Description. The analysis also includes a project-level analysis under CEQA of the 5 near-term development components that would be implemented under the Master Plan. Both construction and operation of the Project are considered in the impact analysis, where relevant. The impact analysis assumes that Project development, including 5 near-term developments, would be constructed in compliance with a prepared SWPPP where future development sites exceed 1 acre and the existing CSUMB Stormwater Master Plan goal to percolate storm water runoff within the campus footprint through building-level LID and district-scale projects. In the event that significant adverse environmental impacts would occur with the implementation of the Project even with incorporation of applicable regulations and proposed PDFs, mitigation measures would be identified to reduce impacts to less than significant, where feasible.

Project Design Features

There are a number of PDFs that are incorporated into the technical analysis as part of the Project, including the following stormwater, erosion, and water supply PDFs. PDF-W-1 is considered in the analysis but not factored into the quantitative estimates of water demand with the Project, as provided in Section 4.14, Utilities and Energy. A summary of the relevant PDFs is provided below (see Chapter 3, Project Description for the specific text of each applicable PDF):

- *PDF-OS-1* requires the designation and management of open space to percolate stormwater runoff, among other identified purposes.
- *PDF-OS-3* provides for Construction Best Management Practices to avoid or minimize erosion and sedimentation of all development sites, regardless of site acreage.
- *PDF-OS-5* identifies planting specifications for implementation after demolition and construction, to stabilize newly created bare land with native plants and seed mixes to eliminate erosion.
- *PDF-OS-6* requires maximizing landscaping and natural material surfaces and permeability along existing and future trails to locally percolate stormwater runoff, among other identified purposes.
- *PDF-W-1* provides that development will be pursued within the campus's water allocation by: establishing water use thresholds below CALGreen Code standards; establishing water modeling for each capital project during the feasibility phase; establishing potable water conservation projects; retrofitting high-use campus fixtures; pursuing a heat recovery chilling system to reduce water needs; and studying expansion of non-potable water use including the establishment of an on-site water recycling facility.
- *PDF-W-2* requires the establishment of all landscapes as self-retaining stormwater management areas to maximize infiltration or retention for irrigation, and minimize stormwater runoff volumes. This will be accomplished by maximizing use of building-scale LID design features to protect water quality (e.g., green roofs, rain gardens, swales, stormwater harvesting, infiltration trenches and pervious paving); maximizing use of campus-scale LID design features to protect water quality (e.g., porous paving, green streets, recreation fields, swales and basins); infiltrating all stormwater runoff within campus boundaries or easements; developing standards for pervious pavement and pavement draining to natural areas as well as maintenance programs to support alternatives to concrete for pathways and outdoor gathering spaces; conducting project-specific drainage analysis during the design of individual developments to demonstrate that all criteria of the CSUMB Stormwater Master Plan are met; and incorporating LID features in the design of each development project to ensure these criteria are met.
- *PDF-W-3* requires the implementation of a regular stormwater maintenance program to protect water quality and follow best management practices (e.g., minimizing use of pesticides and quick release fertilizers, employing non-chemical controls to treat pest problems, maintaining compliance with existing standards for special handling, removal, and disposal of hazardous materials).

4.8.3.3 Issues Not Evaluated Further

The Project would not have impacts with respect to the following thresholds of significance and therefore these topics are not further evaluated:

- Groundwater Quality (Threshold A). Groundwater occurs at approximately 165 feet below ground surface at the Project site and is not used for domestic uses given the existence of groundwater contamination that dates back to the former Fort Ord. Due to the depth to groundwater, the Project would not cause further degradation of groundwater water quality. Therefore, the Project would have no impacts related to groundwater quality.
- Flooding-Related Risks (Thresholds C-iv and D). The proposed development areas on the Project site would be located outside of FEMA designated flood risk zones and the campus is outside of a tsunami risk area. Therefore, the Project would not impede or redirect flood flows (Threshold C-iv) or release pollutants due to inundation (Threshold D). Therefore, the Project would have no impacts due to flooding-related risks.

4.8.3.4 Project Impacts and Mitigation Measures

This section provides a detailed evaluation of hydrology and water quality impacts associated with the Project.

Impact HYD-1:	**Surface Water Quality Standards and Waste Discharge Requirements (Thresholds A and E).** The Project would not directly or indirectly violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality. *(Less than Significant)*

Master Plan

Construction

Water quality standards and waste discharge requirements are intended to protect the quality of waters of the state. Impacts to water quality through exceedance of water quality standards, waste discharge requirements or by other means can potentially result from the short-term effects of construction activities (e.g., erosion and sedimentation due to land disturbances, uncontained material and equipment storage areas, improper handling of hazardous materials).

