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SUMMARY OF FINDINGS

With preparation of a Stormwater Pollution Prevention Plan, including implementation of recommended mitigation measures, the proposed project would not violate any water quality standards or waste discharge requirements and any potential impacts would be reduced to less than significant. Additionally, due to the existing developed nature of the area proposed for development, in combination with the proposed mitigation measure requiring implementation of Low Impact Design (LID), impacts associated with erosion or siltation and increased surface runoff would be reduced to less than significant. The project would not substantially deplete groundwater supplies nor would it interfere substantially with groundwater recharge. With respect to water quality, the proposed project’s adherence to applicable best management practices (BMPs) for water quality management would be consistent with the overall regional objective of improving water quality. All San Diego State University (SDSU) projects would be planned, constructed, and managed in accordance with regional BMPs and discharge requirements. Adherence to regional standards would eliminate unlawful discharge quantities or poor water quality management practices from occurring on a cumulatively considerable scale. Further, it is reasonable to assume that other projects in progress or proposed in the future would also adhere to regional and other applicable water quality protection measures, thereby eliminating a cumulative water quality condition. Therefore, the proposed project would not result in significant cumulative impacts to hydrology and water quality.
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# INTRODUCTION

The purpose of this report is to support the environmental review under the California Environmental Quality Act (CEQA) of the proposed California State University, San Diego State University (SDSU) Engineering and Interdisciplinary Sciences Building project (proposed project).

## 1.1 Regional and Local Setting

The campus is situated along Interstate 8 (I-8) about 8 miles from downtown San Diego (see Figure 1, Regional Map, and Figure 2, Vicinity Map). The proposed project would be located in the northeastern portion of the main San Diego State University (SDSU) campus (see Figure 3, Project Area Map). The campus is part of the College Area community of the City of San Diego.

The new building would be located to the south of the existing Engineering Building and would take the place of the existing Engineering Labs and Industrial Technology buildings on the main campus of SDSU. The proposed project site is defined by Aztec Circle Drive to the north and east, the Physics building to the south, and Life Sciences buildings to the west. The land on which the proposed project would be developed is owned by SDSU and is located within the existing campus boundary.

## 1.2 Overview

SDSU proposes to construct a new, five-story Engineering and Interdisciplinary Science building (four levels above grade and one subterranean level) The need for the building stems from outdated facilities and growth in enrollment in the engineering disciplines. SDSU is also interested in growing its research program, particularly through interdisciplinary projects that bring the sciences and engineering together. The new building would provide SDSU with state-of-the-art research facilities to attract significant research projects and funding.

The new building would be located to the south of the existing Engineering Building, and would take the place of the existing Engineering Lab and Industrial Technology buildings on the main campus of SDSU (see Figure 1, Regional Map; Figure 2, Vicinity Map; and Figure 3, Project Area Map). Development of the new building would include the following components, which, collectively, are referred to as the “proposed project”:

- Demolition of the existing Engineering Lab and Industrial Technology buildings (during construction, the occupants of the existing Engineering Lab and Industrial Technology buildings would be temporarily relocated to various buildings on campus)
• Construction of the new Engineering and Interdisciplinary Sciences Building and new landscaped quadrangle for the science, technology, engineering, and mathematics (STEM) disciplines

• Occupancy and operation of the new building

• Modification of the existing Engineering Building, which is located to the north of the proposed new building site, to connect the existing Engineering Building to the new building on one or more floors (see Figure 3)

• Demolition of the Quonset Hut (see Figure 3)

• Demolition of the CAM Labs Buildings (see Figure 3)

The target completion date for occupancy and operational use of the new Engineering and Interdisciplinary Sciences Building is January (spring semester) 2018.

1.3 Proposed Project Details

The proposed project would consist of demolition of several existing buildings, construction of a new building, and modification of an existing building (see Figure 3 and Figure 4, Project Site Design). The increase in number and size of spaces in the new engineering complex would result in teaching labs that can accommodate a capacity increase of 200 full-time equivalent (FTE) students. While the increased capacity may be filled by the transfer of students from other disciplines where growth has and would remain flat or slightly decrease, for purposes of environmental analysis, it is assumed that the 200 FTE would represent an increase in enrollment of 224 students. Additionally, the new engineering complex would accommodate up to 80 additional research staff members over current levels.

The details of each project component are provided below.

**New Engineering Building.** The new Engineering and Interdisciplinary Sciences Building would be located to the south of the existing Engineering Building, at the site of the existing Engineering Lab and Industrial Technology buildings. This location was selected for several reasons. First, the location provides excellent visibility from areas of the campus. Second, the location provides connectivity to the historic core of the campus (the campus core is listed on the National Register of Historic Places). Third, the location is immediately adjacent to the other STEM disciplines, which include physics, astronomy, physical and life sciences, geography, mathematics, computer science, biosciences, chemistry, and engineering.

The adjacency to the other STEM disciplines is purposeful. The proposed project would include a new quadrangle, the function of which would be to provide a sense of place, identity, and interaction for the STEM disciplines, and to link the new building to the SDSU original campus.
core. Together, the new building and new quadrangle would be planned to encourage interdisciplinary research, teaching, and interaction among the STEM disciplines. It would also provide flexible research and teaching space for the rapidly changing and increasingly competitive disciplines of engineering and the sciences. The construction of the new quadrangle is integral to the construction of the building itself and will happen simultaneously.

The new Engineering and Interdisciplinary Sciences Building would be approximately 95,000 gross square feet (GSF) in size, four levels above grade and one subterranean level (60 feet total height above grade), and externally reflect the architectural heritage of the campus. The new building would be designed in the mission style of architecture that is present within the core of campus. The new building would be affixed with exterior security lighting typical of other instructional buildings in the campus core.

The Engineering and Interdisciplinary Sciences Building would represent an increase of approximately 38,000 GSF over the existing Engineering Lab and Industrial Technology, CAM Labs, and Quonset Hut Buildings. The new building would consist of 60,000 assignable square feet (ASF), which is 20,000 more ASF than the existing Engineering Lab and Industrial Technology, CAM Labs, and Quonset Hut Buildings. The new building would consist, internally, of increased number and sizes of teaching labs and research facilities (including office and meeting spaces; bench spaces; and preparation, service, and technology spaces); a phage center; an imaging center with MRI capability; and an entrepreneurial center with laboratories and offices. The Engineering and Interdisciplinary Sciences Building would not contain any space for equipment maintenance, administrative offices, or lecture halls.

The new Engineering and Interdisciplinary Sciences Building would be designed to meet Leadership in Energy and Environmental Design (LEED) Silver certification or equivalent.

Table 1 illustrates the differences in additional GSF and ASF between the existing Engineering Lab and Industrial Technology buildings, Quonset Hut, and CAM Labs and the new Engineering and Interdisciplinary Sciences Building.

<table>
<thead>
<tr>
<th>Space</th>
<th>Existing Buildings</th>
<th>New Engineering Building</th>
<th>Net Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Assignable</td>
<td>39,737</td>
<td>60,000</td>
<td>20,263</td>
</tr>
<tr>
<td>Total Gross</td>
<td>56,832</td>
<td>95,000</td>
<td>38,168</td>
</tr>
</tbody>
</table>
Existing Engineering Building Modifications. The proposed project would include modifications to the existing Engineering Building, located to the north of the site of the proposed new Engineering and Interdisciplinary Sciences Building, to connect the existing building to the new building on one or more floors. Additionally, modest interior renovations, primarily paint and some replacement of finishes to selected areas, would be made to the existing Engineering Building.

Demolition of Existing Engineering Lab and Industrial Technology Buildings. The existing Engineering Lab and Industrial Technology buildings were constructed in 1956 and 1953, respectively, and consist of a total of 47,000 GSF of space. The 47,000 GSF in the existing Engineering Lab and Industrial Technology buildings consists of 29,268 ASF for teaching labs; research facilities, including office collaboration and meeting rooms, bench space, and preparation, service, and technology; equipment maintenance; administrative offices; lecture halls; and an entrepreneurial center with laboratories and offices. The existing Engineering Lab and Industrial Technology buildings do not contain a phage center or imaging center.

Demolition of Existing CAM Lab Building. Once the new Engineering and Interdisciplinary Sciences Building is constructed, the CAM Lab Building will be demolished. The existing CAM Lab Building was constructed in 1962 and consists of 1,732 GSF of building space. This building has housed a variety of engineering student project labs and organization workspace since its construction. Following demolition, the site would be used for parking and open space.

Demolition of Existing Quonset Hut. Once the new Engineering and Interdisciplinary Sciences Building is constructed, the existing Quonset Hut located immediately north of the existing Engineering Lab and Industrial Technology buildings would be demolished. This building was constructed in 1947, consists of 8,100 GSF, and has always housed materials for grounds and facilities maintenance for this portion of campus. Following demolition, the site would be used for parking and open space.

1.4 Construction

The first element of construction would entail demolition of the existing Engineering Lab and Industrial Technology buildings. Based on the preliminary project schedule, this element of construction would occur from June 2015 to August 2015. This demolition activity would require a crew of 15 workers and use of concrete/industrial saws, track hoe with breaker, dozers and loaders.

