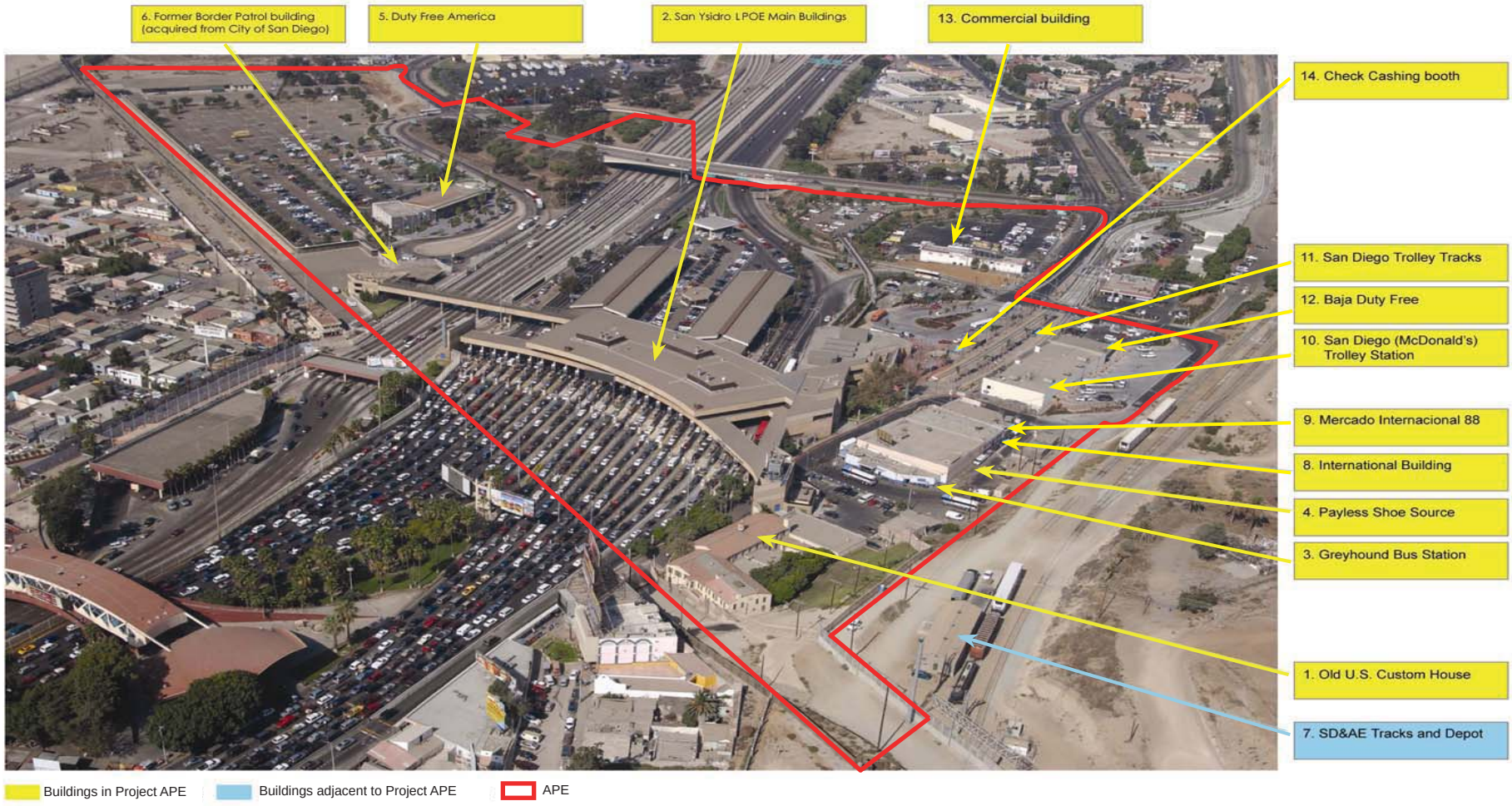

Source: ASM Affiliates Inc., April 2009

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Evaluated Buildings and Structures Within or Adjacent to the APE

SAN YSIDRO LAND PORT OF ENTRY IMPROVEMENTS

Figure 3.6-1

PHYSICAL ENVIRONMENT

3.7 HYDROLOGY AND FLOODPLAIN

3.7.1 Regulatory Setting

The Project is subject to a number of regulatory requirements related to hydrology and floodplain issues as outlined below. These requirements are intended to avoid or reduce adverse effects related to hydrology and flood hazards through efforts such as maintaining pre-development drainage conditions to the maximum extent feasible, and avoiding or minimizing development in mapped floodplains. Specifically, the following regulatory requirements include applicable federal guidelines related to the international border with Mexico, floodplain management, and the federal Clean Water Act (CWA). Pursuant to GSA guidelines, implementation of CWA requirements will also reflect the associated standards of the local permitting agency, the City. The Public Buildings Amendments of 1988 (40 U.S.C. 3312) requires GSA to comply with, to the extent feasible, national building codes, consider local zoning laws, and consult with State and local government. This law does not subject the U.S. Government to local requirements; rather, it mandates consultation and informed decision making.

International Boundary and Water Commission

The IBWC is a bi-national organization that oversees projects along the U.S.-Mexico Border with the potential to generate impacts involving political, economic, environmental, or infrastructure issues. For hydrologic concerns, the IBWC mandates that new development in applicable border regions (including the Project Study Area) of one country does not alter the existing surface drainage flow pattern in the other country, such that the other country is adversely impacted. Accordingly, the concentration or relocation of surface flows may be allowable in certain instances to improve existing flood control conditions.

Executive Order 11988 (Floodplain Management)

EO 11988 directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. Specific directives identified in EO 11988 to achieve this goal include evaluation of the following considerations:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project
- Provision of opportunities for early and adequate public review of proposed floodplain encroachments

The “base floodplain” is defined as the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year (i.e., a “100-year” event), while “encroachment” is defined as an action within the limits of the base floodplain.

Federal Clean Water Act/National Pollutant Discharge Elimination System

The Project is subject to applicable elements of the CWA, including the NPDES. Specific NPDES requirements include conformance with pertinent hydrology and drainage criteria in the NPDES Municipal Storm Water Permit (Municipal Permit) and related City standards. The current Municipal Permit (NPDES No. CAS0108758, RWQCB Order No. R9-2007-0001) identifies waste discharge requirements for urban runoff related to applicable new development, redevelopment, and existing development sites under the jurisdiction of co-permittees (e.g., the City). The intent of these requirements is to protect environmentally sensitive areas and provide conformance with pertinent hydrology and water quality standards. With respect to hydrologic considerations, the principal requirement of the Municipal Permit and related standards involve efforts to maintain predevelopment runoff volume and velocity levels to the maximum extent practicable (MEP), and avoid/address potential hydromodification[1] impacts. The Municipal Permit and related City Municipal Code Land Development Manual-Storm Water Standards (Storm Water Standards, City of San Diego 2008) also include extensive requirements related to water quality, as described in Subchapter 3.8, Water Quality and Storm Water Runoff, of this Final EIS.

Pursuant to the above described Municipal Permit, the City has adopted a number of related requirements to address hydrology and water quality issues (including the referenced Storm Water Standards). As noted above for the Municipal Permit, hydrologic criteria associated with these requirements are focused primarily on avoiding or minimizing changes to predevelopment runoff volume and velocity levels.

3.7.2 Affected Environment

A Drainage Study and a Water Quality Technical Report (WQTR) have been prepared for the Project (AECOM 2008a and 2008b), with these studies summarized below as appropriate along with other pertinent information. The study area used for the hydrology and floodplain analysis includes the Project Study Area and a number of associated off-site watershed areas, as identified in the referenced Drainage Study (Figure 3.7-1).