This discussion addresses the different types of water-quality impacts that could potentially occur with the Project during construction, including stormwater runoff from construction sites, management of demolition activities and debris, and non-stormwater discharges.

Non-stormwater discharges during construction would not be expected to occur from construction-related dewatering (to keep excavations free of water) given that the depth to groundwater below the Project site is approximately 165 feet below ground surface and shallow groundwater does not exist on the campus, as described in Section 4.8.1, Environmental Setting. Additionally, non-stormwater discharges from the Project site from the periodic application of water for construction-phase dust control during the dry season to prevent wind erosion and dust plumes would not be expected, as such water would either quickly evaporate or locally infiltrate into the highly permeable surface soils. Given the above, the Project would not have the potential to violate WDRs (see Table 4.8-5) related to non-stormwater discharges or exceed water quality objectives contained in the Basin Plan.

Equipment fueling and maintenance would be required during demolition, construction, renovation, modernization, landscaping, and utility upgrade activities associated with the Project. Incidental spills of gasoline, diesel fuel, lubricating oils, grease, paints, and solvents could occur during demolition and construction. In addition, demolition and construction would result in removal of existing vegetation, pavement, and structures, such that underlying soils would be exposed to wind and water erosion, especially during the rainy season (i.e., November through April). Excess sediment could increase runoff water turbidity and also could transport other pollutants such as nutrients, metals, oils, and greases. If not properly handled, demolition activities could result in the release of hazardous substances such as lead-based paint, asbestos, polychlorinated biphenyls (PCBs), mercury, and other hazardous building materials, which could be transported by stormwater runoff.

However, all proposed development would be subject to the CSUMB's Stormwater Master Plan requirement to infiltrate 100 percent of runoff from a hundred-year storm, as described in Section 4.8.1, Environmental Setting and confirmed in PDF-W-2. Therefore, construction stormwater discharges from all proposed development sites on the Main Campus would infiltrate on campus, or temporarily be directed into downstream percolation ponds. As there is no conveyance system that discharges to the Monterey Bay, the closest water body to the campus, project construction stormwater discharges from the Main Campus would not enter the bay. Additionally, while East Campus Housing is located in the Salinas River Watershed, this area drains to percolation ponds located within East Campus Housing. Additionally, the existing percolation ponds and open space areas in East Campus Housing have stormwater capacity for current conditions, which would not change with the Project. Overall, Project construction stormwater discharges do not and would not in the future discharge into any CWA 303(d) listed water bodies, which include segments of the Salinas River (see Table 4.8-3). Therefore, construction activities would not exceed water quality objectives or be a cause of degradation of the beneficial uses established for the Lower Salinas River.

Demolition, grading, and excavations associated with the Project would be completed in accordance with the SWRCB, Division of Water Quality, NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002. This General Permit regulates discharges of pollutants in stormwater associated with construction activity (stormwater discharges) from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development that disturbs more than one acre of land surface. The General Permit requires the development of a site-specific SWPPP and development of BMPs for all phases of construction, under the guidance of a Qualified SWPPP Practitioner. A copy of the applicable SWPPP would be kept at the construction site and be available for review by the Central Coast RWQCB upon request. Implementation of a SWPPP would avoid or minimize erosion and sedimentation and release of hazardous materials from construction sites by including water quality BMPs designed to prevent erosion and prevent sediments and pollutants from becoming mobilized by stormwater runoff. The SWPPP is required to include specific elements such as erosion and stormwater control measures that would be implemented onsite.

At a minimum, the SWPPP must include the following:

- A description of construction materials, practices, and equipment storage maintenance;
- A list of pollutants likely to contact stormwater and site-specific erosion and sedimentation control practices;
- A list of provisions to eliminate or reduce discharge of materials to stormwater;
- BMPs for fuel and equipment storage;
- Non-stormwater management measures to manage pollutants generated by activities such as paving operations and vehicle and equipment washing and fueling;
- The requirement that the appropriate equipment, materials, and workers be available to respond rapidly to spills and/or emergencies. All corrective maintenance or BMPs must be performed as soon as possible, depending upon worker safety; and
- Onsite post-construction controls.

Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods of the year, installing sediment barriers such as silt fencing and fiber rolls, maintaining equipment and vehicles used for construction, and tracking controls such as stabilization of construction access points. The development and implementation of BMPs such as overflow structures designed to capture and contain any materials that are inadvertently released from the storage containers on the construction site are also required. A Rain Event Action Plan would be required to ensure that active construction sites have adequate erosion and sediment controls in place prior to the onset of a storm event, even if construction is planned only during the dry season. The construction contractor(s) would also be required to develop and implement a monitoring program. The contractor would be required to conduct inspections of the construction site(s) prior to anticipated storm events and after the actual storm events. During extended storm events, the inspections would be conducted after every 24-hour period. The inspections would be conducted to: identify areas contributing to stormwater discharge; evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate, were properly installed, and are functioning in accordance with the Construction General Permit; and determine whether additional control practices or corrective measures are needed.