The second element of the project would involve construction of the new Engineering and Interdisciplinary Sciences Building. It is anticipated that this construction effort would start in November 2015 and last approximately 26 months.
The first phase of construction of this building would entail site preparation and excavation, which would take 3 months and necessitate a crew of 15 workers. Equipment required during this phase would include graders, dozers, a drill rig and backhoes. This phase would require approximately 7,000 cubic yards of export over a 3-week period, resulting in approximately 700 export truckloads. Pile driving (for building foundation) and/or blasting of rock is not anticipated as part of project construction. The second phase would entail foundation establishment (6 weeks), underground utilities at building footprint and slab on grade (2 months), and structural framing (5 months). The first and second phases of building construction phase would take approximately 12 months total, necessitate a peak construction crew of 100 workers and involve the use of a crane, forklifts, a generator set, loaders, backhoe, concrete pumps and welders.

The third phase of construction would entail constructing the building envelope and mechanical, electrical and plumbing rough-in. This phase would be approximately 8 months and would require a peak crew of 155 workers. Equipment employed during this phase would include the use of forklifts, scissors lifts, boom lifts, a mixer and pump for plaster, and a bobcat. The next phase would involve interior finishes, which would last about 6 months and would require a crew of 140 workers and forklifts. Simultaneously, the final phase of construction would include exterior landscaping treatment and would take approximately 4 months and a crew of approximately 15 workers. This phase would involve the use of forklift, backhoe, bobcat, and pump trailer.

The third element of construction would involve renovations to the existing Engineering Building to tie it into the new building. This effort is anticipated to occur between January 2018 and June 2018, and would necessitate a crew of 10 workers utilizing a crane, forklifts, a generator set, loaders, and welders.

The fourth element of construction would involve the demolition of the existing CAM Laboratories and Quonset Hut. Based on the preliminary project schedule, this element of construction would occur from January 2018 to March 2018. This demolition activity would require a crew of seven workers and use of concrete/industrial saws, dozers and loaders.
2 METHODOLOGY

This evaluation includes an assessment of the nature, duration, and severity of the proposed project's potential adverse effects, primarily with respect to water quality and surface runoff. This evaluation is a desktop study based on data, publications, and resources provided by public agencies such as the U.S. Geological Survey (USGS), the State Water Resources Control Board (SWRCB), the San Diego Regional Water Quality Control Board (RWQCB), and the City of San Diego (City) Stormwater Division. This report also provides a review of the proposed project’s regulatory context, development standards pertaining to water quality, and their applicability to campus improvements. Potential impacts are compared against existing conditions, and additional mitigation measures are provided where necessary to avoid or substantially reduce impacts.

The analysis contained in this report is commensurate with the nature of the proposed project's design and the likely severity of environmental impacts that could occur. Because detailed civil engineering plans have yet to be developed, and because the project design would ultimately reduce the extent of impervious surfaces on the site, this report does not include quantitative hydrologic modeling of pre- and post-runoff conditions. This report focuses on identifying the type and effectiveness of water quality best management practices (BMPs) and low-impact design measures that would be implemented to meet water quality goals and objectives. As the engineering and design of the proposed project proceeds to final stages and the required project details emerge, the project engineer would perform the calculations necessary to refine the location, design, and size of stormwater and water quality features.
3 EXISTING CONDITIONS

This section describes the existing conditions in the proposed project area and identifies the applicable regulatory setting.

3.1 Existing Environmental Setting

The SDSU campus is located atop a mesa terrace intersected by canyon drainages on its east and west sides, each of which drains into the Alvarado Creek Canyon that makes up the northern border of the campus. Alvarado Creek is a tributary to the San Diego River, which eventually discharges into the Pacific Ocean immediately south of Mission Bay. The surrounding region is a broad urbanized coastal plain bounded by the Pacific Ocean to the west and by foothills and mountains to the east. Prior to development of the campus and surrounding area, the topography was characterized by deeply incised drainage canyons dissecting the relatively level mesa, which is commonly called “Montezuma Mesa” at the location of the main SDSU campus. Many of the smaller canyons/ravines and the heads of some of the larger canyons were filled in to create level, buildable sites.

Buildings, roads, and utility infrastructure in the vicinity have resulted in topography and soils that have been heavily altered from their natural state. The closest natural-bottom watercourse (i.e., not consisting of storm drain pipes, concrete channels, and/or culverts) is Alvarado Creek, which is located approximately 500 feet northeast of the proposed project site. There are no natural water bodies within the proposed project footprint.

3.1.1 Climate

The climate of San Diego County (County) is characterized by warm, dry summers and mild, wet winters. The average rainfall is about 10–13 inches per year, most of which falls between November and March. The average mean temperature for the area is approximately 65 degrees Fahrenheit (°F) in the coastal zone and 57°F in the surrounding foothills (San Diego RWQCB 2012).

3.1.2 Site Topography and Drainage

The elevation of the proposed project site as a whole varies from about 434 feet above mean sea level (amsl) at the southwestern corner of the Industrial Technology Building to about 398 feet amsl at the northeastern corner of the proposed project site (where Aztec Circle Drive turns west past the CAM Labs) (SanGIS 2003). This results in an average slope gradient of about 7% across the proposed project site, dipping toward the northeast. This slope is most apparent along Aztec Circle Drive, which has a slight to moderate downward slope to the north. Walkways and driveways that access the Industrial Technology Building, the Engineering Building and Engineering Laboratory Building, the Quonset Hut, and CAM Labs are generally level, but built...
in a downward-stepping fashion to meet at grade with Aztec Circle Drive. The areas west and south of the proposed project site are level and topographically similar, but the areas east and north of Aztec Circle Drive have a steep 50- to 75-foot drop to Canyon Crest Drive (SanGIS 2003). The Alvarado Creek channel, prior to its undercrossing of I-8, runs between Parking Lot A and the highway’s interchange with College Avenue.

Based on the site topography and the campus’s utility infrastructure master plan, the general direction of stormwater flow across the site and follows the topographic slope to the northeast (SanGIS 2003; SDSU 2011). Furthermore, there is little, if any, stormwater run-on to the site, since campus areas to the west and south flow in a different direction through separate drainage networks. All runoff on site is collected through a network of roof downspouts, inlets, curb drains, and underground storm drain pipes which range in diameter from 4 to 16 inches. Off site, along Aztec Circle Drive and downhill through Parking Lot A, stormwater is collected by street drains and manholes, and conveyed via underground storm drain pipes that range in diameter from 12 to 24 inches. All stormwater runoff in the drainage area is collected and eventually discharged to Alvarado Creek through a 36-inch reinforced concrete pipe and discharge outlet (SDSU 2011).

3.1.3 Site Soil Types

The soil unit underlying the proposed project is mapped as the Olivenhain–Urban land complex (2% to 9% slopes) (USDA 2015). This soil unit is found on coastal plains and marine terraces, with parent materials typically consisting of gravelly alluvium derived from mixed sources. There are not typically any restrictive layers (e.g., hardpan or caliche), and the natural drainage class of the representative soil profile is well drained. It is not a soil that is typically ponded or flooded, and it does not usually have zones of water saturation within a depth of 72 inches (USDA 2015). However, the soil type does have a very high runoff rating (i.e., “Hydrologic Group D”), because certain layers within the soil can have a very low percolation rate, depending on depth and location (USDA 2015). Descriptions from soil surveys are based on regional representative soil profiles, and may not match exact site conditions.

Some fill soils likely exist on portions of the proposed project. These fill soils were likely placed during previous grading to construct level building pads for the existing Industrial Technology, Engineering, and Engineering Lab buildings and associated improvements. Fill also exists as backfill behind retaining walls and in existing underground utility trenches in the proposed project area. The fill soils in the proposed project area are likely to be primarily composed of locally derived materials. The fill soils generally range in composition from sandy clays to silty and clayey sands, commonly with abundant gravel/cobbles. Some fill areas may include boulder-sized rock fragments, concrete/asphalt chunks, and debris.
3.1.4 Watershed Hydrology

Regional Watersheds

The USGS Watershed Boundary Dataset (WBD) delineates watersheds according to hydrologic units, which are nested within one another according to the scale of interest. USGS identifies hydrologic units by name and by hydrologic unit code (HUC), which gets longer as the watershed boundaries get more detailed. For example, at a statewide scale, hydrologic units consist of large regions and sub-regions draining to a common outlet. At a statewide scale, the proposed project is within the 11,100-square-mile “Southern California Coastal” subregion (HUC 1807), which identifies areas that eventually drain to the Pacific Ocean versus those that drain to the interior deserts of California. At the highest level of detail for the WBD, the proposed project is within the Murray Reservoir sub-watershed (HUC 180703040704) (Table 2) (see Figure 5).

