3.9 Hydrology and Water Quality

This section describes the affected environment and regulatory setting for hydrology and water quality. It also describes the impacts on hydrology and water quality that would result from implementation of the Commonwealth Corporate Center Project (Project), and mitigation measures that would reduce these impacts.

Additional information on the Project's potential impacts on stormwater hydrology is provided in Appendix 3.9. The Project's potential impacts on water supply are discussed in Section 3.13, *Utilities and Service Systems*.

Issues identified in response to the Notice of Preparation (NOP) (Appendix 1) were considered in preparing this analysis. An applicable issue that was identified pertains to concerns about rainwater retention in Project parking areas and increases in impervious surface area.

Existing Conditions

Regulatory Setting

Federal

Clean Water Act. The federal Clean Water Act (CWA) was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. The CWA directs states to establish water quality standards for all "waters of the United States" and to review and update such standards on a triennial basis.

The U.S. Environmental Protection Agency (EPA) has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) Program (discussed below), to the State Water Resources Control Board (State Water Board) and the Regional Water Quality Control Board (Regional Water Board). The State Water Board establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations. The Regional Water Boards develop and implement water quality control plans (basin plans) that identify the beneficial uses of surface and ground waters, water quality characteristics, and water quality problems.

Section 303(d) and Total Maximum Daily Loads. The CWA contains two strategies for managing water quality. One is a technology-based approach that includes requirements to maintain a minimum level of pollutant management using the best available technology. The other is a water quality-based approach that relies on evaluating the condition of surface waters and setting limitations on the amount of pollution that the water can be exposed to without adversely affecting the beneficial uses of those waters. Section 303(d) of the CWA bridges these two strategies. Section 303(d) requires that the states make a list of waters that are not attaining standards after the technology-based limits are put into place. For waters on this list (and where the EPA administrator deems they are appropriate), the states are to develop total maximum daily loads (TMDLs). TMDLs are established at the level necessary to implement the applicable water quality standards. The CWA does not expressly require the implementation of TMDLs. However, federal regulations require that an implementation plan be

developed along with the TMDL and Section 303(d), 303(e), and their implementing regulations require that approved TMDLs be incorporated into basin plans. EPA has established regulations (40 CFR 122) requiring that NPDES permits be revised to be consistent with any approved TMDL. A Mercury TMDL has been established for the San Francisco Bay (Bay) and approved by the State Water Board (Resolution 2007-0045). TMDLs for the other constituents contributing to impairment are scheduled to be completed by 2019.

In addition to the impaired water body list required by CWA Section 303(d), CWA Section 305(b) requires states to develop a report assessing statewide surface water quality. Both CWA requirements are being addressed through the development of a 303(d)/305(b) Integrated Report, which will address both an update to the 303(d) list and a 305(b) assessment of statewide water quality. The State Water Board developed a statewide 2010 California Integrated Report based on the Integrated Reports from each of the nine Regional Water Boards. The 2010 California Integrated Report was approved by the State Water Board on August 4, 2010, and approved by EPA on November 12, 2010. A 2012 California Integrated Report with 303(d) listings is currently in development.

Section 402—National Pollutant Discharge Elimination System. The 1972 amendments to the federal Water Pollution Control Act established the NPDES permit program to control discharges of pollutants from point sources (Section 402). The 1987 amendments to the CWA created a new section of the CWA devoted to stormwater permitting (Section 402[p]). EPA has granted the state of California (the State Water Board and Regional Water Boards) primacy in administering and enforcing the provisions of CWA and NPDES. NPDES is the primary federal program that regulates point-source and nonpoint-source discharges to Waters of the United States.

NPDES General Permit for Construction Activities. Most construction activities that disturb 1 acre of land or more are required to obtain coverage under the NPDES General Permit for Construction Activities (Construction General Permit). The State Water Board has issued a statewide Construction General Permit (Order No. 2009-0009-DWQ, NPDES No. CAR000002), adopted September 2, 2009. Construction activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as stockpiling or excavation, that result in soil disturbances of at least 1 acre of total land area.