Watershed and Drainage Characteristics

The hydrology and floodplain study area (as described above) is within the Tijuana Hydrologic Unit (HU), 1 of 11 such drainage areas designated in the 1994 (as amended) San Diego RWQCB Basin Plan. The Tijuana HU is divided into a number of hydrologic areas and subareas based on local drainage characteristics, with the study area encompassing portions of the San Ysidro and Water Tanks Hydrologic Subareas (HSAs) of the Tijuana Valley Hydrologic Area (HA, Figure 3.7-2). Drainage in the Tijuana HU is through the Tijuana River and associated tributaries, with flows moving primarily west to the Tijuana River Estuary and Pacific Ocean approximately 5.1 miles to the west. The Tijuana River extends through the San Ysidro HSA, with drainage in this area provided directly through the river as well as associated minor tributaries. The Water Tanks HSA is drained primarily by a number of small canyons flowing west and/or south to the Tijuana River, including Moody and Spring canyons to the east of the hydrology and floodplain study area. Average annual precipitation in the Project vicinity (i.e., San Ysidro) is approximately 10 inches per year, with January (1.99 inches), February (1.99

[1] Hydromodification is defined in the Municipal Permit as the change in natural watershed hydrologic processes and runoff characteristics (infiltration and overland flow) caused by urbanization or other land use changes that result in increased stream flows, sediment transport, and morphological changes in the channels receiving the runoff.

inches) and March (2.07 inches) comprising the wettest months, and June (0.08 inches), July (0.03 inches) and August (0.08 inches) typically the driest months (weather.com 2009).

Surface drainage within the hydrology and floodplain study area occurs as point (confined) flow in existing storm drains and several small drainage courses, and as non-point runoff (sheet flow) on slopes and in areas such as streets, parking lots and landscaping. As shown on Figure 3.7-1, the hydrology and floodplain study area includes the LPOE site and several upstream watershed areas to the east and north, with a total combined area of approximately 282.4 acres. Surface drainage in the off-site watershed areas to the east occurs as point and non-point flows within several small canyons and on a number of adjacent slopes. Drainage within the off-site watershed areas to the north includes point flows contained within storm drain facilities, as well as non-point runoff associated with the existing freeway and adjacent areas. Flows within all of the noted off-site watershed areas eventually drain into and through the LPOE site. Surface drainage within the LPOE site moves generally to the west and south, and eventually enters two large drainage channels which discharge from the northern and southern ends of the western site boundary. The northern drainage channel is unlined, and includes areas of native (albeit disturbed) wetland vegetation and previously disturbed and/or graded areas. This "natural" channel extends for a total linear distance of approximately 1,100 feet, including approximately 600 and 500 feet on the eastern and western sides of Camiones Way, respectively (refer to Subchapter 3.14, Biological Resources). The southern drainage channel consists of a concrete-lined trapezoidal channel extending parallel to the international border. Existing 100-year peak storm flows from the LPOE site total approximately 191.8 cubic feet per second (cfs), including 139.8 and 52.0 cfs from the described northern and southern drainage channels, respectively (with these totals including flows from the LPOE site and the noted off-site watershed areas). The total tributary areas for the northern and southern drainage channels (including the LPOE site and off-site areas) are approximately 231.6 and 50.8 acres, respectively (AECOM 2008a). After leaving the LPOE site, the described hydrology and floodplain study area flows continue west-southwest for approximately 500 to 1,000 feet and enter the Tijuana River.

Much of the LPOE site encompasses existing development, including the southern terminus of the I-5 freeway and related border crossing facilities such as structures, paved parking areas and minor landscaping (with approximately 91 percent of the LPOE site currently comprised of impervious surfaces such as pavement and structures). Existing drainage facilities within the LPOE site include numerous underground storm drain systems related to existing development (e.g., pipelines, culverts, and related inlet/outlet structures), as well as the previously described northern and southern drainage channels. The off-site watershed areas to the east are largely undeveloped, with existing drainage facilities likely limited to minor crossing structures along unpaved roads (e.g., culverts), except for the area where runoff runs west along the border. There are several desilting basins along this flow path. The northern off-site watershed areas encompass freeway, roadway, and related development, including paved and landscaped surfaces. Existing drainage facilities in these areas include storm drains and crossing structures similar to those described for the LPOE site.

Floodplain

The hydrology and floodplain study area and vicinity have been mapped for flood hazards by the Federal Emergency Management Agency (FEMA 1997a and 1997b). The entire hydrology and floodplain study area is mapped as Zone X, or areas determined to be outside of mapped 500- and 100-year floodplains (FEMA 1997a and 1997b). The closest mapped 100-year

floodplain is associated with the Tijuana River, and is located approximately 500 feet southwest of the LPOE site at its closest point.

Groundwater

The western portion of the hydrology and floodplain study area (including much of the LPOE site) is within the mapped areal extent of the Lower Tijuana River Groundwater Basin, which includes an area of approximately 5.6 square miles. The Lower Tijuana River Basin encompasses an estimated storage capacity of approximately 80,000 acre-feet[2], with maximum and average depths to groundwater of 80 and 60 feet, respectively (San Diego County Water Authority [SDCWA] 1997). Shallow groundwater was encountered at depths of approximately 16 and 19 feet in the western and southern portions of the LPOE site during previous geotechnical investigation (Ninyo & Moore 2008, 2005). In addition, shallow perched groundwater could potentially occur on-site, with perched groundwater generally consisting of one or more unconfined aquifers supported by impermeable or semi-permeable strata. Such aquifers are typically limited in volume and extent, but can vary with conditions including withdrawals and/or seasonal precipitation.

3.7.3 Environmental Consequences

Preferred Alternative

Watershed and Drainage

Implementation of the Preferred Alternative (as currently designed) would result in a slight increase of impervious surface area, with a corresponding increase in post-development runoff volumes and velocities (AECOM 2008a). Because the Project will ultimately be designed to meet applicable LEED requirements[3], post-development flows will be reduced through the use of one or more infiltration basins. While specific design has not been completed, it is currently anticipated that the basins would be located beneath proposed parking lots in the southwestern portion of the LPOE site, and would retain approximately 25 percent of the calculated flow from a 2-year, 24-hour storm event (approximately 12,500 cubic feet (cf), per associated LEED requirements). Based on these assumptions, the current 100-year peak discharge from the LPOE site of 191.8 cfs would be reduced by approximately 10 percent under the Preferred Alternative (AECOM 2009), with resulting post-development 100-year peak flows of approximately 171.7 cfs. The Project design under the Preferred Alternative would also include constructing a number of new storm drain facilities and upgrading existing structures, such that Project-related storm flows would be accommodated within the on-site storm drain system and associated drainage patterns would not change. The proposed storm drain facilities would also be designed to be compatible with existing on- and off-site facilities, and would accommodate anticipated peak flows associated with a 100-year storm event (pursuant to applicable City requirements). Based on the described design elements, implementation of the Preferred Alternative would effectively avoid or address potential impacts related to drainage alteration, increased runoff volumes/velocities, storm drain capacity, and related hazards such as hydromodification and flooding.

[2] One acre-foot equals approximately 326,000 gallons, and is roughly equivalent to the amount of water used for domestic purposes by two southern California families of four in one year.
[3] LEED Sustainable Sites Credit 6.1; Storm Water Design and Quantity Control.

Floodplain

No impacts related to floodplains or associated hazards would result from implementation of the Preferred Alternative. This conclusion is based on the fact that Project development would be located outside of the mapped 500- and 100-year floodplains, as described above under Affected Environment.

Groundwater

Based on the available information described above, shallow groundwater would likely be encountered during implementation of the Preferred Alternative, potentially including shallow permanent and/or perched groundwater aquifers. The presence of shallow groundwater in Project development areas may necessitate extraction and disposal (dewatering) operations to facilitate proposed excavation and grading. Potential impacts to local groundwater resources (e.g., through drawdown) from the described dewatering operations would be minor, due to their small-scale extent and short-term nature. Construction dewatering, if required, would also be subject to applicable NPDES requirements related to water quality concerns, as described in Subchapter 3.8, Water Quality and Storm Water Runoff of this Final EIS.