Development implemented under the proposed Master Plan that are on sites greater than one acre of land would be subject to the Construction General Permit. Development on smaller sites would be subject to proposed PDF-OS-3 and PDF-OS-5, which call for the use of construction BMPs to minimize erosion and sedimentation and the use of native plants and seed mixes to eliminate erosion after construction. Additionally, as indicated in Section 4.7, Hazards, Hazardous Materials and Wildfire, the Integrated California State University Administrative Manual (ICSUAM) requires that a hazardous materials report be prepared during the schematic design phase of a project. Hazardous materials abatement documents would be prepared and included in construction bid documents, if required, to address known or suspected conditions related to existing contamination on a development site or within an existing building that may be subject to demolition or reconstruction. Proper abatement of hazardous conditions on future development sites, as required by the ICSUAM, would minimize the potential for release of hazardous materials from construction sites.

Given all of the above, Project construction would not directly or indirectly violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality and the impact would be *less than significant*.

<u>Operation</u>

Once operational, most areas subject to development on the Main Campus would either be paved, landscaped or restored to native habitat, or built upon. Exposed areas of soil would be limited, thus minimizing the potential for erosion and sedimentation. The primary source of pollutants would be incidental leaks and spills of oils, grease, general maintenance products, pesticides, herbicides, and fertilizers. Vehicle parking would 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.

Incidental spills of these substances could result in releases to stormwater (e.g., through spills or leaks exposed to stormwater runoff), if not properly handled. However, no Project stormwater would discharge into the Monterey Bay or into any CWA 303(d) listed water bodies, which include segments of the Lower Salinas River (see Table 4.8-3). Regardless, implementation of PDF-W-3 would minimize the release of hazardous substances into the environment, by minimizing the use of pesticides and fertilizers, using integrated pest management, using non-chemical controls for pest abatement and maintaining compliance with standards for handling, removal and disposal of hazardous materials. PDF-W-2 would result in the continued use of LID features (e.g., green roofs and streets, swales, porous paving) in all new development to protect stormwater quality and infiltrate all stormwater runoff within campus boundaries and easements in accordance with the CSUMB Stormwater Master Plan. Additionally, PDF-OS-1 and PDF-OS-6 would provide for stormwater percolation in open space areas and along existing and future trails.

Therefore, Project operations would not directly or indirectly violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality and the impact would be *less than significant.*

Near-Term Development Components

None of the near-term development component sites located on the Main Campus would discharge into the Monterey Bay or CWA Section 303(d) listed water bodies, such as the Lower Salinas River, during construction or operation. As indicated above, there is no conveyance system that discharges to the Monterey Bay, and while East Campus Housing is located in the Salinas River Watershed, this area drains to adequately sized percolation ponds located within East Campus Housing.

Additionally, given that all of the near-term development component sites are greater than 1 acre, CSUMB would be required to implement a SWPPP during construction for each development, which would avoid or minimize erosion and sedimentation and release of hazardous materials from these construction sites, as described above.

Incidental spills of pollutants during operations and potential releases of such pollutants in stormwater would be addressed through implementation of proposed PDF-W-3, which would minimize the release of hazardous substances into the environment. Additionally, proposed PDF-W-2 would result in the use of LID features in the design of these near-term development components to protect stormwater quality and infiltrate all stormwater runoff within campus boundaries and easements in accordance with the CSUMB Stormwater Master Plan.

Therefore, site construction and operations of near-term development components would not directly or indirectly violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality and the impact would be *less than significant.*

Mitigation Measures

Mitigation measures are not required because a significant impact related to surface water quality standards and waste discharge requirements has not been identified.

Impact HYD-2:	**Groundwater (Thresholds B and E).** The Project would not substantially decrease groundwater supplies, interfere substantially with groundwater recharge, or impede sustainable groundwater management of the basin. *(Less than Significant)*

Master Plan

Groundwater Supplies and Sustainable Groundwater Management

As discussed in Section 4.15, Utilities and Energy, the Project would create additional potable water demand within CSUMB's groundwater allocation by adding academic, general administrative, recreational, and student housing space. According to Section 4.14, Utilities and Energy (Table 4.15-7), water demand associated with the Project would result in an increased demand of approximately 314 AFY of potable water and 87 AFY of non-potable irrigation water for a total of approximately 401 AFY. Total campus potable water demand with existing, approved and proposed Master Plan buildout would be 630 AFY, which is less than MCWD's 2020 UWMP forecast water demand of 721 AFY at CSUMB by the year 2040 and well below the University's groundwater allocation of 1,035 AFY. Additionally, campus growth under the proposed Master Plan would result in an irrigation non-potable water demand of 87 AFY, which is the current limit of its non-potable water allocation.