The Construction General Permit requires the applicant to file a notice of intent (NOI) to discharge stormwater and to prepare and implement a stormwater pollution prevention plan (SWPPP). The SWPPP includes a site map and a description of proposed construction activities, along with a demonstration of compliance with relevant local ordinances and regulations, and an overview of the best management practices (BMPs) that would be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources. Permittees are further required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of stormwater-related pollutants.

NPDES General Municipal Stormwater Permit. CWA Section 402 mandates permits for municipal stormwater discharges, which are regulated under the NPDES General Permit for Municipal Separate Storm Sewer Systems (MS4) (MS4 Permit). Phase I MS4 regulations cover municipalities with populations greater than 100,000, certain industrial processes, or construction activities disturbing an area of 5 acres or more. Phase II (Small MS4) regulations require that stormwater management plans be developed by municipalities with populations smaller than 100,000 and construction activities disturbing 1 or more acres of land area.

MS4 Permits require that cities and counties develop and implement programs and measures to reduce the discharge of pollutants in stormwater discharges to the maximum extent possible, including management practices, control techniques, system design and engineering methods, and other measures as appropriate. As part of permit compliance, these permit holders have created stormwater management plans for their respective locations. These plans outline the requirements for municipal operations, industrial and commercial businesses, construction sites, and planning and land development. These requirements may include multiple measures to control pollutants in stormwater discharge. During implementation of specific projects under the program, project applicants will be required to follow the guidance contained in the stormwater management plans as defined by the permit holder in that location.

Regulated projects, as defined in the Construction General Permit (Provision C.3.b.), are required to implement certain construction and post-construction stormwater quality BMPs. Regulated projects include redevelopment projects that create or replace 10,000 square feet (sf) or more of impervious surfaces. Regulated projects must provide permanent/post-construction treatment controls for stormwater according to specific calculations. If the redevelopment results in an alteration of more than 50 percent of the existing impervious surfaces, permanent BMPs must be implemented to treat runoff from the entire project site. Postconstruction BMPs can be implemented through low impact development (LID) design, which incorporates site design, including using vegetated swales and retention basins and minimizing impermeable surfaces to manage stormwater and maintain a site's predevelopment runoff rates and volumes. The State Water Board is advancing LID in California as a means of complying with municipal stormwater permits.

National Flood Insurance Program. The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries based on U.S. Army Corps of Engineer (USACE) studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps (FIRMs), which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas, including the 100-year floodplain. FEMA allows non-residential development in the floodplain; however, construction activities are restricted within the flood hazard areas depending upon the potential for flooding within each area.

State

Porter-Cologne Water Quality Control Act. The Porter-Cologne Act is established and implemented by the State Water Board and nine Regional Water Boards. The State Water Board is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies, or "waters of the state." Waters of the state are defined more broadly than "waters of the United States;" they are defined as any surface water or groundwater, including saline waters, within the boundaries of the state. This includes waters in both natural and artificial channels. It also includes all surface waters that are not waters of the United States or non-jurisdictional wetlands, which are essentially distinguished by whether they are navigable. If waters are not navigable, then they are considered to be isolated, and therefore only fall under the jurisdiction of the Porter-Cologne Act and not the CWA. The Regional Water Boards are responsible for implementing CWA Sections 401, 402, and 303(d) as previously mentioned and described in more detail below.

The Porter-Cologne Act authorizes State Water Board to draft state policies regarding water quality. The act requires projects that are discharging, or proposing to discharge, wastes that could affect the quality of the state's water to file a Waste Discharge Report (WDR) with the appropriate Regional Water Board. The Porter-Cologne Act also requires that the State Water Board or a Regional Water Board adopt basin

plans for the protection of water quality. Basin plans are updated and reviewed every 3 years and provide the technical basis for determining WDRs, taking enforcement actions, and evaluating clean water grant proposals. A basin plan must include the following sections.[1]