An additional potential issue related to groundwater involves the proposed use of on-site retention/infiltration basins as described above. Specifically, infiltration of retained storm flows would provide an additional source of recharge for local groundwater aquifers. While this would not represent an adverse impact to groundwater per se, the introduction of additional shallow groundwater could potentially increase surficial saturation levels, with a related increase in potential effects such as liquefaction, soil expansion, and damage to building foundations and pavement. As described in Subchapter 3.9 (Geology/Soils/Seismicity/Topography) of this Final EIS, the Project design will incorporate the results of detailed geotechnical investigations to be conducted for the Preferred Alternative, including the use of subdrains (or other measures) in appropriate areas to avoid saturation of surficial deposits. The inclusion of such measures, coupled with consideration of the location and extent of proposed retention/infiltration basins, would effectively avoid or address associated potential impacts related to saturation of surficial deposits.

Pedestrian Crossing Alternative

Although the Pedestrian Crossing Alternative would entail a different cross-border pedestrian circulation scheme, it would occur within the same Project Study Area as the Preferred Alternative. Therefore, the hydrology and floodplain study area for the Pedestrian Crossing Alternative would be the same as the Preferred Alternative, and the location and sizing of infiltration basins and storm drains would be similar. The potential need for dewatering and/or subdrains and other measures would also be similar. The analysis presented above for the Preferred Alternative would apply equally to the Pedestrian Crossing Alternative, and potential impacts with respect to hydrology and floodplains would be the same.

No Build Alternative

Under the No Build Alternative, the described development actions for the Preferred Alternative would not occur, and no impacts related to hydrology and floodplains would occur.

3.7.4 Avoidance, Minimization, and/or Mitigation Measures

Preferred Alternative

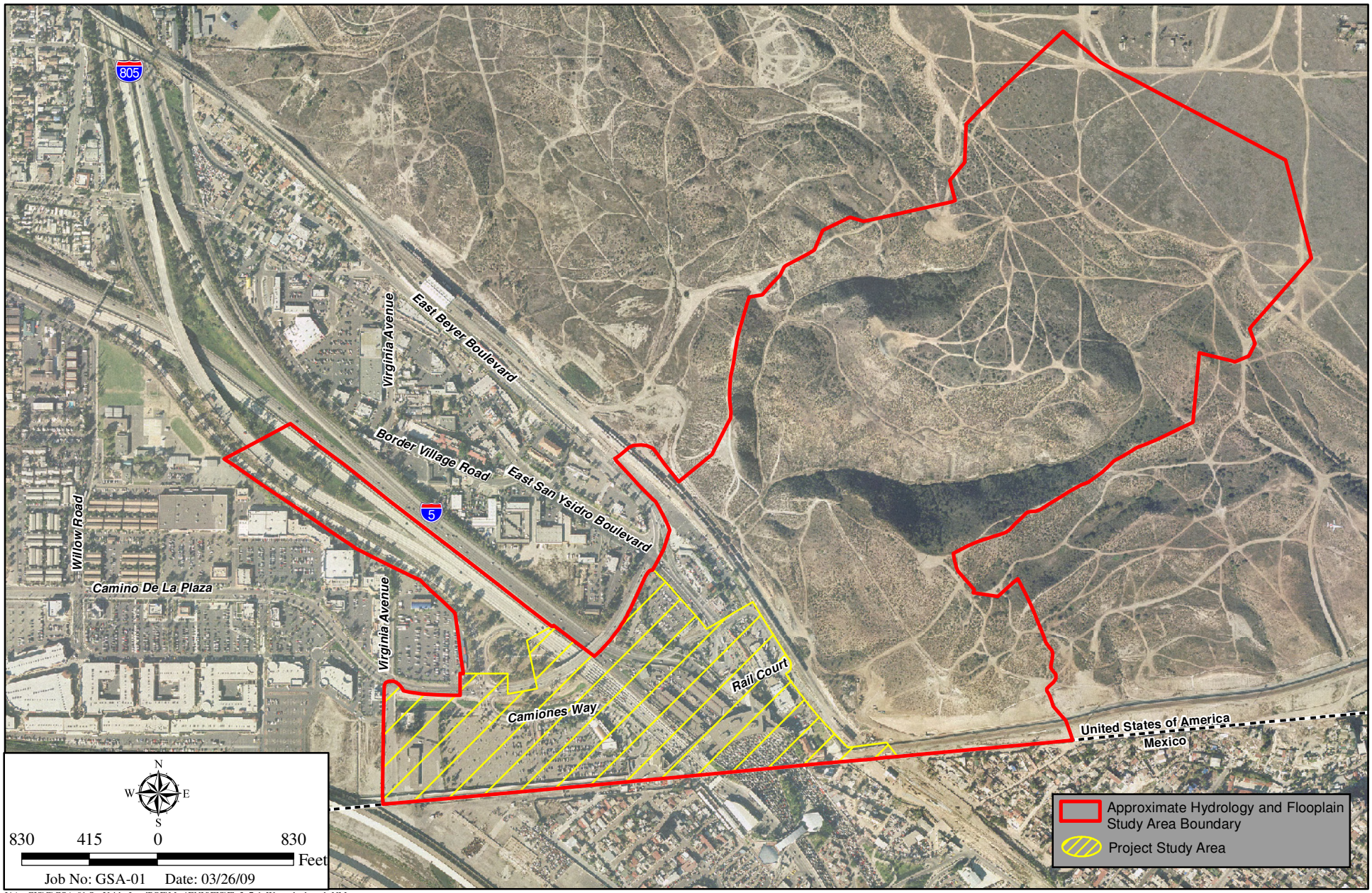
Avoidance, minimization, and mitigation recommendations related to hydrology and floodplain issues for the Preferred Alternative include appropriate design, sizing, and location of proposed storm drain facilities, incorporation of applicable recommendations from detailed geotechnical investigations, and consideration of the location and extent of proposed retention/infiltration basins with respect to potential surficial saturation issues. The use of such measures and considerations would avoid or effectively address all potential impacts related to hydrology and floodplain.

Pedestrian Crossing Alternative

Avoidance, minimization, and mitigation recommendations related to hydrology and floodplain issues for the Pedestrian Crossing Alternative would be the same as those described above for the Preferred Alternative. The use of such measures and considerations would avoid or effectively address all potential impacts related to hydrology and floodplains.

No Build Alternative

Because no impacts were identified for the No Build Alternative, no associated avoidance, minimization, or mitigation measures are proposed.



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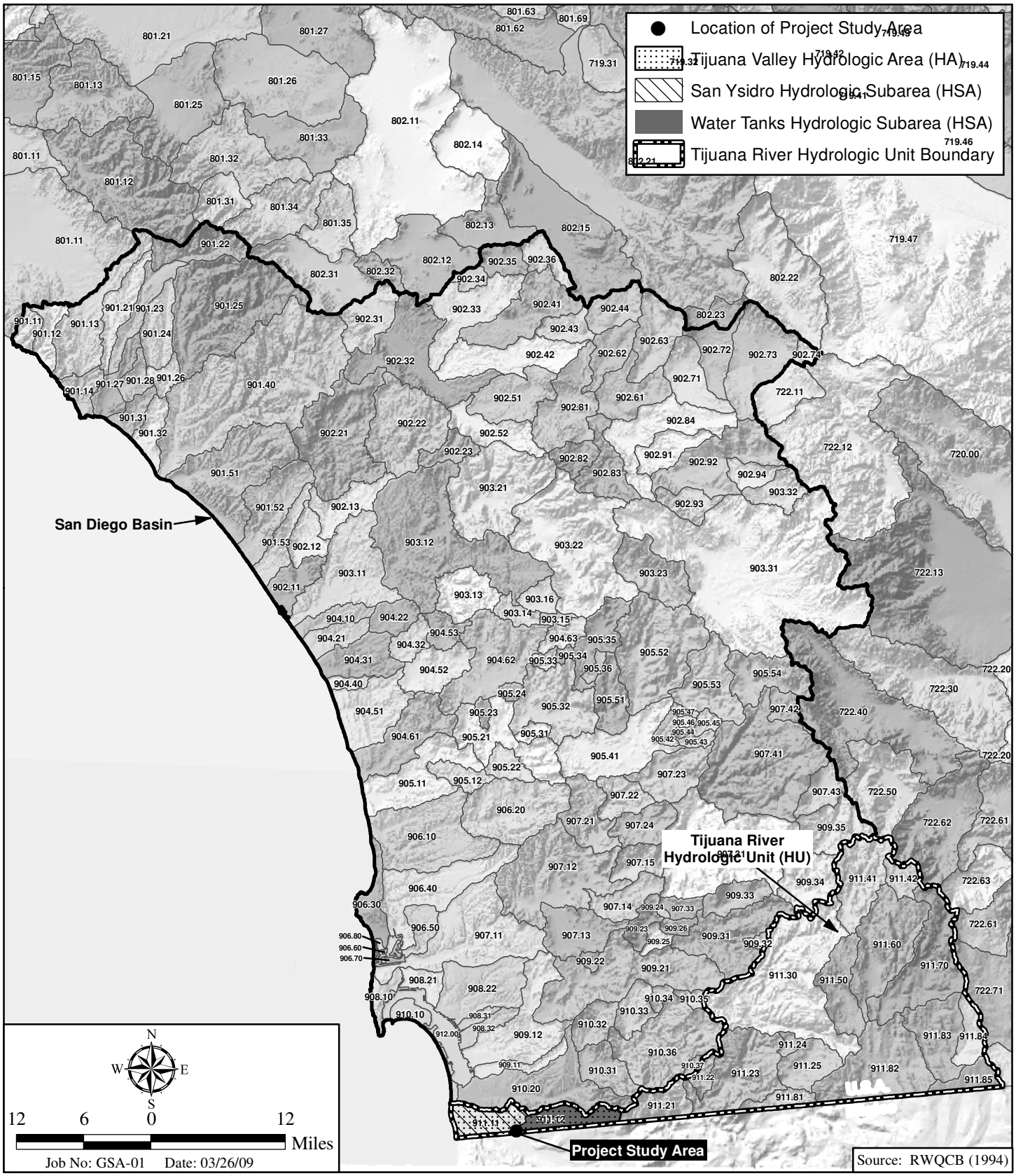
Hydrology and Floodplain Study Area