In managing water resources, the SWRCB and the local “co-permittees”\(^1\) classify watersheds in a hierarchical system similar to the USGS WBD, but with somewhat different watershed names and boundaries. These geographic boundaries are likewise watershed based, but are typically referred to as hydrologic basins. These generally constitute the geographic basis around which many surface water quality problems and goals/objectives are defined. The proposed project is within the Mission San Diego hydrologic sub-area (Basin No. 9.07.1.1), one of the many sub-areas within the San Diego RWQCB (Table 2).

<table>
<thead>
<tr>
<th>Agency / Source</th>
<th>HUC / Basin No.</th>
<th>Watershed Name</th>
<th>Size (Sq Km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USGS Watershed Boundary Dataset</td>
<td>180703</td>
<td>Laguna–San Diego Coastal accounting unit</td>
<td>14,142</td>
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<tr>
<td></td>
<td>18070304</td>
<td>San Diego cataloguing unit</td>
<td>4,022</td>
</tr>
<tr>
<td></td>
<td>1807030407</td>
<td>Lower San Diego River watershed</td>
<td>419</td>
</tr>
<tr>
<td></td>
<td>180703040704</td>
<td>Murray Reservoir sub-watershed</td>
<td>43</td>
</tr>
<tr>
<td>San Diego RWQCB and “Project Clean Water” co-permittees</td>
<td>9</td>
<td>San Diego region</td>
<td>10,102</td>
</tr>
<tr>
<td></td>
<td>9.07</td>
<td>San Diego hydrologic unit</td>
<td>1,140</td>
</tr>
<tr>
<td></td>
<td>9.07.1</td>
<td>Lower San Diego hydrologic area</td>
<td>449</td>
</tr>
<tr>
<td></td>
<td>9.07.1.1</td>
<td>Mission San Diego hydrologic sub-area</td>
<td>150</td>
</tr>
</tbody>
</table>

Sources: USGS 2015a; San Diego RWQCB 2012.
Notes: HUC = hydrologic unit code; sq km = square kilometer(s); USGS = U.S. Geological Survey; RWQCB = Regional Water Quality Control Board.

\(^1\) The stormwater co-permittees are the owners of municipal separate storm sewer systems (MS4s) through which urban runoff discharges into waters of the United States within the San Diego region. Together, the 18 cities, the County of San Diego (County), the Port of San Diego, and the Regional Airport Authority implement the National Pollutant Discharge Elimination System (NPDES) Permit.
Hydrology and Water Quality Technical Report for the SDSU Engineering and Interdisciplinary Sciences Building

The San Diego hydrologic unit, shown on Figure 5, is the second largest in the County, and has the highest population of the County’s watersheds (Project Clean Water 2015). It encompasses portions of San Diego, El Cajon, La Mesa, Poway, Santee, and several unincorporated jurisdictions. There are five water storage reservoirs, a groundwater aquifer, riparian and wetland habitats, and tidepools within the watershed. The watershed consists of approximately 58.4% undeveloped land, mostly in the upper, eastern portion of the watershed (Project Clean Water 2015). The remaining, lower portions consist of residential, roads, freeways, and commercial land uses.

**Alvarado Creek Watershed (@ Campus Storm Water Outfall)**

As indicated in Section 3.1.2, all stormwater runoff in the proposed project’s drainage area is collected and eventually discharged to Alvarado Creek through a 36-inch reinforced concrete pipe. The discharge outlet is located northeast of Parking Lot A (SDSU 2011). Basin characteristics associated with Alvarado Creek just downstream of the stormwater outfall were determined using the USGS web application “StreamStats” (USGS 2015b). StreamStats is a web-based geographic information system (GIS) that provides an assortment of analytical tools that are useful for water resources planning and management and for preliminary engineering design applications. StreamStats allows users to obtain streamflow statistics, drainage basin characteristics, and peak-flow characteristics for user-selected sites on streams. Basin characteristics for Alvarado Creek at the outfall location are provided in Table 3.

### Table 3

Selected Basin Characteristics for Alvarado Creek, East of the I-8 Undercrossing

| Parameter                                                      | Value  |
|                                                               |        |
| Area (acres, approximate)                                     | 7,100  |
| Mean annual precipitation                                     | 13.7   |
| Average maximum January temperature (degrees Fahrenheit)      | 66.7   |
| Average minimum January temperature (degrees Fahrenheit)      | 42.2   |
| Elevation at outlet (feet)                                    | 324    |
| Average basin elevation (feet)                                | 614    |
| High elevation index – percentage of area above 6,000 feet    | 0      |
| Mean basin slope computed from 30-meter Digital Elevation Model (percentage) | 8.7    |
| Percentage of basin covered by forest                         | 1.3    |
| Percentage of area covered by lakes and ponds                 | 1.8    |
| Percentage of impervious area determined from NLCD 2001 imperviousness dataset | 49.5   |
| Length of the longest flow path (meters)                      | 10,134 |

*Source: USGS 2015b.*
3.1.5 Groundwater

A groundwater basin is defined as a hydrogeologic unit containing one large aquifer as well as several connected and interrelated aquifers. All major watersheds in the San Diego region contain groundwater basins. The proposed project site is outside of the groundwater basin as defined by the San Diego County Water Authority footprint and is approximately 500 feet south of the Mission Valley Groundwater Basin (Figure 6). Drained by the San Diego River, this basin underlies an east–west trending valley and is bounded by lower-permeability San Diego, Poway, and Lindavista Formations (DWR 2004). The principal water-bearing deposit is alluvium consisting of medium to coarse-grained sand and gravel. This alluvium has an average thickness of 80 feet and a maximum thickness of about 100 feet (DWR 2004). The Mission Valley Groundwater Aquifer is summarized in Table 4.

Table 4
Mission Valley Groundwater Aquifer

<table>
<thead>
<tr>
<th>Aquifer</th>
<th>Description</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shallow Alluvium</td>
<td>Quaternary age medium to coarse-grained sand and gravel</td>
<td>Approximately 80–100 feet</td>
</tr>
<tr>
<td>San Diego Formation</td>
<td>Thick accumulation of older, semi-consolidated alluvial sediments</td>
<td>Generally less than 100 feet</td>
</tr>
</tbody>
</table>


There is a potential that perched water exists at shallower depth on the proposed project site. That said, non-porous sand and clay materials are mixed among the strata and create groundwater “lenses,” or isolated pockets of groundwater. Seasonal fluctuations of the on-site groundwater conditions are assumed. The most probable sources of groundwater within the proposed project vicinity are infiltration of landscape irrigation water and precipitation (Southland Geotechnical Consultants 2015).

3.1.6 Flood Hazards

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps identify flood zones and areas that are susceptible to 100-year and 500-year floods. Based on a review of the Flood Insurance Rate Maps for San Diego County, the proposed project is not located within a 100- or 500-year floodplain (SanGIS 2015) (see Figure 7). Furthermore, the proposed project, due to its elevation of over 400 feet amsl on the Montezuma Mesa and its location miles inland, is not subject to dam inundation or tsunami hazards.
3.1.7 Water Quality

Runoff conveyed and discharged by municipal stormwater systems has been identified by local, regional, and national research programs as one of the principal causes of water quality problems in urban areas, such as the City. This runoff potentially contains a host of pollutants including trash, debris, bacteria, viruses, oil, grease, sediments, nutrients, metals, and toxic chemicals. These contaminants can adversely affect the beneficial uses of receiving creeks, coastal waters, associated wildlife habitat, and public health. Urban runoff pollution is a problem during rainy seasons and throughout the year due to urban water uses that discharge non-stormwater runoff via dry weather flows to the stormwater conveyance system (City of San Diego 2012).

Land development and construction activities introduce the following water quality concerns:

- Contribution of pollutants to receiving waters based on the creation of new impervious surfaces and the permanent “use” of the project site
- Contribution of pollutants to receiving waters based on the removal or change of vegetation during construction
- Contribution of pollutant-based sediment transport caused by increased impervious cover and the resultant increased erosive force
- Significant alteration of drainage patterns

When residential, industrial, office, or recreational areas are developed, new impervious areas are created (roads, parking lots, structures, etc.). Since the natural landscape’s ability to infiltrate and cleanse urban runoff is “capped” by the impervious surfaces, rainfall that would have normally percolated into the soil is instead converted to runoff that flows directly to downstream creeks, bays, and beaches. This phenomenon is especially pronounced at low-intensity rainfall events. Historic increases in impervious cover have increased the frequency and intensity of stormwater flows that occur within the region’s watercourses (City of San Diego 2012).