- A statement of beneficial water uses that the Regional Water Board will protect.
- Water quality objectives needed to protect the designated beneficial water uses.
- Strategies and time schedules for achieving the water quality objectives.
- In basin plans, Regional Water Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these uses. Consequently, the water quality objectives developed for particular water segments are based on the designated use and vary depending on such use. The *San Francisco Bay Basin (Region 2) Water Quality Control Plan* (Basin Plan) specifies region-wide and water body-specific beneficial uses and has set numeric and narrative water quality objectives for several substances and parameters in numerous surface waters in its region. Specific objectives for concentrations of chemical constituents are applied to bodies of water based on their designated beneficial uses.[2]
- In addition, the State Water Board identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If it is determined 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 Waste Discharge Requirements), the CWA requires the establishment of TMDLs. TMDLs may establish daily load limits of the pollutant, or in some cases require other regulatory measures, with the ultimate goal of reducing the amount of the pollutant entering the water body to meet water quality objectives. The latest 303(d) impairments are listed in the2010 California Integrated Report.[3]

The Project lies within the jurisdiction of the San Francisco Bay Regional Water Board. The San Francisco Bay Regional Water Board is responsible for the protection of beneficial uses of water resources in the San Francisco Bay Area (Bay Area), which includes Alameda, Contra Costa, San Francisco, Santa Clara (north of Morgan Hill), San Mateo, Marin, Sonoma, Napa, and Solano Counties. The Basin Plan was last updated in 2011.[4] Beneficial uses, water quality objectives, and Section 303(d)-listed impairments are described for the Project area below in the *Surface Water Quality* section.

California Water Code. All projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code. Section 13260 states that persons discharging or proposing to discharge waste that could affect the quality of waters of the state, other than into a community sewer system, shall file a WDR) containing information that may be required by the appropriate Regional Water Board. The projects are then required to obtain approval of WDRs from the appropriate Regional Water Board. Land and groundwater-related WDRs (i.e., non-NPDES WDRs) regulate discharges of privately or publicly treated domestic wastewater and process and wash-down wastewater. WDRs for discharges to surface waters also serve as NPDES permits.

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1 San Francisco Bay Regional Water Quality Control Board. 2011. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Originally published January 18, 2007. Last updated in 2011.

2 San Francisco Bay Regional Water Quality Control Board. 2011. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Originally published January 18, 2007. Last updated in 2011.

3 State Water Resources Control Board. 2011. California 2010 303(d) list. Available: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Accessed: April 15, 2013.

4 San Francisco Bay Regional Water Quality Control Board. 2011. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Originally published January 18, 2007. Last updated in 2011.

Coastal and Ocean Working Group of the California Climate Action Team. The Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT) developed a guidance document, State of California Sea-Level Rise Guidance Document, for state agencies in incorporating sea level rise into planning and decision making for projects in California. The document was developed in response to Governor Schwarzenegger's Executive Order S-13-08, issued on November 14, 2008, which requires all state agencies planning construction projects in areas vulnerable to sea level rise to consider a range of sea level rise scenarios for the years 2050 and 2100. That executive order also requested the National Research Council (NRC) to issue a report on sea level rise to advise California on planning efforts. The final report from the NRC, Sea-Level Rise for the Coasts of California, Oregon, and Washington 1, was released in June 2012. The Sea Level Rise Task Force issued its final guidance in March 2013 with the scientific findings of the 2012 NRC report. In the CO-CAT SLR guidance document, three sea level rise projections based on time periods were selected for north of Cape Mendocino using year 2000 as the baseline.

- 2 to 12 inches (-0.13 to 0.75 feet) by 2030.
- 5 to 24 inches (-0.1 to 1.57 feet) by 2050.
- 17 to 66 inches (0.3 to 4.69 feet) in 2100.
- The guidance also recommends consideration of a wide range of other factors, such as local trends, adaptive capacity, and risk tolerance when selecting estimates of sea level rise.