Although the Project site overlies the Salinas Valley Groundwater Basin – Monterey Subbasin (3-004.10), as designated by the California DWR, groundwater beneath the site is not used as a municipal water source. The MCWD serves water to the Ord Community Service Area, of which CSUMB is part. MCWD currently relies solely on groundwater extracted from the Salinas Valley Groundwater Basin as the source of its supply, primarily from the Marina-Ord Area of the Monterey Subbasin, as described in Section 4.8.1, Environmental Setting.

With respect to groundwater management, SGMA empowers local agencies to form GSAs to manage basins sustainably and requires those GSAs to adopt GSPs for groundwater basins in California. Such GSPs have been issued for 180/400-Foot Aquifer Subbasin and the Monterey Subbasin, and other subbasins of the Salina Valley Groundwater Basin.

Both the 180/400-Foot Aquifer Subbasin and the Monterey Subbasin are connected and contain three aquifers commonly referred to as the 180-Foot, 400-Foot and Deep Aquifers. The 180-Foot and 400-Foot Aquifers have been subject to seawater intrusion for more than 70 years.

Seawater intrusion is less extensive in the 400-Foot Aquifer than in the 180-Foot Aquifer. To date, seawater intrusion has not been reported in the Deep Aquifers. The 180/400 Foot Aquifer Subbasin has been declared by the State to be a basin subject to "critical conditions of overdraft" (DWR 2016). Ongoing monitoring by MCWRA indicates that the seawater intrusion continues to migrate inland, particularly in the 180-Foot Aquifer, but groundwater conditions appear to be improving in some areas south of the Salinas River (MCWD 2021). As indicated previously, MCWD production wells are located in the Monterey Subbasin and tap the Deep Aquifer and the 400-Foot Aquifer. To date, these wells have not been impacted by seawater intrusion (MCWD 2021).

The Monterey Subbasin GSP indicates that the sustainable yield of this subbasin is significantly affected by recharge, pumping, and conditions in adjacent subbasins (e.g., the 180/400-Foot Subbasin). Groundwater conditions in adjacent subbasins are projected to change as these subbasins move toward sustainability. Future projected sustainable yield of the Marina-Ord Area includes projected demands from MCWD's 2020 UWMP through 2040 and other pumping projections. Projected sustainable yield ranges between approximately 4,400 AFY and 9,900 AFY if adjacent subbasins are managed sustainably and the 180/400-Foot Aquifer Subbasin reaches its sustainable management criteria (MCWD GSA 2021).

Projected Monterey Subbasin GSP water budget results indicate that if adjacent subbasins are managed sustainably and the 180/400 Foot Aquifer Subbasin reaches it sustainable management criteria, the Marina-Ord Area of the Monterey Subbasin will not be in overdraft during the 30-year post-GSP implementation period. However, the Monterey Subbasin GSP indicates that further analysis and implementation of projects and/or management actions may be required to reach the sustainable management criteria in the Marina-Ord Area, depending upon boundary conditions achieved in adjacent subbasins.

MCWRA and MCWD have taken actions to address and eliminate basin overdraft and seawater intrusion. MCWD also is exploring new alternative water sources to augment groundwater supplies, including recycled water, as described in Section 4.14, Utilities and Energy. Additionally, 180/400 Foot Aquifer Subbasin GSP and the Monterey Subbasin GSP include additional strategies for reaching sustainability in these subbasins by 2040. Specifically, the Monterey Subbasin GSP projects and management actions presented in Section 4.8.2, Regulatory Framework, are adequate to comprise the entirety of the Marina-Ord Area's projected groundwater demand. Therefore, such projects would reduce or avoid groundwater pumping in this area depending on the extent of project implementation.

The MCWD GSA and SVBGSA will work cooperatively on implementation of the Monterey Subbasin GSP and the 180/400 Subbasin GSP. During the early years of GSP implementation, data collection and analysis will be critical for the implementation of these GSPs and will allow for a better understanding of groundwater conditions and the necessity of projects and management actions. During the first two years of GSP implementation, the GSAs will undertake further scoping and analysis of potential project benefits and feasibility. With stakeholder input, the GSAs will determine (1) which projects to move forward first, (2) which projects to implement if the first set of projects do not reach sustainability goals, and (3) which projects should not be prioritized for implementation. During years 3 and 4, the GSAs will secure access agreements, undertake permitting and review under the California Environmental Quality Act, and develop funding mechanisms for projects that are selected. The GSAs will continue an iterative, ongoing process to evaluate the effectiveness of projects post implementation, including assessment of groundwater conditions, and the need for additional projects (MCWD GSA 2021).