As described in detail in Section 3.2, Clean Water Act (CWA) Section 303(d) requires states to develop a list of waters that do not meet water quality standards. These waters are called “water quality limited segments.” This list classifies seven segments within the San Diego hydrologic unit as impaired water bodies. Three of these are located in areas that runoff water from the proposed project could potentially reach. The three impaired bodies are Alvarado Creek, the San Diego River (Lower), and the Pacific Ocean Shoreline (San Diego River Mouth at Dog Beach). The pollutant/stressors and potential sources for these impaired water bodies are identified in Table 5.
Table 5
Section 303(d) List of Water Quality Limited Segments

<table>
<thead>
<tr>
<th>Location</th>
<th>Pollutant/Stressor</th>
<th>Potential Source</th>
<th>Proposed TMDL Completion</th>
<th>Estimated Size Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alvarado Creek</td>
<td>Selenium</td>
<td>Other urban runoff</td>
<td>2021</td>
<td>6 miles</td>
</tr>
<tr>
<td>San Diego River (Lower)</td>
<td>Enterococcus</td>
<td>Nonpoint source, point source, urban runoff/storm sewers</td>
<td>2021</td>
<td>16 miles</td>
</tr>
<tr>
<td></td>
<td>Fecal coliform</td>
<td>Nonpoint source, point source, urban runoff/storm sewers, wastewater</td>
<td>2009</td>
<td>16 miles</td>
</tr>
<tr>
<td></td>
<td>Low dissolved oxygen</td>
<td>Unknown nonpoint source, unknown point source, urban runoff/storm sewers</td>
<td>2019</td>
<td>16 miles</td>
</tr>
<tr>
<td></td>
<td>Manganese</td>
<td>Source unknown</td>
<td>2021</td>
<td>16 miles</td>
</tr>
<tr>
<td></td>
<td>Nitrogen</td>
<td>Nonpoint source, point source, urban runoff/storm sewers</td>
<td>2021</td>
<td>16 miles</td>
</tr>
<tr>
<td></td>
<td>Phosphorus</td>
<td>Unknown nonpoint source, unknown point source, urban runoff/storm sewers</td>
<td>2019</td>
<td>16 miles</td>
</tr>
<tr>
<td></td>
<td>Total dissolved solids</td>
<td>Flow regulation/modification, natural sources, unknown nonpoint source, unknown point source, urban runoff/storm sewers</td>
<td>2019</td>
<td>16 miles</td>
</tr>
<tr>
<td></td>
<td>Toxicity</td>
<td>Nonpoint sources, other urban runoff, unknown point source</td>
<td>2021</td>
<td>16 miles</td>
</tr>
<tr>
<td>Pacific Ocean Shoreline, San Diego HU (San Diego River Mouth, aka Dog Beach)</td>
<td>Enterococcus</td>
<td>Sources unknown</td>
<td>2021</td>
<td>0.03 mile</td>
</tr>
<tr>
<td></td>
<td>Total coliform</td>
<td>Unknown nonpoint source, unknown point source, urban runoff/storm sewers</td>
<td>2010</td>
<td>0.03 mile</td>
</tr>
</tbody>
</table>

Source: SWRCB 2010.
Notes: TMDL = total maximum daily load; HU = hydrologic unit.

Urban runoff/storm sewers are a potential source for fecal coliform, low dissolved oxygen, phosphorus, and total dissolved solids in the San Diego River (Lower). Nonpoint/point sources are a potential source for indicator bacteria at the Pacific Shoreline, San Diego hydrologic unit. Table 6 is excerpted from the City’s Stormwater Standards Manual and presents the probable pollutants causing CWA Section 303(d) Impairment Listing for the three impaired water bodies located downstream of the proposed project.

Table 6
Probable Pollutants Causing Section 303(d) Impairment Listing

<table>
<thead>
<tr>
<th>Probable Pollutants</th>
<th>Eutrophic</th>
<th>Benthic Community Degradation</th>
<th>Sediment Toxicity</th>
<th>Toxicity (in Stormwater Runoff)</th>
<th>Low Dissolved Oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediments</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrients</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Heavy Metals</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Organic Compounds</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>
Table 6
Probable Pollutants Causing Section 303(d) Impairment Listing

<table>
<thead>
<tr>
<th>Probable Pollutants</th>
<th>Eutrophic</th>
<th>Benthic Community Degradation</th>
<th>Sediment Toxicity</th>
<th>Toxicity (in Stormwater Runoff)</th>
<th>Low Dissolved Oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trash &amp; Debris</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Oxygen-Demanding Substances</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bacteria &amp; Viruses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pesticides</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Source: City of San Diego 2012.

3.2 Regulatory Setting

This section describes the applicable regulatory plans, policies, and ordinances for the proposed project.

3.2.1 Federal and State

The statutes that govern the project activities that may affect water quality are the federal CWA (33 U.S.C. 1251 et seq.) and the Porter–Cologne Water Quality Control Act (Porter–Cologne Act; California Water Code, Section 13000 et seq.). These acts provide the basis for water quality regulation in the project area.

The California Legislature has assigned the primary responsibility to administer and enforce statutes for the protection and enhancement of water quality 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 the implementation of federal and state regulations. The nine RWQCBs throughout California adopt and implement regional water quality control plans (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. Each RWQCB adopts and implements a Basin Plan that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (California Water Code, Sections 13240–13247). These plans and policies filter down to the local level because the Basin Plans and National Pollutant Discharge Elimination System (NPDES) permits require cities, counties, and special districts to incorporate water quality protection measures into their ordinances and permitting processes. The proposed project is located within the jurisdiction of the San Diego RWQCB.
Table 7 lists the major water quality-related regulations that apply to the proposed project. These permits are issued statewide by the SWRCB and implemented throughout the state by the RWQCBs; other permits, like conditional waivers, are issued and implemented on a region-by-region basis. Additionally, the RWQCBs issue Municipal Separate Storm Sewer System (MS4) Permits to counties and cities. These permits include additional requirements for managing construction sites and require integration of drainage designs that match predevelopment runoff volumes. The proposed project is subject to Phase II MS4 regulations, because SDSU is a non-traditional permittee.

<table>
<thead>
<tr>
<th>Program/Activity</th>
<th>Order Number/NPDES Number</th>
<th>Permit Name</th>
<th>Applicable Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Stormwater Program</td>
<td>2009-0009-DWQ/CAS000002</td>
<td>National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit)</td>
<td>Statewide</td>
</tr>
<tr>
<td>“Low Threat” Discharges to Land and/or Groundwater</td>
<td>R9-2014-0041</td>
<td>Conditional Waivers of Waste Discharge Requirements for Low Threat Discharges in the San Diego Region (including construction dewatering discharges)</td>
<td>San Diego region</td>
</tr>
<tr>
<td>Municipal Stormwater Program</td>
<td>2013-0001-DWQ/CAS000004</td>
<td>Statewide General Waste Discharge Requirements for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) (General Permit)</td>
<td>Campus</td>
</tr>
</tbody>
</table>

**Beneficial Use and Water Quality Objectives (CWA, Section 303)**

The San Diego RWQCB is responsible for the protection of the beneficial uses of waters within the coastal watersheds of San Diego County. The San Diego RWQCB uses its planning, permitting, and enforcement authority to meet this responsibility and has adopted a Basin Plan to implement plans, policies, and provisions for water quality management (San Diego RWQCB 2012). The Basin Plan also includes water quality objectives that protect the identified beneficial uses; collectively, the beneficial uses and water quality objectives make up the water quality standards for the region.

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the nation’s waters” (33 U.S.C. 1251(a)). 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. California is required to establish total maximum daily levels (TMDLs) for each pollutant/stressor. A TMDL defines how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards. The existing and potential beneficial uses designated in the Basin Plan, water quality impairments, and relevant
TMDLs are provided in Table 5 (in Section 3.1.7) and Table 8. The beneficial uses in the Basin Plan and their definitions are provided in Table 9.

### Table 8

**Summary of Beneficial Uses of Inland Surface Water: San Diego River, Unnamed Tributary, and Alvarado Creek**

<table>
<thead>
<tr>
<th>Basin Number</th>
<th>Beneficial Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MUN</td>
</tr>
<tr>
<td><strong>Inland Surface Waters</strong></td>
<td></td>
</tr>
<tr>
<td>San Diego River</td>
<td>907.11</td>
</tr>
<tr>
<td>Unnamed Tributaries</td>
<td>907.11</td>
</tr>
<tr>
<td>Alvarado Creek</td>
<td>907.11</td>
</tr>
</tbody>
</table>

**Groundwater**

| Mission San Diego HSA² | 907.11 | P | X | X | X |

**Source:** San Diego RWQCB 2012. **Notes:** + = excepted from MUN (State Board Resolution No. 88-63, Sources of Drinking Water Policy); X = existing beneficial use; HSA = hydrologic sub-area; P = potential beneficial use.

¹ See Table 9 for definitions.

² These beneficial uses do not apply west of the eastern boundary of the right-of-way of I-5 and this area is excerpted from the sources of drinking water policy.