Local

San Francisco Bay Municipal Regional Permit. The San Francisco Bay Regional Water Board most recently issues the MS4 Phase I San Francisco Bay Region Municipal Regional Stormwater NPDES Permit No. CAS029718 (Order No. R2-2009-0074-DWQ) (San Francisco Bay MS4 Permit) on October 14, 2009. Provision C.3 of the San Francisco Bay MS4 Permit is for New Development and Redevelopment projects authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects.

Project would be required to comply with the Municipal Regional Permit San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) Provision C.3 Stormwater Technical Guidance because it involves a total new impervious area (where it is currently pervious) of approximately 15,800 square feet, which is greater than 10,000 square feet.[5] However, the Project would ultimately reduce the overall area of impervious surface area by 20 percent compared to existing impervious surface area. The Project would reduce total runoff rates and would implement biotreatment measures and, therefore would be in compliance with Provision C.3. The provision also states, however, that "all projects regardless of size should consider incorporating appropriate source control and site design measures that minimize stormwater pollutant discharges to the maximum extent practicable [MEP]." Regardless of a project's need to comply with Provision C.3, municipalities apply the MEP standard, including standard stormwater conditions of approval for projects that receive development permits.

San Francisco Bay Conservation and Development Commission. The San Francisco Bay Conservation and Development Commission (BCDC) has regulatory responsibility over development in the Bay and along the Bay's nine-county shoreline. BCDC is guided in its decisions by its law, the

[5] Kier & Wright Civil Engineers & Surveyors. 2013. Stormwater Report for 151 Commonwealth Drive and 164 Jefferson Drive, Menlo Park, California. Project No. A11089-2. April 12. Santa Clara, California.

McAteer-Petris Act, the BCDC San Francisco Bay Plan, and other plans for specific areas around the Bay. It is necessary to obtain a BCDC permit prior to undertaking most work in the Bay, including portions of most creeks, rivers, sloughs, and other tributaries that flow into the Bay.

In a BCDC report[6] on sea level rise, two sea level rise projections were selected as the basis for inundation vulnerability assessment.

- A 16-inch (1.3 feet) rise by mid-century (2050).
- A 55-inch (4.58 feet) rise by the end of the century (2100)

San Mateo Countywide Water Pollution Prevention Program. SMCWPPP is a partnership of the City/County Association of Governments (C/CAG), which consists of the County of San Mateo and each incorporated city and town in the county. The municipalities that are part of C/CAG share a common MS4 permit. Each municipality in San Mateo County is responsible for implementing a stormwater program in compliance with MS4 permit requirements to prevent discharges of polluted stormwater runoff from its streets into the local storm drain system and nearby surface waters. The permit prescribes how each local municipality will regulate new and redevelopment projects, conduct its municipal maintenance activities, eliminate non-stormwater discharges, inspect businesses to control stormwater pollutants, and encourage the public's help in preventing pollution.

In order to meet local municipal requirements and requirements of the San Francisco Bay MS4 Permit described above, the County of San Mateo has developed a Provision C.3 Stormwater Technical Guidance Handbook[7] to help developers, builders, and project sponsors include post-construction stormwater controls in their projects. The municipalities have to require postconstruction stormwater controls as part of their obligations under Provision C.3 of the MS4 permit. The Countywide Program has also prepared a Sustainable Green Streets and Parking Lots Design Guidebook to specifically assist municipalities and project applicants with designing street and parking lot projects that treat stormwater runoff in landscape-based treatment measures.

City of Menlo Park Municipal Code. The City of Menlo Park Municipal Code contains the following requirements related to protection of water resources.

Title 7: Health and Sanitation, Chapter 7.38. Title 7, Chapter 7.38 discusses general water conservation principals and adopts water conservation as a City-wide goal. Further, it provides that the City should conserve the water supply for the greatest public benefit with particular regard to domestic use, sanitation, and fire protection. Chapter 7.38 includes regulations and restrictions on water use and mandates that the wasteful use of water should be eliminated.

