

## 2.7 Water Quality and Storm Water Runoff

### 2.7.1 Regulatory Setting

#### Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source<sup>1</sup> unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the USACE’s Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency’s (U.S. EPA) Section 404 (b)(1) Guidelines

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<sup>1</sup> A point source is any discrete conveyance such as a pipe or a man-made ditch.

(40 Code of Federal Regulations [CFR] Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent<sup>1</sup> standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause “significant degradation” to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

### **State Requirements: Porter-Cologne Water Quality Control Act**

California’s Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of “waste” as defined, and this definition is broader than the CWA definition of “pollutant.” Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

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<sup>1</sup> The U.S. EPA defines “effluent” as “wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall.”

## **State Water Resources Control Board and Regional Water Quality Control Boards**

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- **National Pollutant Discharge Elimination System (NPDES) Program**

### **Municipal Separate Storm Sewer Systems (MS4)**

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The SWRCB has identified the Department as an owner/operator of an MS4 under federal regulations. The Department’s MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The Department’s MS4 Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012 and effective on July 1, 2013), as amended by Order No. 2014-0077-DWQ (effective July 1, 2014) and Order No. 2015-0036-EXEC (effective April 7, 2015) has three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);
2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water

discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The Build Alternatives will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

### **Construction General Permit**

Construction General Permit, Order No. 2009-0009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012). The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with the Caltrans's SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than one acre.

### **Section 401 Permitting**

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for

protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

## **2.7.2 Affected Environment**

This section is based on the *Water Quality Assessment Report* (November 2018) and *Water Quality Assessment Report Addendum* (December 2018) prepared for the project.

### **2.7.2.1 Surface Water**

The proposed project is within the Aliso Creek and San Diego Creek watersheds. The project lies within the San Juan Hydrologic Unit (HU) and the Aliso Creek Hydrologic Sub Area (901.13) of the San Diego Regional Water Quality Control Board (RWQCB 2016) and the Santa Ana River HU and the East Coastal Plain Hydrologic Sub Area (801.11) of the Santa Ana RWQCB. The Aliso Creek and San Diego Creek watersheds are in southern Orange County, approximately 50 miles south of Los Angeles and 65 miles north of San Diego.

Aliso Creek is a 35-square-mile watershed that includes discharges from Aliso Viejo, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, and Mission Viejo. The creeks' headwaters originate in the Cleveland National Forest and drain into a long, narrow coastal canyon that ultimately discharges into the Pacific Ocean at Aliso Beach. Tributaries to Aliso Creek include English Canyon, Sulphur Creek, and Wood Canyon.

San Diego Creek watershed covers 112 square miles in central Orange County that includes discharges from Irvine and parts of Aliso Viejo, Laguna Hills, Laguna Woods, Lake Forest, Orange, Santa Ana, and Tustin. The creek originates in the foothills of the Santa Ana Mountains near Lake Forest and Laguna Woods and travels west towards east Irvine, where tributaries La Cañada Creek, Serrano Creek, Borrego Creek, Agua Chinon Creek, Bee Canyon Wash and Marshburn Channel feed into San Diego Creek before it meets the Peters Canyon Wash confluence. The creek changes direction towards the south/southwest, where it ultimately feeds into Upper Newport Bay near Bonita Creek.

### **2.7.2.2 Local Hydrology**

Runoff from the project limits sheet flows towards Caltrans storm drains within I-5 and the El Toro Road Interchange. This storm drain system connects to the local city and/or county flood control drainage systems that outfall towards Aliso Creek and Cañada Channel. I-5 runoff from 1,000 feet north of the I-5/El Toro Road Interchange to Los Alisos Boulevard drains into an underground storm drain system that outfalls to Dairy Fork at Moulton Parkway. Dairy Fork meets at the confluence of Aliso Creek just south of Laguna Hills Drive.

Runoff from I-5 from 1,000 feet north of I-5/El Toro Road Interchange to Ridge Route Drive drains towards Veeh storm drain and the Veeh Reservoir. Veeh Reservoir discharges to Cañada Channel and eventually connects with San Diego Creek just south of Bake Parkway and Lake Forest Drive.



- **Wildlife Habitat (WILD):** Waters support wildlife habitats that may include but are not limited to the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.