### Table 9

**Basin Plan List of Beneficial Uses**

<table>
<thead>
<tr>
<th>Beneficial Use</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUN – Municipal and Domestic Supply</td>
<td>Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.</td>
</tr>
<tr>
<td>AGR – Agricultural Supply</td>
<td>Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.</td>
</tr>
<tr>
<td>IND – Industrial Services Supply</td>
<td>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.</td>
</tr>
<tr>
<td>PROC – Industrial Process Supply</td>
<td>Uses of water for industrial activities that depend primarily on water quality.</td>
</tr>
<tr>
<td>FRSH – Freshwater Replenishment</td>
<td>Uses of water for natural or artificial maintenance of surface water quantity or quality (e.g. salinity).</td>
</tr>
<tr>
<td>GWR – Groundwater Recharge</td>
<td>Uses of water for artificial recharge of groundwater for purpose of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.</td>
</tr>
<tr>
<td>REC I – Contact Water Recreation</td>
<td>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, whitewater activities, fishing, and use of natural hot springs.</td>
</tr>
</tbody>
</table>
Table 9
Basin Plan List of Beneficial Uses

<table>
<thead>
<tr>
<th>Beneficial Use</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REC II – Non-Contact Water Recreation</td>
<td>Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where ingestion is reasonably possible. 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.</td>
</tr>
<tr>
<td>WARM – Warm Freshwater Habitat</td>
<td>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.</td>
</tr>
<tr>
<td>COLD – Cold Freshwater Habitat</td>
<td>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.</td>
</tr>
<tr>
<td>WILD – Wildlife Habitat</td>
<td>Uses of water that support terrestrial ecosystems including, but not limited to, the preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.</td>
</tr>
<tr>
<td>RARE – Threatened or Endangered Species</td>
<td>Uses if water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.</td>
</tr>
<tr>
<td>NAV – Navigation</td>
<td>Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.</td>
</tr>
<tr>
<td>COMM – Commercial and Sport Fishing</td>
<td>Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended to human consumption or bait process.</td>
</tr>
<tr>
<td>BIOL – Preservation of Biological Habitats of Special Significance</td>
<td>Uses of water that support designated areas or habitats, such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance (ASBS), where the preservation or enhancement of natural resources requires special protection.</td>
</tr>
<tr>
<td>EST – Estuarine Habitat</td>
<td>Uses of water that support estuarine habitat ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds).</td>
</tr>
<tr>
<td>MAR – Marine Habitat</td>
<td>Uses of water 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., mammals, birds, reptiles, amphibians, invertebrates or wildlife water and food sources.</td>
</tr>
<tr>
<td>AQUA – Aquaculture</td>
<td>Uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption and bait.</td>
</tr>
<tr>
<td>MIGR – Migration of Aquatic Organisms</td>
<td>Uses of water that support habitats necessary for migration, acclimatization between fresh and salt water.</td>
</tr>
<tr>
<td>SPWN – Spawning, Reproduction, and/or Early Development</td>
<td>Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish. This use is applicable only for the protection of anadromous fish.</td>
</tr>
<tr>
<td>SHELL – Shellfish Harvesting</td>
<td>Uses of water that support habitats suitable for collection of filter-feeding shellfish (e.g., clams, oysters and mussels) for human consumption, commercial, or sport purposes.</td>
</tr>
</tbody>
</table>

Source: San Diego RWQCB 2012.

Water Quality Certification (CWA, Section 401)

Section 401 of the CWA requires that an applicant for any federal permit (e.g., a U.S. Army Corps of Engineers Section 404 permit) obtain certification from the state that the discharge
would comply with other provisions of the CWA and with state water quality standards. For example, an applicant for a permit under Section 404 of the CWA must also obtain water quality certification per Section 401 of the CWA. Section 404 of the CWA requires a permit from the U.S. Army Corps of Engineers prior to discharging dredged or fill material into waters of the United States, unless such a discharge is exempt from CWA Section 404. For the project area, the San Diego RWQCB must provide the water quality certification required under Section 401 of the CWA. Water quality certification under Section 401 of the CWA, along with the associated requirements and terms, is required in order to minimize or eliminate the potential water quality impacts associated with the action(s) requiring a federal permit.

The site is fully developed and thus there are no jurisdictional wetlands, non-wetland waters, or riparian habitats within or adjacent to the project site. Therefore, implementation of the proposed project would not result in discharge of dredged or fill material to federal or state jurisdictional waters (and wetlands) or riparian habitat. Therefore, it is not anticipated that a permit under Section 404 of the CWA or certification per Section 401 will be needed.

### NPDES Program (CWA, Section 402)

The CWA was amended in 1972 to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program. In November 1990, the U.S. Environmental Protection Agency published final regulations that also establish stormwater permit application requirements for discharges of stormwater to waters of the United States from construction projects that encompass 5 acres or more of soil disturbance. Regulations (Phase II Rule) that became final on December 8, 1999, expanded the existing NPDES program to address stormwater discharges from construction sites that disturb land equal to or greater than 1 acre and less than 5 acres (small construction activity). The regulations also require that stormwater discharges from small MS4s, including the proposed project, be regulated by an NPDES permit.

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2 The term “waters of the United States” as defined in the Code of Federal Regulations (40 CFR 230.3(s)) includes all navigable waters and their tributaries.
The primary NPDES permits applicable to the proposed project are as follows:

- **Construction General Permit.** 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 (SWRCB Order 2009-0009-DWQ, or 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 1 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 BMPs designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving off site into receiving waters. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP must contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the Section 303(d) list for sediment.

Because the land disturbance associated with the proposed project would be more than 1 acre, it will be subject to the requirements of the Construction General Permit. The SWRCB requires that when determining the ground disturbance of a proposed project, the whole of the action must be included. Projects that are phased or involve components that are geographically and/or temporally separated must be considered together when part of the same plan of development (the “common plan of development”). Although construction of the new engineering wing may involve a land disturbance of under 1 acre, the proposed project as a whole would include several building demolitions and renovation of the existing engineering labs, which taken together, could involve land disturbance of nearly 3 acres.

- **General Permit for the Discharge of Stormwater from Small MS4s:** The SWRCB and the San Diego RWQCB have designated the SDSU campus stormwater drainage system as a Non-Traditional Small MS4. As part of Phase II regulations promulgated by the U.S. Environmental Protection Agency, the SWRCB adopted Order No. 2013-0001-DWQ (General Permit No. CAS000004) for small MS4s, which requires MS4s serving populations of 100,000 people or less to develop and implement a stormwater management plan with the goal of reducing the discharge of pollutants to the maximum extent possible. A Small MS4 is an MS4 that is not permitted under the municipal Phase I regulations (40 CFR 122.26(b)(16)), in this case meaning the San Diego Regional MS4 Permit.
Porter–Cologne Water Quality Control Act

The Porter–Cologne Act (codified in the California Water Code, Section 13000 et seq.) is the overarching water quality control law for California. As mentioned previously, it is implemented by the SWRCB and the nine RWQCBs. The SWRCB establishes statewide policy for water quality control and provides oversight of the RWQCBs’ operations. In addition to other regulatory responsibilities, the RWQCBs have the authority to conduct, order, and oversee investigation and cleanup where discharges or threatened discharges of waste to waters of the state\(^3\) could cause pollution or nuisance, including impacts to public health and the environment. As is evident from the preceding regulatory discussion, the Porter–Cologne Act and the CWA overlap in many respects, as the entities established by the Porter–Cologne Act are in many cases enforcing and implementing federal laws and policies. However, there are some regulatory tools that are unique to the Porter–Cologne Act.

- **Dredge/Fill Activities and Waste Discharge Requirements.** Actions that involve, or are expected to involve, discharge of waste are subject to water quality certification under Section 401 of the CWA (e.g., if a federal permit is being sought or granted) and/or waste discharge requirements under the Porter–Cologne Act. Chapter 4, Article 4 of the Porter–Cologne Act (California Water Code, Section 13260–13274) states that persons discharging or proposing to discharge waste that could affect the quality of waters of the state (other than into a community sewer system) shall file a Report of Waste Discharge with the applicable RWQCB. For discharges directly to surface water (i.e., waters of the United States), an NPDES permit is required, which is issued under both state and federal law; for other types of discharges, such as waste discharges to land (e.g., spoils disposal and storage), erosion from soil disturbance, or discharges to waters of the state (such as isolated wetlands), waste discharge requirements come into force and are issued exclusively under state law. Waste discharge requirements typically include many of the same BMPs and pollution control technologies as those required by NPDES-derived permits. Further, the waste discharge requirement application process is generally the same as for CWA Section 401 water quality certification, although in the case of waste discharge requirements, it does not matter whether the particular project is subject to federal regulation.

- **Conditional Waivers of Waste Discharge Requirements for Low-Threat Discharges in the San Diego Region.** This order (Order No. R9-2014-0041) authorizes several categories of discharges within the San Diego region that have a low threat to water quality, provided certain conditions are met to ensure compliance with water quality standards and Basin Plan objectives. Included among waiver categories is short-term...

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\(^3\) “Waters of the state” are defined in the Porter–Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state” (California Water Code, Section 13050(e)).
construction dewatering operations (Waiver No. 3). Construction dewatering is generally authorized so long as the discharge is made to land and not directly (or indirectly) to a receiving water body, including an MS4, and it does not adversely affect the quality or the beneficial uses of the waters of the state. If the construction dewatering discharge would exceed 5,000 gallons/day for any continuous 180-day period, or if it is in or near an area with a soil and/or groundwater contamination, investigation or corrective action in effect, the discharger must submit to the San Diego RWQCB a Notice of Intent, applicable fees, monitoring data, and BMPs, as required, to demonstrate that adequate measures will be taken to prevent adverse effects on water quality.