Title 7: Health and Sanitation, Chapter 7.42. Title 7, Chapter 7.42 officially adopts the San Mateo Countywide Pollution Prevention Program Stormwater Management Plan and its provisions as City policy. The purpose and intent of Chapter 7.42 is to ensure the future health, safety, and general welfare of City citizens by eliminating non-stormwater discharges to the municipal separate storm sewer; controlling the discharge to municipal separate storm sewers from spills, dumping or disposal of materials other than stormwater; and reducing pollutants in stormwater discharges to the maximum

[6] San Francisco Bay Conservation and Development Commission (BCDC). 2011. Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline. Approved on October 6.

[7] County of San Mateo. 2013. San Mateo Countywide Water Pollution Prevention Program. C.3 Stormwater Technical Guidance. For use by developers, builders and project applicants to design and build low impact development projects. Version 3.2. January 4.

extent practicable. The intent of Chapter 7.42 is also to protect and enhance the water quality of the watercourses, water bodies, and wetlands in a manner pursuant to and consistent with the CWA.

To meet the requirements of the Stormwater Ordinance 859 (Chapter 7.42), the City requires a Grading and Drainage (G&D) Plan whenever more than 500 sf of the surface of a lot is to be affected by a building project. The goal of the G&D Plan is to manage possible sources of water pollution (source control), make sure site drainage does not affect neighboring properties (site design) and to remove contaminants from the stormwater before it drains into the City Street or Storm Drain System (treatment measures).

Title 12: Buildings and Construction, Chapter 12.44. Title 12, Chapter 12.44 defines water-efficient landscaping standards that must be employed by new developments. Further, it provides that all property owners of regulated projects shall complete and submit the landscape project application, comply with the landscape and irrigation maintenance schedule, and maintain landscape irrigation facilities to prevent water waste and runoff. In addition, the ordinance requires a landscape audit report be submitted after installation of landscaping to certify compliance with the ordinance.

City of Menlo Park General Plan. The following goal within the Open Space/Conservation Element of the City's General Plan is relevant to this Project.

> **Goal OSC5:** Ensure Healthy Air Quality and Water Quality. Enhance and preserve air quality in accord with State and regional standards, and encourage the coordination of total water quality management including both supply and wastewater treatment.

The following policies within the Safety Element of the General Plan are relevant to this Project.

> *Policy S1.26:* Erosion and Sediment Control. Continue to require the use of best management practices for erosion and sediment control measures with proposed development in compliance with applicable regional regulations.
>
> *Policy S1.27:* Regional Water Board Requirements. Enforce stormwater pollution prevention practices and appropriate watershed management plans in the Regional Water Board general NPDES requirement, the San Mateo County Water Pollution Prevention Program and the City's Stormwater Management Program. Revise, as necessary, City plans so they integrate water quality and watershed protection with water supply, flood control, habitat protection, groundwater recharge, and other sustainable development principles and policies.

Environmental Setting

Surface Water

Hydrology. The Project site is located within the South San Francisco Bay Basin watershed, approximately 0.3 mile inland from the South Bay Salt Ponds and 1.5 miles inland from the Lower San Francisco Bay. The Project site covers a total area of approximately 13.3 acres (578,472 sf), and site topography is generally flat. There are no natural surface water features within the Project site. Major surface waters in the Project vicinity include the Atherton Channel (also known as Atherton Creek) to the west, Flood Slough to the northwest, San Francisquito Creek to the southeast, and the Lower San Francisco Bay. The Atherton Channel is an alternating earth- and concrete-lined channel that carries flow from the upper reaches of Atherton Creek to Flood Slough. Flood Slough is one of several sloughs that run through the salt ponds and salt marshes north of the Bayfront Expressway, and it drains into the Bay. Levees are located throughout the salt ponds.