SAN YSIDRO LAND PORT OF ENTRY IMPROVEMENTS

Figure 3.7-1



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Local Hydrologic Designations

SAN YSIDRO LAND PORT OF ENTRY IMPROVEMENTS

Figure 3.7-2

3.8 WATER QUALITY AND STORM WATER RUNOFF

3.8.1 Regulatory Setting

The Project is subject to a number of regulatory requirements related to water quality and storm water, as outlined below. These guidelines are intended to prevent or reduce associated adverse effects through efforts such as preventing or minimizing the generation of runoff, sediment, and other contaminants, as well as treating runoff to remove sediment and other contaminants prior to off-site discharge.

International Boundary and Water Commission

The IBWC (as described in Subchapter 3.7, Hydrology and Floodplain) requires that new development in applicable border regions (including the Project Study Area) conform with pertinent elements of the federal CWA, with those requirements summarized below.

Clean Water Act Section 401/402 and NPDES Requirements

Section 401 of the CWA mandates that a water quality certification be obtained from the State Water Resources Control Board (SWRCB) or the appropriate RWQCB when a project requires a CWA Section 404 permit from the Corps (refer to Subchapter 3.14, Biological Resources, for additional discussion of the 404 permitting process). In addition, CWA Section 402 establishes the NPDES for regulating the discharge of pollutants into waters of the U.S. The U.S. Environmental Protection Agency (USEPA) has delegated administration of the NPDES program in California to the SWRCB and RWQCBs, with additional discussion of related NPDES regulations provided below.

Specific NPDES requirements applicable to the Project include the following: (1) the General Construction Activity Storm Water Permit (Construction Permit, NPDES No. CAS000002); (2) the General Groundwater Extraction Waste Discharge Permit For Discharge To Surface Waters in the San Diego Region Except For San Diego Bay (Groundwater Permit, NPDES No. CAG919002); and (3) the NPDES Municipal Permit (NPDES No. CAS0108758) and related City standards.

General Construction Activity Permit

Conformance with the Construction Permit is required prior to project development for applicable sites exceeding one acre, with this permit issued by the SWRCB pursuant to Order No. 99-08-DWQ. Specific conformance requirements include implementing a Storm Water Pollution Prevention Plan (SWPPP) and monitoring program, as well as a Storm Water Sampling and Analysis Strategy (SWSAS) for applicable projects (i.e., those discharging directly into impaired waters or involving non-visible contaminants that may exceed water quality objectives). These plans identify detailed measures to prevent and control the off-site discharge of contaminants in storm water runoff, and are specifically intended to protect receiving waters (including impaired waters), maintain beneficial uses, and provide conformance with applicable water quality objectives (as outlined below under Basin Plan Requirements). Specific pollution control measures typically involve the use of best available technology (BAT) and/or best conventional pollutant control technology (BCT), with these requirements implemented through best management practices (BMPs). While site-specific measures vary somewhat with conditions such as proposed grading/construction parameters, slope, and soil characteristics,

detailed guidance for construction-related BMPs is provided in the permit text and the City Storm Water Standards (City of San Diego 2008). Additional sources for general construction related BMPs that may be applicable to the Project include the Storm Water Best Management Practices Handbooks (California Stormwater Quality Association 2003**)**, EPA Nationwide Menu of Best Management Practices for Storm Water Phase II (USEPA 2009), and Caltrans Storm Water Quality Handbooks (Caltrans 2007, 2003).

General Groundwater Extraction Waste Discharge Permit

Conformance with the noted Groundwater Permit is required by the RWQCB prior to disposal of extracted groundwater (pursuant to Order No. R9-2008-0002 for the Project Study Area). This requirement is generally applicable to all groundwater discharge regardless of volume, with certain exceptions as noted in the permit text. Specific requirements for permit conformance include: (1) submitting a Notice of Intent to the RWQCB; (2) implementing an appropriate sampling and analysis/monitoring program; (3) providing at least 30 days notification to the appropriate local agency prior to discharging to a municipal separate storm sewer system (MS4); (4) conforming with applicable water quality standards (e.g., through appropriate treatment BMPs), including, but not limited to, the Basin Plan, CWA, State Antidegradation and Implementation policies, Porter-Cologne Water Quality Control Act, and Ocean Plan; and (5) submittal of applicable monitoring reports.

Municipal Storm Water Permit

The Municipal Permit (RWQCB Order No. R9-2007-0001) is intended to protect environmentally sensitive areas and provide conformance with pertinent hydrology and water quality standards (with additional discussion of hydrologic requirements provided in Subchapter 3.7, Hydrology and Floodplain). Identified water quality requirements involve using several planning, design, operation, treatment, and enforcement measures to reduce pollutant discharges from individual projects (and the municipal storm drain system as a whole) to the MEP. Specifically, these measures include: (1) using jurisdictional planning efforts (such as discretionary approvals) to provide water quality protection; (2) requiring coordination between individual jurisdictions to provide watershed-based water quality protection; (3) implementing applicable site design/low impact development (LID), source control, priority project, and/or treatment control BMPs to avoid, reduce, and/or mitigate effects including increased erosion and sedimentation, hydromodification, and the discharge of contaminants in urban runoff; and (4) using appropriate monitoring, reporting, and enforcement efforts to ensure proper implementation, documentation, and (as appropriate) modification of permit requirements.

Pursuant to the described NPDES Municipal Permit requirements, the City has adopted a number of related water quality guidelines, including the City Storm Water Management and Discharge Control Ordinance (San Diego Municipal Code §43.03 et seq.) and related Storm Water Standards (City of San Diego 2008). These guidelines provide (among other things) direction for project applicants to: (1) determine if and how they are subject to Municipal Permit (and related) standards; and (2) identify measures to comply with these regulatory requirements through (for example) appropriate project design efforts and the use of BMPs.