SBx7-7

SBx7-7, which became effective on February 3, 2010, is the water conservation component to the Delta legislative package. It seeks to implement water use reduction goals established in 2008 to achieve a 20% statewide reduction in urban per capita water use by December 31, 2020. The bill requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015. The bill establishes methods for urban retail water suppliers to determine targets to help achieve water reduction targets. The retail water supplier must select one of the four compliance options. The retail agency may choose to comply with SBx7-7 as an individual or as a region in collaboration with other water suppliers. Under the regional compliance option, the retail water supplier still has to report the water use target for its individual service area. The bill also includes reporting requirements in the 2010, 2015, and 2020 Urban Water Management Plans.

California Building Code

The California Building Code (CBC) is codified in the California Code of Regulations as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

3.2.2 Local

The City of San Diego Storm Water Runoff Control and Drainage Regulations are enforced through issuance of permits for projects under its jurisdictional control. Section 1.2 of the City’s
Storm Water Standards manual—titled “When to Apply These Standards”—states that the standards contained therein are applicable to any of the following:

- private project processed through the Development Services Department,
- public capital improvement project processed through the Engineering and Capital Projects Department, and
- ongoing maintenance efforts coordinated by the Operation and Maintenance Department (City of San Diego 2012, p. 1-3).

As a state agency, CSU/SDSU is not subject to local planning regulations, including those issued by the city of San Diego. Additionally, because the City would not process the proposed project, and SDSU would not need to obtain any building or grading permit from the City, the guidance is not technically applicable.

In practice, however, proposed project compliance with water quality and stormwater standards for state-sponsored projects such as those on the SDSU campus—particularly with respect to the general permit for small MS4s described above—achieves at least a similar result to compliance with local development standards. Stormwater quality standards are regionally established through the basin planning processes described in Section 3.2.1, whereby beneficial uses, water quality impairments, and water quality objectives within the San Diego RWQCB are identified. Consequently, regardless of whether a project is subject to a Phase I MS4 permit (e.g., most of the City of San Diego) or a Phase II Small MS4 General Permit (e.g., certain special districts, such as SDSU), the post-construction water quality standards are reflective of the same conditions and objectives. In addition, SDSU will design the proposed improvements in a manner consistent with the City’s stormwater standards (Cannon 2014).

Under the Phase II Small MS4 General Permit, SDSU is required to develop a stormwater management plan to demonstrate that their activities are being conducted in a manner that is protective of water quality and compliant with permit provisions. The stormwater management program requires regulated projects (including the proposed project) to develop and implement source control measures, low-impact design standards, and proper operation and maintenance of post-construction BMPs, among other requirements.
4 THRESHOLDS OF SIGNIFICANCE

The following significance criteria included in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) assist in determining the significance of a hydrologic impact. According to Appendix G of the CEQA Guidelines, 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.

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner which would result in substantial erosion or siltation on- or off-site.

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

e. 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.

f. Otherwise substantially degrade water quality.

g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

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

i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

j. Result in inundation by seiche, tsunami, or mudflow.
5 IMPACT ANALYSIS

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

Water quality standards and waste discharge requirements are intended to protect the quality of waters of the state—generally wetlands, lakes, creeks, rivers and their tributaries, and groundwater. Because there are no natural water features (i.e., lakes, rivers, creeks, or springs) within the footprint of the proposed project, all impacts with respect to water quality standards or waste discharge requirements would be indirect in nature, removed in space and/or time from the impact-causing activity.

Impacts to water quality through exceedance of water quality standards, non-conformance with waste discharge requirements, or other means, can potentially result from the short-term effects of construction activity (e.g., erosion and sedimentation due to land disturbances, uncontained material and equipment storage areas, improper handling of hazardous materials), as well as long-term effects of landscaping, circulation improvements, utility infrastructure, and structural design (e.g., alteration of drainage patterns and/or increases in impervious surfaces).

This discussion focuses on the short-term effects of construction activities and addresses the different types of water quality impacts in terms of the type of construction-related effects including stormwater runoff from construction sites, management of demolition activities and debris, and non-stormwater discharges. Long-term effects related to changes in topography and impervious surfaces are addressed under the latter thresholds that pertain to alteration of drainage patterns.

As discussed in Section 3.1.4, all stormwater runoff in the proposed project’s drainage area is collected and eventually discharged to Alvarado Creek through a 36-inch reinforced concrete pipe. The discharge outlet is located northeast of Parking Lot A. The potential to degrade water quality in this receiving water is partly a function of the proposed project area as compared to the total watershed area at that location. (For locational reference, see Figure 5.) Table 3 indicates the watershed area for Alvarado Creek where it passes under I-8 is approximately 7,100 acres. The proposed project area is nearly 3 acres, or about 0.04% of the total contributing watershed area. As the project involves no non-stormwater discharges to the storm drain system (which are prohibited without prior authorization from the RWQCB), contributions to flow would occur only during and immediately after rainfall events, when the creek would likewise be collecting runoff from the entire watershed. Contributions of sediment from project-related land disturbances or trace amounts of construction-related pollutants would not be measurable when considered in the context of the watershed as a whole. Nevertheless, because water quality degradation is by nature a cumulative issue, the prevailing standard is to reduce pollutant contributions to the maximum extent practicable regardless of how minor the contribution might be.
Stormwater Runoff

Construction activities such as grading, excavation, and trenching for construction, renovation, and demolition of proposed facilities would result in disturbance of soils at the project site. Construction site runoff can contain soil particles and sediments from these activities. Dust from construction sites can also be transported to other nearby locations where the dust can enter runoff or water bodies. Spills or leaks from heavy equipment and machinery, staging areas, or building sites can also enter runoff. Typical pollutants could include petroleum products and heavy metals from equipment, as well as products such as paints, solvents, and cleaning agents, which could contain hazardous constituents. Sediment from erosion of graded or excavated surface materials, leaks or spills from equipment, or inadvertent releases of construction materials could result in water quality degradation if runoff containing the sediment entered receiving waters in sufficient quantities to exceed water quality objectives. Impacts from construction-related activities would generally be limited to the initial demolition and site-preparation phases of construction. These impacts would be considered significant; therefore, mitigation is provided (see mitigation measure HYD-1 in Section 6, Mitigation Measures).

Because the proposed project would collectively result in land disturbance of more than 1 acre, it is subject to the Construction General Permit, which pertains to potential pollutant discharges resulting from grading and other construction activities. Compliance with the permit requires SDSU and/or its contractor to file a Notice of Intent with the SWRCB and prepare a SWPPP prior to construction. As indicated in mitigation measure HYD-1, the SWPPP would incorporate BMPs to prevent, or reduce to the greatest feasible extent, adverse impacts to water quality from erosion and sedimentation. A copy of the applicable SWPPP would be kept at the construction site. With preparation and implementation of a SWPPP, impacts related to stormwater runoff would be mitigated to less than significant.

Management of Demolition Activities and Debris

As discussed in the Hazards Technical Report (Dudek 2015), demolition activities could result in the release of contaminated materials and hazardous substances such as lead-based paint or asbestos. In the process of demolition, these hazardous building materials may be released into the environment if exposed to stormwater runoff. Mitigation measure HAZ-4 would require a lead-based paint and asbestos survey prior to demolition, which would be conducted by a California Occupational Safety and Health Administration (Cal/OSHA)-certified asbestos assessor and California Department of Health Services-certified lead-based paint assessor. This mitigation measure, further described in the Hazards Technical Report (Dudek 2015), is designed to avoid worker exposure to asbestos and lead but would also serve (along with the SWPPP discussed previously) to minimize the potential for these substances to be mobilized by stormwater runoff.
In addition, soils impacted with fuel hydrocarbons could be encountered during grading and redevelopment activities near the Engineering Lab Building. Excavation, transport, or disposal of soils from these areas could create a hazard to the public or the environment, including further exposure of ground or surface water supplies. This would result in a significant impact; therefore, mitigation is provided. Mitigation measures HAZ-1, HAZ-2, and HAZ-3 would, among other things, require (1) compliance with all applicable hazardous waste regulations (including total containment of trash and construction wastes); (2) the preparation of a hazardous substance management, handling, storage, disposal, and emergency response plan; and (3) protocols to respond to unanticipated encountering of soil or groundwater contaminants, including worker training to recognize visual and olfactory signs of soil contamination (Hazards Technical Report (Dudek 2015)). Mitigation measure HAZ-5 would require sampling of soils at or near the Engineering Lab Building to determine whether soil contamination is present above environmental screening levels, and if so, require remediation prior to construction in accordance with the requirements of the San Diego County Department of Environmental Health (Hazards Technical Report (Dudek 2015)). Collectively, these measures would also reduce the potential for contaminated soils to be mobilized in stormwater runoff during construction, and would be incorporated into the SWPPP as outlined in mitigation measure HYD-1.