The Project site is located in the northern drainage area of the City. All surface drainage flows (i.e., the storm system and natural surface runoff flows) ultimately discharge to the Lower San Francisco Bay. Stormwater from the Project site is collected via the street network at Jefferson Drive and conveyed via an existing 36-inch storm drain leading to the Bay. A small portion of the Jefferson Site discharges directly to Jefferson Drive over two existing driveway aprons. The average stormwater runoff rate was calculated and is presented in the stormwater report for the Project (Appendix 3.9). The existing total lot runoff rate for a 10-year storm event (Q_{10}) from these sites, based on an impervious area of 540,577 sf and a pervious area of 37,895 sf, is 19.43 cubic feet per second (cfs).[8]

Water Supply. The majority of water supplies serving the City are obtained through the San Francisco Public Utilities Commission (SFPUC) from the Hetch Hetchy reservoir. However, a small number of connections are served by local groundwater supplies. The O'Connor Tract Co-operative Water Company is a small municipal water supplier that services parts of the City and East Palo Alto. This company operates two groundwater wells that are 250 to 500 feet deep and are located over 2 miles up-gradient from the Project site.

Water Quality

The Basin Plan specifies the following beneficial uses that apply to the Lower San Francisco Bay.[9]

- Industrial service water supply (IND).
- Commercial and sport fishing (COMM).
- Shell fish harvesting (SHELL).
- Estuarine habitat (EST).
- Fish migration (MIGR).
- Preservation of rare and endangered species (RARE).
- Fish spawning (SPWN).
- Wildlife habitat (WILD).
- Water contact recreation (REC1).
- Noncontact water contact recreation (REC2).

Water quality objectives for the Lower San Francisco Bay are shown in Table 3.9-1. The water quality objectives are general objectives established for the region.

[8] Kier & Wright Civil Engineers & Surveyors. 2013. Stormwater Report for 151 Commonwealth Drive and 164 Jefferson Drive, Menlo Park, California. Project No. A11089-2. April 12. Santa Clara, California.

[9] San Francisco Bay Regional Water Quality Control Board. 2011. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Originally published January 18, 2007. Last updated in 2011.

Table 3.9-1. Water Quality Objectives for Surface Waters in the Project Area

Constituent	Water Quality Objective
Bacteria	Various concentrations based on designated beneficial use.
Bioaccumulation	Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life.
Biostimulatory substances	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
Color	Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.
Dissolved oxygen	For nontidal waters, cold water habitat: 7.0 mg/l minimum. The median dissolved oxygen concentration for any 3 consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
Floating material	Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.
Oil and grease	Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.
Population and community ecology	Waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.
pH	Must be maintained between 6.5 and 8.5, and shall not cause changes greater than 0.5 units in normal ambient pH levels.
Radioactivity	Radionuclides shall not be present in concentrations that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
Salinity	Controllable water quality factors shall not increase the total dissolved solids or salinity of waters of the state so as to adversely affect beneficial uses, particularly fish migration and estuarine habitat.
Sediment	Suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses. Controllable water quality factors shall not cause a detrimental increase in the concentrations of toxic pollutants in sediments or aquatic life.
Settleable material	Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses.
Suspended material	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
Sulfide	All water shall be free from dissolved sulfide concentrations above natural background levels.
Tastes and odors	Waters shall not contain taste or odor producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.
Temperature	Enclosed bays and estuaries: objectives are specified in the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California.

Table 3.9-1. Water Quality Objectives for Surface Waters in the Project Area

Constituent	Water Quality Objective
	Surface waters: The natural receiving water temperature of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8°C) above natural receiving water temperature
Toxicity	All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms.
Turbidity	Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where natural turbidity is greater than 50 NTU.
Unionized ammonia	Central San Francisco Bay: The discharge of wastes shall not cause receiving waters to contain concentrations of un-ionized ammonia in excess of 0.16 mg/l as nitrogen
Chemical constituents	Surface waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use. Objectives for specific chemical constituents are listed in the San Francisco Bay Regional Water Board Basin Plan.