While the proposed Master Plan would result in an incremental increase in demand for potable water sourced from MCWD groundwater wells, this increase would not cause a substantial decrease in ground water supplies as: (1) total campus potable water demand with existing, approved and proposed Master Plan buildout would be well below the University's groundwater allocation of 1,035 AFY for potable water; (2) implementation of PDF-W-1 and Title 24 compliance could reduce Project demand for MCWD potable water from groundwater; (3) the projected sustainable yield for the Monterey Subbasin considered in the GSP for that subbasin accounts for projected demands from MCWD's 2020 UWMP through 2040 (MCWD GSA 2021), including demand from CSUMB under the proposed Master Plan; and (4) the implementation of the 180/400-Foot Aquifer Subbasin and the Monterey Subbasin GSPs will provide for sustainable groundwater management of these subbasins and the Project would in no way impede the implementation of these GSPs.

Therefore, as the Project would not substantially decrease groundwater supplies or impede sustainable groundwater management of the basin, impacts would be *less than significant*.

Groundwater Recharge

In total, the proposed Master Plan would result in a net increase of 2.6 million GSF of new academic and support facilities, including housing, administration, student life, recreational, and institutional partnership buildings on the Main Campus. However, as the vast majority of the new construction associated with the Project would be located on developed or already paved sites, new construction would not result in a substantial net loss of permeable recharge area or a substantial reduction in infiltration of precipitation. Permeable recharge area could actually increase under the proposed Master Plan with the implementation of PDF-W-2, which would require the use LID features (e.g., green roofs and streets, swales, porous paving) in all new development to infiltrate all stormwater runoff within campus boundaries and easements in accordance with the CSUMB Stormwater Master Plan. Such an increase in permeable recharge area could occur as existing developed or paved areas that would be subject to new development under the proposed Master Plan do not currently include the use of such LID features. Overall, implementation of the CSUMB Stormwater Master Plan since it's preparation in 2006 and demolition of derelict buildings on campus has increased permeable recharge area on campus over time. Additionally, proposed PDF-OS-1 and PDF-OS-6 would provide for stormwater percolation in open space areas and along existing and future trails.

While the Project site is underlain by an established groundwater basin (3-004.10, Salinas Valley – Monterey Subbasin), as designated by the California DWR, groundwater beneath the Project site is not used for domestic uses given the existence of groundwater contamination that dates back to the former Fort Ord, as described in Section 4.8.1, Environmental Setting. Considering this and the depth of groundwater (approximately 165 feet below the ground surface), groundwater recharge underneath the CSUMB campus, while improving over time, is not likely an important component in local sustainable groundwater management. Therefore, any changes in groundwater levels in this local aquifer due to the Project would be minor, localized, and incremental relative to existing conditions.

For these reasons, implementation of the Project would not interfere substantially with groundwater recharge and impacts would be *less than significant.*

Near-Term Development Components

Groundwater Supplies and Sustainable Groundwater Management

The near-term development components would result in the addition of 1,000 student beds, 171,700 square feet of academic space, and 70,000 square feet of recreational facility space. Some of these near-term development components are located on sites with existing buildings that would be demolished to accommodate the new developments (Buildings 1, 2, 3, 13, 21, and 23). Water demand for the near-term development components, including demolition of existing buildings, would total approximately 59 AFY based on the campus water use rates presented in Section 4.14, Utilities and Energy. This water demand represents a portion of and is accounted for in the total proposed Master Plan water demand identified above.

While the near-term development components would result in an incremental increase in demand for potable water sourced from MCWD groundwater wells, this increase would not cause a substantial decrease in ground water supplies as: (1) total campus potable water demand with existing, approved and proposed Master Plan buildout, including the near-term development components, would be well below the University's groundwater allocation of 1,035 AFY for potable water; (2) implementation of PDF-W-1 and Title 24 compliance could reduce near-term development components demand for MCWD potable water from groundwater; (3) the ultimate use of a portion of CSUMB's recycled water allocation associated with the near-term development components would reduce overall demand for potable water sourced from MCWD groundwater wells; (4) the projected sustainable yield for the Monterey Subbasin considered in the GSP for that subbasin accounts for projected demands from MCWD's 2020 UWMP through 2040, including demand from CSUMB under the proposed Master Plan, which includes the near-term development components; and (5) the implementation of the 180/400-Foot Aquifer Subbasin and the Monterey Subbasin GSPs will provide for sustainable groundwater management of these subbasins and the near-term development components would in no way impede the implementation of these GSPs.