In summary, preparation and implementation of a SWPPP (mitigation measure HYD-1), as well as implementation of mitigation measures HAZ-1 through HAZ-5, would prevent exceedance of water quality standards, non-conformance with waste discharge requirements, and degradation of water quality due to construction and demolition activities and impacts would be less than significant with mitigation.

Non-Stormwater Discharges

Non-stormwater discharges during construction could include construction-related dewatering discharges (to keep excavations free of water) and/or dust control. There is the potential that perched groundwater exists at shallower depth on the proposed project site. (See Figure 6 for locational reference,) That said, non-porous sand and clay materials are mixed among the strata and create groundwater “lenses,” or isolated pockets of groundwater. Seasonal fluctuations of the on-site groundwater conditions are assumed. The most probable sources of groundwater within the project vicinity are infiltration of landscape irrigation water and precipitation ., For this reason, construction crews may need to undertake construction-related dewatering discharges. The purpose of construction dewatering is to provide a dry work area if there is seepage of groundwater or if stormwater runoff enters excavations. Dewatering discharges are most likely during rainy periods and for deeper subgrade excavations (such as basement levels and/or utility vaults) associated with new building construction and renovations. If non-stormwater discharges enter the stormwater drainage system, they could degrade water quality and/or violate water
quality objectives of the San Diego RWQCB Basin Plan. This would result in a potentially significant impact; therefore, mitigation is provided (see mitigation measure HYD-1 in Section 6, Mitigation Measures).

Implementation of mitigation measure HYD-1 would ensure that non-stormwater discharges from construction site dewatering would not violate Basin Plan objectives or substantially degrade water quality. Implementation of mitigation measures HAZ-1 through HAZ-5 would further ensure that potential contaminants are identified and handled properly (i.e., treated on site or collected and disposed of at an authorized facility).

Non-stormwater discharges during construction would also include periodic application of water for dust control purposes. Because dust control is necessary during windy and dry periods to prevent wind erosion and dust plumes, water would be applied in sufficient quantities to wet the soil, but not so excessively as to produce runoff from the construction site. Water applied for dust control would either quickly evaporate or locally infiltrate into shallow surface soils. These stipulations are routine in SWPPPs and other construction contract documents, which normally state that water would only be applied in a manner that does not generate runoff. Therefore, water applied for dust control would not result in appreciable effects on groundwater or surface water features and thus has little to no potential to cause or contribute to exceedances of water quality objectives contained in the relevant Basin Plan.

In summary, with preparation of a SWPPP and implementation of mitigation measures HAZ-1 through HAZ-5, impacts associated with water quality standards and waste discharge requirements would be less than significant.

*Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?*

Perched groundwater seeps have been reported in some of the previous excavations on the SDSU campus, likely a result of infiltrating landscape irrigation water and precipitation meeting natural geologic formations beneath site fills (Southland Geotechnical Consultants 2015). The direct impacts of the proposed project on groundwater would be limited to the possible need to pump groundwater seepage out of excavations during construction of sub-grade foundations and facilities (i.e., groundwater dewatering). If this activity is required, its effects on shallow groundwater levels would be temporary and highly localized. (For locational reference, see Figure 6.) Any impacts would be limited to the perched groundwater and would therefore not affect static water levels in the underlying regional aquifer. Furthermore, because the campus is
reliant on municipal water supplies, there are no existing or proposed groundwater wells in or adjacent to the proposed project that could be adversely affected by construction-related dewatering activities.

Following construction, changes in land cover (e.g., impervious surfaces) could ultimately affect the amount of stormwater that percolates into the ground versus the amount that runs off into the regional storm drain system. To the extent the proposed project changes the ratio of pervious to impervious surfaces, it could also increase or decrease recharge of the underlying groundwater aquifer. As shown on Figure 4, the proposed landscaping would include a large lawn in an area currently occupied by the Engineering Lab Building (to be demolished) and paved driveways. Further, areas between buildings currently occupied by driveways, walkways, and parking areas would be landscaped. The exact area of pervious versus impervious surfaces is dependent on final design and engineering details. However, comparison of current aerial photographs of the site with the conceptual plans show that the proposed project would decrease impervious surface coverage compared to the existing site configuration, which, aside from a few planters and landscape strips, is nearly all impervious. Therefore, the proposed project will have a positive, albeit minor, effect on groundwater recharge. Direct impacts of the proposed project on aquifer volumes, the local groundwater table, and the production rate of pre-existing nearby wells would be less than significant.

Indirect Impacts

Water service for the proposed project is and will continue to be through purchase of municipal water from the City—No on-site groundwater wells are proposed. The City currently derives its water supply almost exclusively from surface water sources (both local and imported), with only a small pilot program in place to use local groundwater (City of San Diego 2009). One of the City’s top priorities, however, is to further develop local sources of groundwater and reduce the demand for imported water. This means that local groundwater may become a larger part of the City’s water portfolio in the future. To the extent the proposed project generates additional demand for water, it could also indirectly result in a small, incremental increase in demand on the City’s groundwater supply.

The water demand of the existing facilities is approximately 11,971 gallons per day. The water demand of the proposed facilities, once completed, would be approximately 8,950 gallons per day—a net decrease of 3,021 gallons per day. This decrease is equivalent to nearly 3.4 acre-feet per year, or roughly the amount of water used by six or seven typical single-family dwellings in a year. It is also equivalent to an approximately 25% decrease, which exceeds the goal of the water conservation legislation SBx7-7 in a local context. SBx7-7 calls for a 20% statewide reduction in urban per capita water use by 2020. The proposed project would actually decrease water demands and therefore would likewise decrease groundwater demands. The effect on
groundwater supplies would be beneficial, but marginally so, because nearly all of the City’s water supply is sourced from surface water. The indirect impacts of the proposed project on aquifer volumes would be beneficial and impacts, therefore, would be less than significant.

*Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river in a manner which would result in substantial erosion or siltation on- or off-site?*

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

Because there are no natural water features (i.e., lakes, rivers, creeks, or springs) within the footprint of the proposed project, there would be no direct impact with respect to alteration of streams or rivers. The land cover on site would continue to consist of campus buildings and would not substantially alter the topography of the site. Stormwater flows would continue to be directed to the north and east, and would be directed to the same storm drains. (For locational reference, see Figure 5.) Because impervious surface coverage on the site would decrease, the rate and amount of surface runoff would decrease, resulting in a slight decrease in the potential for downstream flooding or erosion. (For reference, see Figure 7.)

Changes in impervious areas created and the newly configured land uses could alter the types and levels of pollutants that could be present in project site runoff. Runoff from streets, driveways, parking lots, and landscaped areas can contain nonpoint source pollutants such as oil, grease, heavy metals, pesticides, herbicides, fertilizers, and sediment. Concentrations of pollutants carried in urban runoff are extremely variable, depending on factors such as the following:

- Volume of runoff reaching the storm drains
- Time since the last rainfall
- Relative mix of land uses and densities
- Degree to which street cleaning occurs

Under existing conditions, stormwater that is not infiltrated into landscaped areas and bare ground moves as sheet flow toward street gutters, swales, and the inlets of underground storm drains. The storm drains direct runoff to the Alvarado Creek and eventually into the San Diego River and Pacific Ocean along with the runoff from much of the 7,100-acre urban watershed area (see Figure 5). If rainfall is sufficiently intense and/or long-lasting, and if storm drain inlets have not been cleared of leaves and/or other debris, water may temporarily pond in low-lying areas. Under the proposed project, stormwater runoff would generally behave in the same or an
improved manner, and drainage infrastructure improvements planned as part of the proposed project would ensure that hydrologic and water quality standards are met.

The new Engineering and Interdisciplinary Sciences Building would be designed to meet Leadership in Energy and Environmental Design (LEED) Silver certification or equivalent, and on-site stormwater collection and conveyance facilities would include low-impact design systems such as those recommended in the *San Diego Low Impact Development Design Manual* (City of San Diego 2011) to provide stormwater treatment (e.g., bioretention planters and/or modular wetlands). As indicated earlier, the proposed project would not increase total impervious surface area compared to existing site conditions (Cannon Design 2014).

Even though the proposed project would reduce the coverage of impervious surfaces relative to existing conditions, it would be considered a regulated project under the Phase II Small MS4 General Permit (similar to a “priority development project” under the San Diego Regional Phase I Permit). Although the proposed project would not have an individually significant impact with respect to drainage patterns, cumulative increases in pollutant loads and the intensity of runoff within the watershed as a whole has created a cumulatively significant impact (see list of impaired water bodies, Table 5). Thus, the prevailing standard is for all development activities within the watershed to reduce their contribution to the cumulative impacts to the maximum extent practicable, even in cases where a project does not result in an increase in the existing level of impervious coverage. Therefore, mitigation measure HYD-2 is proposed to ensure that the proposed project meets regional standards as outlined in the Phase II Small MS4 General Permit. The impacts of the project on drainage patterns would be less than significant with mitigation.