State Porter-Cologne Water Quality Control Act/RWQCB Basin Plan Requirements

In addition to the NPDES standards described above, the SWRCB and RWQCB also regulate waste discharge under authority of the state Porter-Cologne Water Quality Control Act

(Porter-Cologne Act; California Water Code, Division 7). The Porter-Cologne Act is the primary water quality control law for the State of California, and establishes a regulatory program to protect water quality and beneficial uses for state waters. The SWRCB and RWQCBs were also established under the Porter-Cologne Act as the principle state agencies responsible for water quality control. The primary vehicle for implementing such control is the adoption of Water Quality Control Plans (commonly referred to as basin plans) to designate beneficial uses and associated water quality objectives. Applicable elements of these requirements for the Project include the San Diego Basin Plan (Basin Plan) standards, which establish beneficial uses and water quality objectives for surface and groundwater resources (RWQCB 1994). Beneficial uses are defined in the Basin Plan as "the uses of water necessary for the survival or well being of man, plus plants and wildlife." As described in Subchapter 3.7 (Hydrology and Floodplain), the Project study area is located within portions of the San Ysidro and Water Tanks HSAs, both of which are subdivisions of the Tijuana Valley HA. Identified existing and potential beneficial uses for applicable surface waters (including coastal waters) within and downstream of the Tijuana Valley HA include industrial service supply; contact and non-contact water recreation; warm freshwater habitat; wildlife habitat; commercial and sport fishing; biological habitats of special significance; estuarine habitat; rare, threatened, or endangered species; marine habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and shellfish harvesting. Identified existing and potential beneficial uses for groundwater include municipal and domestic supply, agricultural supply, and industrial service supply.

Water quality objectives identified in the Basin Plan are defined as "the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses." Water quality objectives include both narrative requirements (which can encompass qualitative and quantitative standards) and specific numeric objectives for identified constituents, with objectives for the Tijuana Valley HA summarized in Table 3.8-1.

Table 3.8-1
SURFACE AND GROUNDWATER QUALITY OBJECTIVES FOR THE TIJUANA VALLEY HYDROLOGIC AREA[1]

SURFACE WATER (San Ysidro HSA Only)												
Constituent (mg/l or as noted)												
TDS	**Cl**	**SO_4**	**% Na**	**N&P**	**Fe**	**Mn**	**MBAS**	**B**	**Odor**	**Turb NTU**	**Color Units**	**F**
2,100	-	-	-	-[2]	-	-	-	-	None	20	20	-
GROUNDWATER												
Constituent (mg/l or as noted)												
TDS	**Cl**	**SO_4**	**% Na**	**NO_3**	**Fe**	**Mn**	**MBAS**	**B**	**Odor**	**Turb NTU**	**Color Units**	**F**
2,500[3]	550[3]	900[3]	70	-	-	-	-	2.0[3]	None	-	-	-

[1] Concentrations not to be exceeded more than 10 percent of the time during any one-year period; refer to Figure 3.7-2 for local hydrologic designation locations.
[2] Shall be maintained at levels below those that stimulate algae and emergent plant growth.
[3] Detailed salt balance studies recommended to determine appropriate discharge limits.

Abbreviation Key: mg/l = milligrams per liter; TDS = total dissolved solids; Cl = Chlorides; SO_4 = Sulfate; Na = Sodium; N&P = Nitrogen and Phosphorus; NO_3 = Nitrate; Fe = Iron; Mn = Manganese; MBAS = Methylene Blue Activated Substances (e.g., commercial detergent); B = Boron; Turb = Turbidity (measured in Nephelometric Turbidity Units [NTU]); F = Fluoride.
Source: RWQCB (1994).

3.8.2 Affected Environment

A Drainage Study and a WQTR have been prepared for the Project (AECOM 2008a and 2008b), with these studies summarized below as appropriate along with other pertinent information. The study area used for the following water quality and storm water runoff analysis is the same as that identified for hydrology and floodplain in Subchapter 3.7, Hydrology and Floodplain. As described in Subchapter 3.7, Hydrology and Floodplain, drainage in the San Ysidro and Water Tanks HSAs is ultimately through the Tijuana River. Local portions of the San Ysidro HSA drain to the river either directly or through associated minor tributaries, while drainage in the Water Tanks HSA occurs primarily through a number of small local canyon drainages (refer to Figures 3.7-1 and 3.7-2).

Surface flows within the LPOE site and adjacent watershed areas to the north consist predominantly of intermittent flows from storm events and landscape irrigation, while flows in the upstream areas to the east are associated predominantly with storm events (refer to Subchapter 3.7, Hydrology and Floodplain, for additional description of local drainage characteristics). No known local water quality data are available within the study area, with storm flows subject to variations in water quality due to local conditions such as runoff volume/velocity and land use. Based on the largely urban nature and relatively high density of existing development within the LPOE site and adjacent watershed areas to the north, associated surface water quality is expected to be generally moderate to poor. The portions of the study area located further east are mostly undeveloped, and would be expected to exhibit correspondingly better water quality. Current water quality information available for up- and downstream portions of the Tijuana River watershed include quantitative data from: (1) the Tijuana River mass loading station (MLS); (2) dry weather monitoring at various locations; (3) ambient bay and lagoon monitoring/testing at the Tijuana River Estuary; and (4) bioassessment studies along the Tijuana River. In addition, statewide qualitative analyses to identify CWA Section 303(d) impaired waters and total maximum daily load (TMDL) requirements are conducted bi-annually by the SWRCB and RWQCB. All of the noted monitoring efforts and databases are associated with requirements under regulatory standards including the CWA, NPDES, and RWQCB Basin Plan, with summary descriptions provided below.

Surface Water Quality

Wet and Dry Season Monitoring

Monitoring at the Tijuana River MLS (approximately 2.7 miles west of the LPOE site) covered three storm events each for the 2001/2002 through 2006/2007 storm seasons (18 total events, with no monitoring conducted at the Tijuana River MLS for the 2007/2008 season). These monitoring events involved numerous physical, chemical, and bacterial constituents of concern (COCs), with monitoring results summarized below[1].

- Water quality standards were regularly exceeded (15 or more out of 18 events) for COCs including total and fecal coliform, enterococci, total suspended solids, turbidity, diazinon (a pesticide), and toxicity to select aquatic organisms.

[1] Associated monitoring data are reported in final annual urban runoff monitoring reports prepared by MEC Analytical Systems, Inc. (MEC) 2003, 2004 and 2005; and Weston Solutions (Weston) 2005, 2007, 2008 and 2009 (refer to Chapter 7.0, References).

- Water quality standards were frequently exceeded (9 to14 out of 18 events) for COCs including ammonia; biochemical oxygen demand; chemical oxygen demand; and total phosphorus, copper and lead.

- Water quality standards were occasionally exceeded (1 to 8 out of 18 events) for COCs including pH; oil and grease; dissolved phosphorus; nitrate; surfactants (MBAS, refer to Table 3.8-1); chlorpyrifos and malathion (pesticides); total antimony, arsenic, nickel and zinc; dissolved copper; and toxicity to select aquatic organisms.

Dry weather sampling was also conducted in 2003 through 2007 at several sites located up- and downstream of the study area. This program was focused on collecting dry season samples from storm drain facilities to identify urban pollutants and sources. Data from the described dry weather sampling documented that water quality objectives were most commonly exceeded for turbidity, bacteria, and nutrients (refer to the previously cited MEC and Weston monitoring reports).

Ambient Bay and Lagoon Monitoring

Ambient bay and lagoon monitoring was conducted between 2003 and 2005 for a number of coastal waters including the Tijuana River Estuary. According to the previously referenced monitoring reports, samples from the Tijuana River Estuary exhibited generally high individual and overall (i.e., relative to other sampled embayments) quality rankings for sediment chemistry and toxicity, and intermediate rankings for benthic community structure. These rankings contrast with the generally poor water quality observed during the described wet weather sampling at the Tijuana River MLS, and indicate that heavy COC loadings documented during storm events do not necessarily lead to persistent accumulation of those COCs downstream in the Tijuana River Estuary.

Bioassessment Monitoring

Bioassessment testing involves evaluation of (among other criteria) the taxonomic richness (i.e., number of taxonomic groups) and diversity (i.e., species diversity within taxonomic groups) of benthic macroinvertebrate (BMI) communities. Bioassessment monitoring has been conducted at two downstream sites along the Tijuana River, including: (1) the border fence (approximately 400 feet west of the LPOE site) tested in May 2007; and (2) Dairy Mart Road (approximately 1.6 miles west of the LPOE) tested in May of 2003, 2005, and 2006. According to the previously referenced annual monitoring reports, test results for the noted sites indicate generally poor or very poor rankings relative to other tested locations, with these results attributable (at least in part) to poor water quality in surrounding urban areas.