Therefore, as the near-term development components would not substantially decrease groundwater supplies or impede sustainable groundwater management of the basin, impacts would be *less than significant*.

Groundwater Recharge

As indicated above, the near-term development component sites are located primarily in existing paved/developed areas. Additionally, the implementation of PDF-W-2 would require the use of LID features (e.g., green roofs and streets, swales, porous paving) in the near-term development component sites to infiltrate all stormwater runoff within campus boundaries and easements in accordance with the CSUMB Stormwater Master Plan. As a result, implementation of these near-term development components would not result in a significant decrease in precipitation infiltration and associated decrease in groundwater recharge.

Therefore, implementation of the near-term development components would not interfere substantially with groundwater recharge, and impacts would be *less than significant.*

Mitigation Measures

Mitigation measures are not required because a significant impact related to groundwater has not been identified.

Impact HYD-3:	**Alteration of Stormwater Drainage Patterns (Threshold C).** The Project would not 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 (i) result in 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) increase or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. *(Less than Significant)*

Master Plan

As described in Section 4.8.1.3, the existing campus storm drain system was constructed by the U.S. Army to serve the former Fort Ord over a period of approximately 60 years, starting in 1940. The system evolved as Fort Ord expanded and was modified over time. This regional system presently collects stormwater east of Highway 1 that does not infiltrate and conveys it to percolation basins between Highway 1 and the beach to the west. The percolation basins were considered temporary with the long-term objective to percolate all storm water on the east side of Highway 1 as part of the redevelopment of the former Fort Ord. Prior to 2002, stormwater was discharged to Monterey Bay, but ocean outlets have since been demolished.

The soils on the Project site are highly permeable and allow for infiltration rather than surface flow under normal rainfall conditions. Surface flow occurs primarily in impervious areas and is transported through CSUMB-owned stormwater systems to existing regional stormwater systems and infiltration facilities that lie both within and outside of the Project site.

The CSUMB Stormwater Master Plan specifies that campus redevelopment will infiltrate 100 percent of runoff from a hundred-year storm on the Project site, and within easements granted to other agencies for infrastructure, which will reduce CSUMB's reliance on the offsite regional stormwater facilities, as described in Section 4.8.1.3, Campus Setting, and confirmed in PDF-W-2. The CSUMB Stormwater Master Plan developed a comprehensive study of campus drainage, proposing additional percolation basins, drainage inlets, and other stormwater infrastructure to achieve the goal of full percolation. Campus developments since that time have included on-site infiltration facilities to achieve this objective.

As previously discussed, the Project includes 2.6 million GSF of net new construction on the Main Campus. As indicated in Impact HYD-2, the vast majority of the new construction associated with the Project would be located on developed or already paved sites and therefore the Project would not result in a substantial net loss of permeable recharge area or a substantial reduction in infiltration of precipitation. Additionally, on-going implementation of the CSUMB Stormwater Master Plan as development proceeds would result in the infiltration of 100 percent of runoff from a hundred-year storm on the Project site and adding landscaped areas to new building sites would decrease the overall pervious surface on campus under existing conditions. As indicated in PDF-W-2, project-specific drainage analyses would be conducted for individual developments as they are pursued to ensure that this and other objectives of the CSUMB Stormwater Master Plan are met. Ultimately, the existing campus storm drain system will be abandoned as the campus implements building- and district-scale storm water percolation facilities per PDF-W-2. Additionally, proposed PDF-OS-1 and PDF-OS-6 would provide for stormwater percolation in open space areas and along existing and future trails.

Given the above, the Project would not substantially alter the existing drainage patterns of the site, would not substantially increase the rate or amount of surface runoff and therefore would not exceed the capacity of the regional stormwater drainage systems and impacts would be *less than significant*. See Impact HYD-1 for an analysis of stormwater quality.

Near-Term Development Components

As indicated above, the near-term development component sites are located in existing paved/developed areas. Therefore, the amount of impervious surfacing and associated stormwater runoff would not be expected to substantially increase with these developments and would actually decrease as existing paving is removed and replaced by landscaped areas. Additionally, on-going implementation of the CSUMB Stormwater Master Plan as near-term development components proceed would result in the infiltration of 100 percent of runoff from a hundred-year storm within the campus boundary or easements. As indicated in proposed PDF-W-2, project-specific drainage analyses would be conducted for the near-term development components as each is pursued to ensure that this and other objectives of the CSUMB Stormwater Master Plan are met. The drainage analyses will also identify the appropriate LID design features required to achieve full percolation.