*Would the project 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?*

Because the on-site drainage areas would maintain the same boundaries and because impervious surfaces would be reduced, the proposed project is not anticipated to contribute additional flows to the off-site stormwater drainage system as compared to existing conditions and impacts would be less than significant. Additionally, some on-site modifications to the drainage system may be undertaken, if required, as part of facility construction, and LID measures would be implemented to further reduce peak flow rates and volumes. As to polluted runoff, introduction of polluted sources of runoff is discussed above, and mitigation measure HYD-1 is included to reduce this potential impact to less than significant.
Would the project otherwise substantially degrade water quality?

The ways in which the proposed project could degrade water quality have been comprehensively analyzed under the above criteria. The project would not involve any non-stormwater discharges other than sanitary sewer discharges, and would not degrade water quality for any reason other than those already discussed.

Would the project place within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The proposed project does not include housing, and is not within a 100-year flood hazard area as mapped by FEMA. Therefore, the proposed project would have no impact with respect to this criterion. (See Figure 7.)

Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

The proposed project is not within a 100-year flood hazard area as mapped by FEMA. Therefore, the proposed project would have no impact with respect to this criterion. (See Figure 7.)

Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Flood inundation of the proposed project is not likely due to its site elevation (i.e., higher than approximately 425 feet amsl) and distance from natural drainage channels susceptible to flooding during precipitation events. For the same reasons, it is also not in an area susceptible to inundation by a dam failure (such as Lake Murray). Therefore, the proposed project’s impacts with respect to this criterion would be less than significant.

Would the project result in inundation by seiche, tsunami, or mudflow?

Seiches are periodic oscillations of a body of water. Due to the project site’s elevation and its distance from bodies of water, the possibility of its inundation from a seiche is considered very low. Similarly, as to inundation by tsunami, due to the distance from the coastline and the elevation of the project site, the possibility of inundation of the site by a tsunami is considered very low. Mudflow is a flowing mass of soil with a high fluidity during movement. The project site is located on a relatively level to gently sloping mesa area in an urbanized campus area with minimally exposed soil surfaces. The possibility of the inundation of the project site by mudflows is considered very low. Therefore, the proposed project would not result in inundation by seiche, tsunami, and/or mudflow hazards, and impacts would be less than significant.
6 MITIGATION MEASURES

The following mitigation measures are proposed to reduce the potential impacts associated with hydrology and water quality.

**HYD-1 Construction Stormwater Pollution Prevention Plan.** Prior to commencement of construction, San Diego State University (SDSU) shall develop a project-specific stormwater pollution prevention plan (SWPPP) consistent with the Construction General Permit (SWRCB Order No. 2009-0009-DWQ). The SWPPP shall be prepared by a qualified individual and contain site maps that show the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project site. The SWPPP shall list best management practices (BMPs) that will be used to protect stormwater quality throughout the construction phase, and must identify the placement of each BMP in accordance with the best available guidance (e.g., the *San Diego Low Impact Development Design Manual*). Additionally, the SWPPP must contain a visual monitoring program and a chemical monitoring program for “non-visible” pollutants to monitor the effectiveness of the selected BMPs.

The following are examples of effective BMPs typically included in a SWPPP:

- Silt fences installed along limits of work and/or the project construction site
- Stockpile containment (e.g., visqueen, fiber rolls, gravel bags)
- Exposed soil stabilization structures (e.g., fiber matrix on slopes and construction access stabilization mechanisms)
- Street sweeping
- Tire washes for equipment
- Runoff control devices (e.g., drainage swales, gravel bag barriers/chevrons, velocity check dams) shall be used during construction phases conducted during the rainy season.
- Storm drain inlet protection
- Wind erosion (dust) controls
- Tracking controls
- Prevention of fluid leaks (inspections and drip pans) from vehicles
Dewatering operations best practices (e.g., discharge to landscaped, vegetated, or soil area or into an infiltration basin, so long as the water only contains sediment (no other pollutants); use of vacuum truck to haul the water to an authorized discharge location; or implementation of various methods of treatment on site prior to discharging the water)

- Materials pollution management
- Proper waste management
- Regular inspections and maintenance of BMPs

The SWPPP must also incorporate the hazards avoidance/minimization mitigation measures outlined in mitigation measures HAZ-1 through HAZ-5, as outlined in the Hazards Technical Report (Dudek 2015). If a cleanup action were required in the vicinity of the Engineering Lab, any discharge of accumulated groundwater or stormwater would need to be made in coordination with the San Diego Regional Water Quality Control Board (RWQCB) and in accordance with applicable waste discharge requirements. SDSU shall implement all guidelines contained in the SWPPP throughout project construction.

**HYD-2** **Implementation and Maintenance of Low-Impact Design.** During project design, SDSU shall implement stormwater pollution control BMPs to reduce pollutants discharged from the project site to the maximum extent practicable. Post-construction pollution prevention shall be accomplished by implementing low-impact design, source control, and treatment control BMPs. The low-impact design features shall be identified and designed consistent with the requirements of the Phase II Small MS4 General Permit (SWRCB Order No. 2013-0001-DWQ). In general, low-impact design BMPs slow and filter runoff in a manner that attempts to mimic natural hydrologic conditions. Source control BMPs help prevent on-site contaminants from entering the drainage system and thereby creating a potential water quality issue. Finally, treatment control BMPs help to reduce or eliminate contaminants from entering the drainage system before water leaves the site. Examples of effective permanent project design BMPs for the project are as follows:

- A hydrodynamic separator shall be used.
- Loading dock facilities, if any, shall drain directly to the sanitary sewer.
- Interior parking garage floor drains shall be plumbed to the sanitary sewer.
• Drainage from rooftops, impervious parking lots, sidewalks, and walkways shall be directed into adjacent landscaping where possible.

• Exterior trash and/or recycling areas shall be covered, graded, and paved to preclude run-on and runoff from the area.

• Green roof or flow-through planters with sub-surface drains shall be used.

SDSU shall develop a maintenance plan to ensure that permanent design BMPs will be maintained throughout project operation. Examples of maintenance include removal of accumulated sediment and trash, thinning of vegetative brush in biotreatment swales, and maintaining the appearance and general status of the vegetation. The operation and maintenance plan shall include:

• Responsibilities for managing all stormwater BMPs

• Employee training programs and duties to ensure compliance

• Operation/routine service schedule (annual inspection of facilities, at minimum)

• Maintenance frequency

• Specific maintenance activities (including maintenance of stormwater conveyance stamps)

• Copies of resource agency permits, as applicable
7 CUMULATIVE ANALYSIS

Due to the existing developed nature of the area proposed for redevelopment, in combination with the proposed mitigation measures, the proposed project would not contribute to a cumulative change in discharge rates. The analysis in Section 5 addresses the cumulative effects of the project in addition to the individual effects. With respect to water quality, the proposed project’s adherence to applicable BMPs for water quality management would be consistent with the overall regional objective of improving water quality. All SDSU projects would be planned, constructed, and managed in accordance with regional BMPs and discharge requirements. Adherence to regional standards would eliminate unlawful discharge quantities or poor water quality management practices from occurring on a cumulatively considerable scale. Further, it is reasonable to assume that other projects in process or proposed in the future would also adhere to regional and other applicable water quality protection measures to eliminate a cumulative water quality condition. Therefore, the proposed project would not result in significant cumulative impacts to hydrology and water quality.
8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

After application of the proposed mitigation measures detailed in Section 6 and mitigation measures HAZ-1 through HAZ-5 from the project Hazards Technical Report (Dudek 2015), the impacts related to hydrology and water quality would be mitigated to a level below significance.
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9 REFERENCES CITED


LIST OF PREPARERS

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SDSU Engineering and Interdisciplinary Sciences Building Project

Figure 2
Vicinity Map
Figure 3
Project Area Map

SDSU Engineering and Interdisciplinary Sciences Building Project

Legend
- Project Location
- Demolished before construction (2015)
- Renovations (2018)
- Demolished after project completion (2019)
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Figure 4
Project Site Design

SDSU Engineering and Interdisciplinary Sciences Building Project
Figure 5
San Diego Watershed Map

SDSU Engineering and Interdisciplinary Sciences Building Project

Murray Reservoir (HUC 12 Boundary)
Lower San Diego River (HUC 10 Boundary)

SDSU Engineering and Interdisciplinary Sciences Building Project Location

0 2.5 5 Miles

SOURCES: AERIAL-BING MAPPING SERVICE; HYDROLOGY-USGS; NHD DATA
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Figure 7
Hydrologic Features Map

- SDSU Engineering and Interdisciplinary Sciences Building Project Location
- SDSU Campus Boundary
- 100-Year Floodplain
- Dam Inundation Limits
- NHD Waterbody: Lake/Pond/Reservoir/Stream/River

Sources: Aerial: Bing Mapping Service; Inundation: Sangis; Floodplain: FEMA; Streams: NHD

SDSU Campus Boundary
100-Year Floodplain
Dam Inundation Limits
NHD Waterbody
Lake/Pond/Reservoir/Stream/River