Bi-annual Clean Water Act Assessments

The SWRCB and RWQCB produce bi-annual qualitative assessments of statewide and regional water quality conditions. These assessments are focused on CWA Section 303(d) impaired water listings and scheduling for assignment of TMDL requirements. The most current (2006) approved assessment identifies the following impaired waters within applicable portions of the Tijuana River watershed: (1) six miles of the Tijuana River listed for eutrophic conditions, indicator bacteria, low dissolved oxygen, pesticides, solids, synthetic organics, trace elements, and trash; (2) 1,319 acres in the Tijuana River Estuary listed for eutrophic conditions, indicator bacteria, lead, low dissolved oxygen, nickel, pesticides, thallium, trash, and turbidity; and (3)

three miles of the Pacific Ocean shoreline extending north from the international border listed for indicator bacteria. Proposed TMDL completion dates include 2010 for indicator bacteria in all three listed waters, and 2019 for all other noted contaminants (SWRCB 2007).

Groundwater Quality

No known groundwater quality data are available for the study area or immediate vicinity. Regional data include reported TDS levels of between 500 and 3,000 milligrams per liter (mg/l), and 380 to 3,620 mg/l in the Lower Tijuana River Basin (SDCWA 1997 and California Department of Water Resources [DWR] 2003, respectively).

Water Quality Summary

Existing surface and groundwater quality within developed portions of the study area and vicinity (including the LPOE site) is assumed to be generally moderate to poor, based on monitoring data, existing levels of urban development, and impaired water designations. Existing water quality in the eastern portion of the study area is anticipated to be generally moderate, due to the primarily undeveloped nature of associated watersheds.

3.8.3 Environmental Consequences

Preferred Alternative

Potential water quality impacts from the Preferred Alternative are associated with both short-term construction and long-term site operation and maintenance. Anticipated pollutants from these activities identified in the Project WQTR include sediment, nutrients, heavy metals, organic compounds, trash and debris, oxygen-demanding substances, oil and grease, bacteria and viruses, and pesticides (AECOM 2008b).

Implementation of the Preferred Alternative would not result in any direct effects to groundwater quality through activities such as underground storage of hazardous materials. Accordingly, potential impacts to groundwater quality would be limited to the percolation of surface runoff and associated contaminants generated within the study area (including such effects from the proposed infiltration basins described in Subchapter 3.7, Hydrology and Floodplain). The following assessment of potential water quality impacts is therefore applicable to both surface and groundwater resources.

Potential short- and long-term water quality concerns related to implementation of the Preferred Alternative are provided below, with associated avoidance, minimization, and mitigation measures described in Section 3.8.4.

Short-term Construction Impacts

Potential water quality impacts related to Project construction include erosion/sedimentation, the on-site use and storage of construction-related hazardous materials (e.g., fuels, etc.), generation of debris from demolition activities, and the disposal of extracted groundwater (if required).

Erosion and Sedimentation

Project excavation, grading and construction activities could potentially result in erosion and off-site sediment transport (i.e., sedimentation). These potential effects are related to efforts such as the removal of existing surface stabilizing features (e.g., pavement and vegetation), excavation of existing compacted materials, redeposition of excavated (and/or imported) material as fill in proposed development sites, potential sediment generation from demolition and paving activities, and potential erosion from disposal of extracted groundwater (i.e., if discharged onto graded or destabilized areas). Project-related erosion could result in the influx of sediment into downstream receiving waters (including waters tributary to the 303[d] listed Tijuana River and Estuary, as previously described), with associated water quality effects such as turbidity and the transport of other contaminants that tend to adhere to sediment particles. Short-term erosion and sedimentation impacts would be addressed through conformance with the NPDES Construction Permit and associated City Storm Water Standards outlined above under Regulatory Framework.

Construction-related Hazardous Materials

Project construction would involve the on-site use and storage of hazardous materials such as fuels, lubricants, solvents, concrete, paint, and portable septic system wastes. The accidental discharge of these types of pollutants could potentially result in water quality impacts if they reach downstream receiving waters, particularly materials such as petroleum compounds that are potentially toxic to aquatic species in low concentrations. Potential water quality impacts from construction-related hazardous materials would be addressed through conformance with the NPDES Construction Permit and associated City Storm Water Standards outlined above under Regulatory Framework.

Demolition-related Debris Generation

The Preferred Alternative would involve the demolition of existing facilities, including structures and pavement. These activities would generate variable amounts of construction debris, potentially including concrete, asphalt, glass, metal, drywall, paint, insulation, fabric, wood, and other materials. Proposed demolition activities could also potentially generate particulates (e.g., dust from structure razing or pavement demolition), as well as contaminants related to hazardous materials including lead-based paint and asbestos insulation. The introduction of demolition-related particulates or hazardous material contaminants into the local storm drain system could potentially result in downstream water quality impacts. Potential water quality impacts related to demolition activities would be addressed through conformance with the NPDES Construction Permit and associated City Storm Water Standards outlined above under Regulatory Framework.

Disposal of Extracted Groundwater

Disposal of groundwater extracted during Project construction activities into local drainages and/or storm drain facilities (if required) could potentially generate water quality impacts through erosion/sedimentation (as described above), or the possible occurrence of contaminants in local groundwater aquifers. These potential impacts would be addressed through conformance with the NPDES Groundwater Permit as outlined above under Regulatory Framework.

Long-term Operation and Maintenance Impacts

Potential long-term water quality impacts are associated with the generation of urban contaminants from sources including vehicular operations (e.g. metals, oil and grease, and particulates), trash collection/disposal (e.g., trash and debris, and particulates), and landscape maintenance (e.g., sediment and organic materials). These potential impacts would be addressed through conformance with the NPDES Municipal Permit and associated City Storm Water Standards, as outlined above under Regulatory Framework and evaluated in the Project WQTR.

Potential long-term erosion and sedimentation impacts from the Preferred Alternative are considered minor, based on the fact that developed areas would be stabilized through the installation of buildings, hardscape, and landscaping. The Project would also incorporate long-term water quality controls pursuant to NPDES and related City guidelines, including measures that would avoid or reduce off-site sediment transport (e.g., the use of storm water filters, street sweeping, and drainage facility maintenance, as outlined below).

Pedestrian Crossing Alternative

Although the Pedestrian Crossing Alternative would entail a different cross-border pedestrian circulation scheme, it would occur within the same Project Study Area as the Preferred Alternative. Therefore, the water quality and storm water runoff study area for the Pedestrian Crossing Alternative would be the same as the Preferred Alternative, and construction, operation, and maintenance activities would be similar. The analysis presented above for the Preferred Alternative would apply equally to the Pedestrian Crossing Alternative, and potential impacts with respect to water quality and storm water runoff would be the same.

No Build Alternative

Under the No Build Alternative, the described development actions for the Preferred Alternative would not occur, and no impacts related to water quality and storm water runoff would occur.

3.8.4 Avoidance, Minimization, and/or Mitigation Measures

Preferred Alternative

As previously described, implementation of the Preferred Alternative would conform with applicable regulatory requirements, including the NPDES General Construction, Groundwater and Municipal Permits, as well as associated City Storm Water Standards. Preliminary measures to provide such regulatory conformance are identified in the Project WQTR, the regulatory permits themselves, and the additional regulatory/industry sources referenced above in Section 3.8.1. These measures are outlined below for potential short- and long-term water quality impacts, with all identified water quality BMPs subject to modification based on updated Project design and engineering information. Implementation of the following (or other appropriate) measures, in conformance with applicable regulatory requirements, would avoid, minimize or mitigate any potential impacts related to water quality and storm water runoff from implementation of the Preferred Alternative.