The following numeric water quality objectives were listed in the Santa Ana RWQCB Basin Plan for San Diego Creek (Reach 2):

- **Total Dissolved Solids:** 720 milligrams per liter (mg/L)
- **Hardness:** None
- **Sodium:** None
- **Chloride:** None
- **Total Inorganic Nitrogen:** 5 mg/L
- **Sulfate:** None
- **Chemical Oxygen Demand:** None

Based on the Final *2014 and 2016 California Integrated Report (CWA Section 303(d) List /305(b) Report)* approved by the SWRCB and the U.S. EPA, Aliso Creek is on the 2016 Clean Water Act 303(d) list of Water Quality Limited Segments Requiring TMDLs for benthic community effects, indicator bacteria, malathion, nitrogen, phosphorus, selenium, and toxicity from unknown sources. Discharges to Veeh storm drain within the project limits ultimately discharges to Veeh Reservoir/Cañada Creek, a tributary to San Diego Creek (Reach 2). San Diego Creek (Reach 2) is listed in the 2016 Integrated Report as impaired for unknown sources of benthic community effects, indicator bacteria, nutrients, sedimentation/ siltation and toxicity.

Aliso Creek ultimately discharges to the Pacific Ocean 9 miles downstream from the project limits, which falls under the established TMDL for indicator bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek). San Diego RWQCB adopted resolution No. R9-2010-0001 incorporating the TMDL into the San Diego Basin Plan and identified in Attachment IV of the Caltrans Statewide NPDES Permit (Order No. 2012-0011-DWQ as amended in Order WQ 2014-0077-DWQ). Because the Build Alternatives discharge to a water body with an established TMDL as identified in Attachment IV of the Caltrans NPDES permit, any runoff treated in excess of the new impervious area created by the Build Alternatives may be claimed as a Compliance Unit to meet Caltrans NPDES permit requirements for achieving the TMDL compliance strategy.

#### **2.7.2.4 Groundwater**

The project limits are within the South Coast Hydraulic Region (HR) that covers approximately 6.78 million acres of Southern California watershed that drains to the Pacific Ocean. Groundwater is found in unconfined alluvial aquifers in most basins of the Santa Ana and Los Angeles subregions. In larger basins, groundwater occurs in multiple aquifers that create confined groundwater conditions, while the coastal basins in the South Coast HR are prone to intrusion of seawater.

The project limits are between the Coastal Plain of Orange County (Basin 8-1) and the San Juan Valley basin (Basin 9-1). Groundwater within the project limits would be available in the shallow depths within Aliso Creek that drain along a long narrow

coastal canyon from the headwaters in the Cleveland National Forest to the ultimate discharge point at the Pacific Ocean.

### **Groundwater Quality and Objectives and Standards**

The San Diego RWQCB Basin Plan has designated beneficial uses for groundwaters of the San Juan Hydrologic Unit (1.00). The existing beneficial uses for groundwater in Aliso Hydrologic Subarea (1.13) are:

- **Municipal and Domestic Supply (MUN):** Waters are used for community, military, municipal or individual water supply systems. These uses may include, but are not limited to drinking water supply.
- **Agriculture Supply (AGR):** Waters are used for farming, horticulture or ranching. These uses include but are not limited to irrigation, stock watering, and support of vegetation for range grazing.

The following numeric water quality objectives were listed in the San Diego RWQCB Basin Plan for the Aliso HSA of the San Juan HU:

- **Total Dissolved Solids:** 1200 mg/L
- **Chloride:** 400 mg/L
- **Sulfate:** 500 mg/L
- **Percent Sodium (Na):** 60 percent
- **Nitrate:** 45 mg/L
- **Iron:** 0.3 mg/L
- **Manganese:** 0.05 mg/L
- **Methylene Blue Active Substances (MBAS):** 0.5 mg/L
- **Boron:** 0.75 mg/L
- **Turbidity:** 5 Nephelometric Turbidity Units (NTUs)
- **Fluoride:** 1 mg/L

## **2.7.3 Environmental Consequences**

### **2.7.3.1 Temporary Impacts**

#### ***Build Alternatives (Alternatives 2 and 4 [Including Design Option B])***

Temporary impacts to water quality anticipated during construction for the Build Alternatives (including Design Option B) include soil-disturbing activities such as excavation and trenching, soil compaction, cut-and-fill activities, grading, demolition, and bridge construction. The Build Alternatives (including Design Option B) include reconfiguration or realignment of on-ramps, off-ramps and intersections or the construction of new on- and off-ramps and/or new intersections. The Build Alternatives (including Design Option B) propose retaining walls and soundwalls, as well as structures for the flyover (Alternative 2). With the realignment or new construction of the interchange, there will be the need for reconstructing drainage facilities as well as constructing new permanent treatment BMPs for post-construction runoff. The DSA created by these activities are susceptible to high rates of erosion from wind and rain that result in sediment transport during rain events via



storm water runoff. Table 2.7.2 lists the estimated DSAs for the Build Alternatives (including Design Option B).