Given the above, the near-term development components would not substantially alter the existing drainage patterns of the sites, would not substantially increase the rate or amount of surface runoff and therefore would not exceed the capacity of the regional stormwater drainage systems and impacts would be *less than significant*. See Impact HYD-1 for an analysis of stormwater quality.

Mitigation Measures

Mitigation measures are not required because a significant impact related to alteration of drainage patterns has not been identified.

4.8.3.5 Cumulative Impacts

This section provides an evaluation of hydrology and water quality impacts associated with the Project, including near-term development components, when considered together with other reasonably foreseeable cumulative development, as identified in Table 4.0-1 in Section 4.0, Introduction to Analysis, and potentially other possible development allowed under local general plans. The geographic areas considered in the cumulative analysis for this topic are described in the impact analysis below.

Impact HYD-4:	**Cumulative Hydrology and Water Quality Impacts (Thresholds A, B, C and E).** The Project would not result in a cumulatively considerable contribution to significant cumulative impacts related to hydrology and water quality. (*Less than Significant*)

Surface Water Quality and Stormwater Drainage Patterns

The geographic scope for cumulative surface water quality and drainage impacts is the southern portion of the Monterey hydrologic area (No. 309.50) in which the Project site is located, which extends from the slopes of the Fort Ord National Monument on the east to the Pacific Ocean on the west. This area encompasses the cities of Marina, Seaside, Sand City, and Monterey. In this area, water generally flows from east to west or southeast to northwest, downhill towards the Monterey Bay. This geographic scope is appropriate for surface water quality and drainage impacts because such impacts are localized in the watershed where the impact occurs. Cumulative development within this geographic scope includes development identified in Table 4.0-1 and Figure 4.0-1 and other possible development allowed under the Marina, Seaside, Sand City, and Monterey County General Plans.

Cumulative development would generally increase impermeable surface area in the southern portion of the Monterey hydrologic area. Development could potentially increase peak flood flows, alter drainage patterns, reduce groundwater recharge, and increase pollutants in regional stormwater. However, the regional stormwater system in the Former Fort Ord no longer drains to the Pacific Ocean but rather to temporary percolation ponds between the ocean and Highway 1, with the long-term objective being to percolate all storm water on the east side of Highway 1 as part of the redevelopment of the former Fort Ord.

Cumulative development would be required to adhere to all applicable State and local[7] regulations designed to control erosion and sedimentation and protect water quality during construction and post-construction operations. All construction sites larger than one acre in size would be

7 Local regulations apply only to cumulative projects located off-campus in the jurisdictions of local municipalities.

required to prepare and submit a SWPPP under the NPDES Construction General Permit, thereby reducing the risk of water quality degradation on- and off-site from soil erosion and other pollutants. In addition, the Central Coast RWQCB postconstruction requirements for stormwater management encourage and require for certain projects, on-site treatment and infiltration of stormwater runoff. The FORA Stormwater Master Plan also requires all stormwater to be infiltrated east of Highway 1 and infiltration basins are required to have the storage capacity to accommodate a 100-year storm event. This would reduce the quantity of stormwater runoff that enters the regional storm drainage system.

In addition, implementation of NPDES MS4 General Permit and municipal code requirements by local jurisdictions would reduce the potential for increased pollutants in stormwater from cumulative development located off campus. These requirements would also decrease operational effects of off-campus cumulative development because each development proposal would be required to reduce the on-site post-development peak discharges at or below pre-development peak discharge rates by implementing on-site LID features and other groundwater recharge design elements.

As indicated in Impact HYD-1 and Impact HYD-3, the Project would comply with the NPDES Construction General Permit and submit a SWPPP for construction on sites larger than one acre. Development on smaller sites would be subject to proposed PDF-OS-3 and PDF-OS-5, which call for the use of construction BMPs to minimize erosion and sedimentation and the use of native plants and seed mixes to eliminate erosion after construction. During operations, the Project would implement PDF-W-2 resulting in the continued use of LID features (e.g., green roofs and streets, swales, porous paving) in all new development to protect stormwater quality and infiltrate all stormwater runoff within campus boundaries and easements in accordance with the CSUMB Stormwater Master Plan, which is consistent with the FORA Stormwater Master Plan.

Given the above requirements, cumulative development would not result in significant impacts related to surface water quality degradation, violations of water quality standards, or alterations of stormwater drainage patterns. Therefore, cumulative surface water impacts would be *less than significant*.