Short-Term Construction

Erosion and Sedimentation

Construction-related erosion and sedimentation impacts would be addressed through conformance with the applicable NPDES Construction Permit and related City standards, as previously described. This would include implementing an authorized SWPPP to address (among other issues) erosion and sedimentation concerns. While specific erosion and sediment control measures would be determined as part of the Project design and SWPPP process, standard BMPs from sources such as the Project WQTR, the NPDES permit text/City standards, and additional regulatory/industry sources that would likely be applicable to the Preferred Alternative include the following:

- Use a phased construction schedule to limit the extent of grading at any given time to the smallest feasible area.

- Preserve existing vegetation wherever feasible.

- Restrict construction during the rainy season (October 1 to May 1) when feasible, install erosion control BMPs prior to the rainy season, and implement a "weather triggered" (i.e., 40 percent or greater chance of rain) action plan to inspect, repair, and/or upgrade BMPs as necessary during periods of inclement weather.

- Avoid or minimize work and associated construction-related impacts in live streams and environmentally sensitive areas.

- Implement and store erosion and sediment controls on-site that are adequate to provide complete erosion and sedimentation protection (including "standby" capacity) for exposed portions of the site not actively worked for seven or more consecutive calendar days. Specifically, such controls may include fiber rolls, gravel bags/hay bales (e.g., at storm drain inlets), silt fence, mats or mulching, temporary sediment basins, soil binders (e.g., bonded fiber matrix), hydroseeding, street sweeping/vacuuming, energy dissipators, stabilized construction access points/sediment stockpiles, vehicle wash sumps, sediment transport vehicle covers, and concrete washouts.

- Implement sampling/analysis, monitoring/reporting and post-construction management/ maintenance programs, as applicable, per NPDES/City requirements.

- Provide appropriate training for personnel responsible for BMP installation and maintenance.

- Comply with local dust control requirements.

- Implement appropriate water conservation practices (e.g., repairing leaks and avoiding or minimizing washing of construction-related vehicles and areas).

- Install permanent landscaping, with emphasis on native and/or drought-tolerant varieties, as soon as feasible during or after construction.

- Implement additional BMPs as necessary to ensure adequate erosion and sediment control.

Construction-related Hazardous Materials

Implementation of a SWPPP would be required under applicable guidelines as previously described, and would include measures to avoid or mitigate potential impacts related to the use and potential discharge of construction-related hazardous materials. Specific BMPs associated with construction-related hazardous materials would be determined as part of the Project design and SWPPP process, as noted above for erosion/sedimentation. A number of standard measures from sources such as the Project WQTR, the NPDES permit text/City standards, and additional regulatory/industry sources that would likely be applicable to the Preferred Alternative include the following:

- Restrict paving operations during wet weather and use sediment control devices downstream of paving activities.

- Contain and properly disposal of paving and construction wastes or slurry (e.g., from saw cutting; concrete curing/finishing; or washouts for concrete, stucco, paint, caulking, sealants, or drywall plaster), through measures such as use of portable (and impermeable) sumps, vacuuming, chemical application controls, and off-site waste disposal in an approved location.

- Minimize the amount of hazardous materials stored onsite, and restrict storage/use locations to areas at least 50 feet from storm drains and surface waters.

- Properly maintain all construction equipment and vehicles.

- Use covered and/or enclosed storage facilities for hazardous materials, and maintain accurate and up-to-date written material inventories.

- Store hazardous materials off the ground surface (e.g., on pallets) and in their original containers, with the legibility of labels protected (or replaced if labels are damaged).

- Use berms, ditches, and/or impervious liners (or other applicable methods) in material storage and vehicle/equipment maintenance and fueling areas, to provide a containment volume of 1.5 times the volume of stored/used materials and prevent discharge in the event of a spill.

- Place warning/information signs in hazardous material use/storage areas to identify the types of materials present, applicable use restrictions, and containment/clean-up procedures.

- Mark storm drains (and other appropriate locations) to discourage inappropriate hazardous material disposal.

- Provide training for applicable employees in the proper use, handling and disposal of hazardous materials, as well as appropriate action to take in the event of a spill.

- Implement solid waste management efforts, such as proper containment and disposal of construction debris (e.g., use of watertight dumpsters and daily trash collection/removal) and street sweeping.

- Store absorbent and clean-up materials in appropriate on-site locations where they are readily accessible.

- Properly locate and maintain portable wastewater facilities.

- Use recycled or less hazardous materials wherever feasible.

- Post regulatory agency telephone numbers and a summary guide of clean-up procedures in a conspicuous location at or near the job site trailer.

- Monitor and maintain hazardous material use/storage facilities and operations regularly (at least weekly) to ensure proper working order.

- Implement a Storm SWSAS program pursuant to regulatory guidelines.

Demolition-related Debris Generation

The Preferred Alternative would be subject to a number of regulatory controls related to demolition, including the previously described NPDES and City standards. The Project SWPPP would include measures to address potential water quality effects associated with contaminant generation from demolition activities, with detailed requirements to be determined as part of the SWPPP process. Preliminary demolition-related BMPs from the previously noted sources that are likely applicable to the Preferred Alternative include the following:

- Recycle appropriate (i.e., non-hazardous) construction debris for on- or off-site use whenever feasible.

- Use dust-control measures such as watering to reduce particulate generation for pertinent locations/activities (e.g., concrete removal).

- Use appropriate erosion prevention and sediment control measures downstream of all demolition activities.

- Conform with applicable requirements related to the removal, handling, transport, and disposal of hazardous materials generated during demolition, including efforts such as implementing appropriate sampling and monitoring procedures; proper containment of contaminated materials during construction; providing protective gear for workers handling contaminated materials; ensuring acceptable exposure levels; and ensuring safe and appropriate handling, transport, and disposal of hazardous materials.

Disposal of Extracted Groundwater

Project construction would require conformance with applicable NPDES Groundwater Permit criteria as outlined under Regulatory Framework, if applicable. While individual BMPs to address potential water quality concerns from disposal of extracted groundwater would be determined based on site-specific parameters, they may include the following types of standard

measures derived from the NPDES Permit text and the previously referenced regulatory/industry sources:

- Use erosion prevention and sediment catchment devices (similar to those described above for erosion and sedimentation).

- Test extracted groundwater for appropriate contaminants prior to discharge.

- Treat extracted groundwater prior to discharge if required to provide conformance with applicable discharge criteria (e.g., through methods such as filtration, aeration, adsorption, disinfection, and/or conveyance to a municipal wastewater treatment plant).

- Remove contaminated groundwater for off-site treatment and disposal by a licensed operator in conformance with applicable legal requirements.

Long-term Operation and Maintenance

Potential long-term water quality impacts from the Preferred Alternative are associated with the generation and off-site discharge of urban contaminants, as previously described. The Project WQTR (AECOM 2008b) identifies anticipated pollutants and recommends a number of BMP options for proposed development, based on procedures/requirements identified in the NPDES Municipal Permit and City Storm Water Standards (City of San Diego 2008). These measures are summarized below along with other potentially applicable BMPs from the noted regulatory/industry sources, followed by a discussion of associated BMP monitoring and maintenance requirements. Identified long-term water quality BMPs are considered preliminary in nature, and may be modified and/or replaced with more appropriate measures as part of the ongoing Project design and regulatory conformance process.

Site Design/Low Impact Development BMPs

The use of site design/LID measures is intended to mimic predevelopment hydrologic conditions by effectively capturing, filtering, storing, evaporating, detaining, and/or infiltrating runoff close to its source. Potential site design/LID BMPs identified in the Project WQTR and/or the noted regulatory/industry sources that may be applicable to the Preferred Alternative include the following:

- Implement runoff control through the use of on-site infiltration basins designed to accommodate a 2-year, 24-hour storm event (refer to Subchapter 3.7, Hydrology and Floodplain, for additional discussion of proposed infiltration basins).

- Minimize impervious areas through efforts such as: (1) using an underground parking structure to reduce surface parking requirements; (2) constructing streets, sidewalks, and parking lot aisles to the minimum widths necessary to meet design and safety standards; (3) incorporating additional landscaping where feasible; (4) restricting the use of impervious surfaces within landscaped areas; and (5) using pervious paving materials in applicable locations wherever feasible (e.g., pedestrian walkways and low-vehicle traffic areas).