**Table 2.7.2: Summary of Disturbed Soil Area by Alternative**

Alternative	Disturbed Soil Area (acres)
2	9.79
4	17.48

The Build Alternatives (including Design Option B) would also have to manage materials and wastes associated with construction of a project, such as oil and grease spills or leaks from heavy equipment or vehicle used for construction, trash from workers and construction waste, petroleum products from construction equipment and/or vehicles, sanitary wastes from portable toilets, and any other chemicals used for construction, such as coolants used for equipment and/or concrete curing compounds.

The Build Alternatives (including Design Option B) are not expected to encounter groundwater during construction due to the depth to groundwater, but if the discharge of groundwater encountered/extracted is required during the construction for the construction of structures (e.g., bridges, retaining walls, soundwalls, sign foundations) the discharge must comply with General WDRs from the San Diego RWQCB. This WDR addresses temporary dewatering operations during construction. Dewatering BMPs must be used to control sediment and pollutants, and the discharges must comply with the WDRs issued by the San Diego RWQCB. Project feature (PF-WQ-6) would minimize any temporary impact due to the discharge of groundwater to surface water.

**PF-WQ-6** If dewatering is required, Construction site dewatering must comply with the General Waste Discharge Requirements for Groundwater Extraction Discharges to Surface Waters within the San Diego Region (Order No. R9-2015-0013, NPDES No. CAG919003) and any subsequent updates to the permit at the time of construction. This Permit addresses temporary dewatering operations during construction. Dewatering BMPs must be used to control sediment and pollutants, and the discharges must comply with the WDRs issued by the San Diego RWQCB.

The DSAs for the Build Alternatives (including Design Option B) are all more than 1 acre, which requires the Build Alternatives to comply with the Construction General Permit. The Build Alternatives (including Design Option B) will be required to prepare and implement a SWPPP, and it was determined that the Build Alternatives are a Risk Level 2 based on potential erosion and transport to receiving waters. The SWPPP will identify temporary BMPs to address the potential temporary impacts to water quality. The BMPs identified in the SWPPP will include measures such as temporary soil stabilization measures, linear sediment barriers (e.g., silt fence, gravel bag berms, fiber rolls), and construction site waste management (e.g., concrete washout, construction materials storage, litter/waste management and construction

site dewatering). Project Features (PF-WQ-2 and PF-WQ-3) would minimize any temporary impacts to the receiving waters.

**PF-WQ-2** The project will comply with the provisions of the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2009-0009-DWQ, NPDES No. CAS000002 and any subsequent permits in effect at the time of construction.

**PF-WQ-3** The project will comply with the Construction General Permit by preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential impact water quality for the appropriate Risk Level. The SWPPP will identify the sources of pollutants that may affect the quality of storm water and include BMPs to control the pollutants, such as sediment control, catch basin inlet protection, construction materials management, and non-storm water BMPs. All work must conform to the Construction Site BMP requirements specified in the latest edition of the Storm Water Quality Handbooks: Construction Site Best Management Practices Manual to control and minimize the impacts of construction and construction related activities, material and pollutants on the watershed. These include, but are not limited to, temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other non-storm water BMPs.

**No Build Alternative**

Under the No Build Alternative, no improvements other than routine roadway maintenance would be made. The No Build alternative would result in no short-term water quality impacts from construction-related activities.

**2.7.3.2 Permanent Impacts**

**Build Alternatives (Alternatives 2 and 4 [Including Design Option B])**

The Build Alternatives (including Design Option B) consist of new roadways and interchanges that would result in an increase in impervious surface, therefore, in an increase in storm water runoff. The increase in impervious surface (see Table 2.7.3) would also result in long-term impacts that involve alteration in drainage patterns on the roadways as well as long-term discharges of pollutants typically generated by the operation of a transportation facility. Pollutants typically generated during the operation of a transportation facility include sediment/turbidity, nutrients, trash and debris, bacteria and viruses, oxygen-demanding substances, organic compounds, oil and grease, pesticides, and metals.