Groundwater

The geographic scope for cumulative groundwater impacts is the Salinas Valley Groundwater Basin – Monterey Subbasin (3-004.10) and specifically the Marina-Ord Area of the subbasin as described in the Monterey Subbasin GSP (MCWD GSA 2021). While the 180/400-Foot Aquifer Subbasin and the Monterey Subbasin are connected and contain three common aquifers, MCWD currently relies on groundwater extracted from the Marina-Ord Area of the Monterey Subbasin, as described in Section 4.8.1, Environmental Setting.

Cumulative development would increase the demand for water, most of which would be derived from groundwater extracted by MCWD from the Marina-Ord Area of the Monterey Subbasin. However, future projected sustainable yield of the Marina-Ord Area, presented in the Monterey Subbasin GSP, includes projected demands from MCWD's 2020 UWMP through 2040 and other pumping projections, which account for projected demands from cumulative development.

MCWRA and MCWD have taken actions to address and eliminate basin overdraft and seawater intrusion. MCWD also is exploring new alternative water sources to augment groundwater supplies, including recycled water, as described in Section 4.14, Utilities and Energy. Additionally, 180/400 Foot Aquifer Subbasin GSP and the Monterey Subbasin GSP include additional strategies for reaching sustainability in these subbasins by 2040. Specifically, the Monterey Subbasin GSP projects and management actions presented in Section 4.8.2, Regulatory Framework, are adequate to comprise the entirety of the Marina-Ord Area's projected groundwater demand. Therefore, such projects would reduce or avoid groundwater pumping in this area depending on the extent of project implementation.

The MCWD GSA and SVBGSA will work cooperatively on implementation of the Monterey Subbasin GSP and the 180/400 Subbasin GSP, given the connection of the two subbasins. The implementation of the 180/400-Foot Aquifer Subbasin and the Monterey Subbasin GSPs will provide for sustainable groundwater management of these subbasins and cumulative development would not substantially decrease groundwater supplies or impede the implementation of these GSPs. Therefore, the cumulative groundwater impact would be *less than significant*.

4.8.4 References

Andersen Environmental. 2012. *Phase I Environmental Site Assessment Report*. Prepared for AMCAL Multi-Housing, July 27, 2012.

DWR (California Department of Water Resources). 2003. *California's Groundwater*. Bulletin 118 (Update 2003). October 2003.

DWR. 2016. *California's Groundwater Working Toward Sustainability*. Bulletin 118 (Interim Update 2016). December 22, 2016.

Central Coast RWQCB. 2017a. *Water Quality Control Plan for the Central Coastal Basin, September 2017 Edition*. September 27, 2017.

Central Coast RWQCB. 2017b. Approval of Waiver from NPDES General Permit/Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer System, California State University Monterey Bay, Monterey County. Sent to Anya Spear from John M. Robertson. April 27, 2017.

Creegan & D'Angelo. 2005. *Fort Ord Reuse Authority Storm Water Master Plan*. March 2005.

DDA (Denise Duffy & Associates, Inc.). 2007. California State University Monterey Bay 2007 Master Plan Draft Environmental Impact Report (SCH# 1997081036). Prepared for California State University Monterey Bay. December 2007.

DDA. 2016. *Draft Initial Study/Mitigated Negative Declaration, Monterey Bay Charter School, New School Project*. Prepared for Trustees of the California State University, March 10.

Fort Ord Reuse Authority. 2018. *Annual Report Fiscal Year 2017-18*.

MCWD (Marina Coast Water District). 2021. *Marina Coast Water District 2020 Urban Water Management Plan.* Prepared by Schaff & Wheeler Consulting Civil Engineers. June 2021.

MCWD GSA (Marina Coast Water District Groundwater Sustainability Agency). 2021. *Draft Groundwater Sustainability Plan Monterey Subbasin.* September 2021.

MBNMS (Monterey Bay National Marine Sanctuary). 2019. Submarine Canyons. Available online at: https://sanctuarysimon.org/monterey-bay-nms/submarine-canyons/. Accessed March 8, 2019.

Monterey County. 2008. Planning and Building Inspection Department, Monterey County General Plan Draft Environmental Impact Report, 2008. SCH # 2007121001.

Page. 2020. California State University Monterey Bay Master Plan Guidelines. DRAFT. January 2020.

SVBGSA (Salinas Valley Basin Groundwater Sustainability Agency). 2020. *Salinas Valley Groundwater Basin: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan*. January 3, 2020.

Schaff & Wheeler. 2006. *California State University Monterey Bay Stormwater Master Plan*. July 2006.

State Water Resources Control Board. 2018. "2014/2016 Integrated Report on Water Quality with Web-Based Interactive Map." Available at https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml. Accessed January 31, 2019.

USGS (U.S. Geological Survey) 2019. The National Map Viewer. Web Map Service accessed at http://viewer.nationalmap.gov/viewer on January 31, 2019.

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