- Preserve existing landscaped areas and direct runoff from impervious areas into landscaping wherever feasible; and incorporate appropriate vegetation varieties into

landscape designs to maximize the potential to receive, infiltrate, and/or treat runoff from impervious areas (e.g., use of applicable tree species to increase rainfall interception and evapotranspiration).

- Minimize soil compaction in landscaped areas by techniques such as scarification, and incorporate appropriate amendments to improve soil quality/water holding capacity and foster healthy vegetation.

- Use "green" (vegetated) rooftops for applicable structures to reduce runoff volumes (e.g., through capture and evapotranspiration of storm flows), sediment loads, and temperatures (refer to the discussion of Treatment Control BMPs below for additional description of green rooftops).

Source Control BMPs

Source control BMPs are intended to avoid or minimize the introduction of contaminants into storm drains and natural drainages by reducing onsite contaminant generation and off-site contaminant transport to the MEP. Specific source control BMPs identified in the Project WQTR and/or the noted regulatory/industry sources that may be applicable to the Preferred Alternative include the following:

- Install "no dumping" stencils, tiles, and/or signs (per current City standards) at all proposed onsite storm drain inlets and other applicable locations (e.g., drainages and building entrances) to discourage illegal contaminant disposal.

- Provide paved, enclosed, and covered areas for trash storage, with regular maintenance (e.g., cleaning up spills) and weekly trash pick-up by a licensed waste management company.

- Conduct weekly mechanical sweeping of applicable onsite streets and parking areas to remove accumulated particulates and associated contaminants before they are picked up by site runoff.

- Use integrated pest management (IPM) weed/pest control measures wherever feasible, including efforts such as: (1) removing weeds by hand and avoiding the use of chemical pesticides, herbicides, and fertilizers in landscaped areas; (2) using pest-resistant or well-adapted native plant varieties; and (3) providing informational materials to site maintenance personnel and occupants to increase awareness and implementation of IPM measures.

- Manage irrigation to minimize runoff through measures such as the use of automated and tailored watering schedules (i.e., to avoid over-watering), and installing moisture/pressure sensors to shut off irrigation under appropriate conditions (e.g., during/after precipitation events or in the event of broken pipes or sprinkler heads).

- Provide an underground parking structure to reduce the exposure of onsite parking areas to run-on, direct precipitation contact, and associated pollutant transport.

- Direct flows from fire sprinkler system use, maintenance, and/or testing into the sanitary sewer system.

Treatment Control BMPs

Treatment control BMPs are designed to remove pollutants from urban runoff for a design storm event to the MEP through means such as filtering, treatment, or infiltration. The use of identified site design/LID and source control BMPs is intended to reduce treatment requirements by preventing pollutants from entering storm water runoff, and reducing runoff volumes and velocities. Treatment control BMPs would still be required for the Preferred Alternative, however, and would incorporate either volume- or flow-based treatment control design standards (per City and NPDES standards). Potential treatment control options identified in the Project WQTR include the use of proprietary inlet/outlet and rooftop-downspout filters, vegetated swales, or green rooftops (as described above under Site Design/LID BMPs). Specific proprietary filters identified in the Project WQTR include FloGard® LoPro™ Series Filters, which typically encompass a modular filter designed to remove particulates, debris, metals, and petroleum hydrocarbons. Vegetated swales typically consist of shallow, trapezoidal or parabolic channels lined with appropriate vegetation types (e.g., turf) that provide filtration and (to a lesser extent) infiltration as storm flows move slowly along the channel length. Green rooftops typically consist of a thin layer of living vegetation on flat or sloped rooftops that help to reduce runoff (through capture and evapotranspiration) and provide some water quality treatment through removal of contaminants (e.g., sediment) and reduction of water temperatures. One or more of the described treatment control BMP options (or potentially other measures if deemed appropriate during the ongoing Project design process) would be implemented as part of the Preferred Alternative to ensure Project conformance with all applicable regulatory requirements related to long-term water quality.

Post-construction BMP Monitoring/Maintenance Schedules and Responsibilities

Identified long-term BMPs include physical facilities such as “no dumping” stencils/tiles and signs, control features for drainage (e.g., infiltration basins) and trash (e.g., enclosures), and proprietary filters; as well as programs/activities including street sweeping, landscape/irrigation management, and IPM. All Project-related BMP facilities would be located on site, with associated monitoring and maintenance efforts (including funding) to be the responsibility of the property owner. A Storm Water Management and Discharge Control Maintenance Agreement would be prepared by the Project applicant and submitted to the City for all pertinent BMP facilities and programs. Specifically, this agreement would: (1) identify responsible parties for BMP funding and monitoring/maintenance efforts; and (2) describe all associated training programs, operating schedules, maintenance duties and frequencies, and other pertinent information. Typical monitoring and maintenance efforts associated with proposed BMP facilities and programs are summarized in Table 3.8-2, with additional information provided in the Project WQTR (AECOM 2008b).

Pedestrian Crossing Alternative

Avoidance, minimization, and mitigation recommendations related to water quality and storm water runoff issues for the Pedestrian Crossing Alternative would be the same as those described above for the Preferred Alternative. The use of such measures and considerations would avoid, minimize or mitigate all potential impacts related to water quality and storm water runoff.

No Build Alternative

Because no impacts were identified for the No Build Alternative, no associated avoidance, minimization or mitigation measures are proposed.

Table 3.8-2
SUMMARY OF TYPICAL/PROPOSED POST-CONSTRUCTION BMP MONITORING AND MAINTENANCE EFFORTS

- Inlet Stencils/Tiles and Signs: Monitoring for informational storm drain inlet stencils/tiles and signs typically includes annual inspections prior to the rainy season, with associated maintenance efforts involving clearing inlets of all trash and debris during each inspection, and replacing/repairing stencils, tiles, and signs as necessary to maintain legibility.

- Drainage Facilities: Monitoring for drainage facilities typically includes conducting inspections prior to the rainy season and after larger storm events. Specific maintenance efforts generally involve clearing all trash and debris during each inspection, and replacing/repairing facilities as necessary to ensure proper function.

- Trash Enclosures: Monitoring for trash enclosures generally includes regular (e.g., monthly) inspections, with associated maintenance consisting of documenting the condition of enclosures during each inspection, immediate spill clean-up, and replacing/repairing facilities as necessary to maintain proper function.

- Landscaping and Related Irrigation Systems: Monitoring and maintenance efforts for Project landscaping would include: (1) regular inspections (e.g., weekly during wet weather, and after every storm event with more than 0.5 inch of precipitation); (2) trimming/pruning and weeding around fences and at drainage inlet/outlet structures; (3) removing debris; (4) collecting and properly disposing of (or recycling) landscaping wastes (e.g., trimmings/cuttings and excess soil amendments) to avoid the discharge of organic materials into the storm drain system; and (5) eliminating areas of ponded water to control vector breeding habitat. Irrigation systems would be regularly (e.g., monthly) inspected, with adjustment/repair activities conducted as needed.

- Proprietary Filters: Specific monitoring and maintenance efforts associated with proprietary filters typically include: (1) conducting regular inspections per manufacturer's recommendations (e.g., prior to and after the rainy season, and after larger storm events); (2) removing accumulated trash and debris during each inspection (or more often if appropriate); (3) cleaning out accumulated sediment at appropriate intervals or conditions (per manufacturer's recommendations); and (4) implementing maintenance and/or replacement efforts for all mechanical, electrical, filtration, or other applicable components on an as-needed basis.

- Vegetated Swales: Typical monitoring and maintenance efforts associate with vegetated swales include: (1) regular inspections (e.g., weekly during wet weather, and after every storm event with more than 0.5 inch of precipitation) to ensure proper function and conduct scheduled maintenance; (2) removal of trash and debris during each inspection; (3) removal of excess sediment during each inspection; (4) removal of standing water; (5) vegetation management (e.g., mowing, trimming fertilizing, irrigating and/or reseeding); (6) elimination of mosquito breeding habitats and control of other animal/vector issues (e.g., animal burrows); and (7) conducting repairs or other maintenance as required.

- Green Rooftops: Typical monitoring and maintenance requirements for green rooftops include semi-annual inspections and weeding efforts, and conducting repairs or other maintenance as required.

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