**Table 2.7.3: Summary of New Impervious Surface by Alternative**

Alternative	New Impervious Surface (acres)
2	3.00
4	6.32

Currently runoff from the project limits discharges to the receiving water bodies untreated. The Build Alternatives (including Design Option B) would include post-construction treatment BMPs to remove pollutants that have entered storm water runoff prior to discharge off site. The Build Alternatives (including Design Option B) would implement Caltrans-approved treatment BMPs such as biofiltration swales, design pollution prevention (DPP) infiltration areas, detention and infiltration devices, media filters, pervious pavement, multi-chamber treatment train (MCTT), Wet Basin and/or Open Graded Friction Course.

Treatment BMPs are structural measures used to remove pollutants from the roadway after construction. Examples of these measures include biofiltration strips, which are vegetated sections of land over which storm water flows as sheet flow. Biofiltration swales are vegetated channels that convey storm water. Both biofiltration strips and swales remove pollutants by filtration through grass, sedimentation, adsorption of soil particles, and infiltration through soil. Biofiltration strips and swales are effective at removing debris and solid particles, and some removal of dissolved constituents. An infiltration basin is a shallow artificial pond designed to infiltrate storm water through permeable soils into the groundwater aquifer and remove pollutants as the storm water percolates through the soil. Detention devices store incoming storm water runoff into a detention pond to allow pollutants to settle to the bottom and slowly release the treated water to the receiving waters.

To address the long-term impacts of the Build Alternatives (including Design Option B), Alternatives 2 and 4 (including Design Option B) would incorporate Caltrans-approved treatment BMPs and/or evaluate Low Impact Development strategies consistent with the Caltrans Statewide NPDES permit. Project Features (PF-WQ-1 and PF-WQ-5) would minimize any permanent impacts to water quality.

**PF-WQ-1** The project will comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2012-0011-DWQ, NPDES No. CAS00003 and any subsequent permits in effect at the time of construction.

**PF-WQ-5** Caltrans-approved treatment Best Management Practices (BMPs) will be implemented consistent with the requirements of National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2012-0011-DWQ, NPDES No. CAS00003 and any subsequent permits in effect at the time of construction. Treatment BMPs may include Design Pollution Prevention (DPP) Infiltration Areas, Infiltration Devices, Biofiltration Strips and Swales, Detention Devices, Media Filters, Multi-Chamber Treatment Train (MCTT), Wet Basin and Open Graded Friction Courses.

Construction of the Build Alternatives (including Design Option B) include minor grading, cut and fill, construction of new storm drain systems, demolition of existing structures, construction of new structures, retaining walls and/or soundwalls. The Build Alternatives (including Design Option B) will include the construction of

permanent source control BMPs, also known as DPP BMPs, to address long-term impacts created by the construction. These BMPs include permanent soil stabilization of DSAs created by the Build Alternatives and focus on keeping the pollutants at the source and preventing it from entering the storm water runoff. Examples of DPP BMP measures include slope/surface protection systems (vegetated surfaces, benching/ terracing, slope rounding and hard surfaces), concentrated flow conveyance systems (i.e., Rock Slope Protection, ditches, berms dikes, swales, overside drains, flared culvert end sections, and velocity dissipation devices such as rip rap) and preservation of existing vegetation. These measures would be implemented to address the any long-term impacts associated with the construction of the Build Alternatives.

Caltrans will incorporate DPP (source control) BMPs to ensure that adequate measures are included to minimize pollutant sources, such as erosion, from the Build Alternatives. Project Feature (PF-WQ-4) would minimize any permanent impacts to water quality.

**PF-WQ-4** Design Pollution Prevention Best Management Practices (BMPs) will be implemented, such as preservation of existing vegetation, slope/ surface protection systems (permanent soil stabilization), concentrated flow conveyance systems such as ditches, berms, dikes and swales, overside drains, flared end sections, and outlet protection/ velocity dissipation devices.

### **No Build Alternative**

Under the No Build Alternative, no improvements other than routine roadway maintenance would be made. The No Build Alternative would not increase the impervious surface in the project limits; however, existing runoff would continue.

### **2.7.4 Avoidance, Minimization and/or Mitigation Measures**

The Build Alternatives would incorporate Project Features and standardized measures that include temporary and permanent BMPs as outlined above. With the implementation of these Project Features, no adverse impacts to water quality would occur; therefore, no avoidance, minimization, and/or mitigation measures are required.