Source: San Francisco Bay Regional Water Quality Control Board 2010
mg/L = milligrams per liter
NTU = nephelometric turbidity unit

Water Quality. The Section 303(d) listed impairments for the Lower San Francisco Bay are shown in Table 3.9-2. The 303(d) listed impairments are based on the 2010 Integrated Report.[10]

Table 3.9-2. Water Quality Impairments in the Lower San Francisco Bay

Listed Impairments Per 2006 303(d) List	Potential Sources	EPA TMDL Completion
Chlordane	Nonpoint source	Est. 2013
DDT (Dichlorodiphenyltrichlorothane)	Nonpoint source	Est. 2013
Dieldrin	Nonpoint source	Est. 2013
Dioxin compounds (including 2,3,7,8-TCDD)	Atmospheric deposition	Est. 2019
Furan Compounds	Atmospheric deposition	Est. 2019
Invasive Species	Ballast water	Est. 2019
Mercury	Atmospheric deposition, industrial point sources, municipal point sources, natural source, nonpoint source, resource extraction	2008
PCBs and Dioxin-Like PCBs (polychlorinated biphenyls)	Unknown nonpoint source	2008
Trash	Illegal dumping, Urban Runoff/Storm Sewers	Est. 2021

Source: State Water Resources Control Board. 2011. California 2010 303(d) list. Available: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Accessed: April 15, 2013.

Constituents or pollutants in stormwater runoff (e.g., oil and grease, particulates, pesticides, herbicides, animal waste, etc.) vary with surrounding land uses, impervious surface area, and topography, as well as with the intensity and frequency of rainfall or irrigation. Stormwater runoff generated at the onset of the wet season, or the "first-flush," typically contains the highest pollutant concentrations. The Project site is located within in a developed area of the City, and a majority of the ground surface is covered by pavement (roads and parking lots) and structures (office and commercial buildings). Street surfaces are the primary source of pollutants in stormwater runoff in urban areas.

Common sources of stormwater pollution in urban areas include construction sites, parking lots, large landscaped areas, and household and industrial sites. Grading and earthmoving activities associated with new construction can accelerate soil erosion. Grease, oil, hydrocarbons, and metals deposited by vehicles and heavy equipment can accumulate on streets and paved parking lots and are carried into storm drains by runoff. PCBs are also listed as 303(d) impairments in the Lower San Francisco Bay. PCBs can be found in automobile engines and other sources common in urban areas. Pesticides, herbicides, fungicides, and fertilizers used for landscape maintenance are washed into storm drains when irrigation exceeds the rate of soil infiltration and plant uptake, or when these chemicals are applied in excess. As

[10] State Water Resources Control Board. 2011. California 2010 303(d) list. Available: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Accessed: April 15, 2013.

shown in Table 3.9-2, the pesticides of chlordane, DDT (no longer permitted for use), and dieldrin are listed as 303(d) impairments in the Lower San Francisco Bay. Paints, solvents, soap products, and other toxic materials may be inadvertently or deliberately deposited in storm drains in residential and industrial areas. Trash is also listed as a 303(d) impairment in Table 3.9-2. Trash can threaten aquatic life and recreational beneficial uses designated by the Basin Plan. Trash and litter can collect in storm drain inlets and ultimately be discharged into nearby waterways.

Although no site-specific water quality data are available, it is reasonable to assume that stormwater runoff from the Commonwealth and Jefferson Sites is typical of urban areas with similar land uses. Therefore, it is likely that stormwater runoff at the Project site may contain chemicals associated with landscaping (e.g., fertilizers, herbicides and pesticides); oil, grease, and metal brake dust from automobiles; trash and debris; sediment from soil erosion and aerial deposition; and potentially other pollutants.

Groundwater

Hydrogeology. The Project sites are located within the Santa Clara Valley groundwater basin and the San Mateo subbasin. The San Mateo subbasin is bounded by the Santa Cruz Mountains to the west, the Bay to the east, San Francisquito Creek to the south, and the Westside Groundwater Basin to the north. The subbasin's underlying water bearing formations include Quaternary and Plio-Pleistocene alluvial deposits composed of gravel, sand, silt, and clay. A relatively shallow water table aquifer overlies confined and semi-confined aquifers near the margins of the Bay, with most wells drawing from the deeper deposits. The direction of groundwater flow is generally to the north.

Recharge of the San Mateo subbasin occurs through infiltration into stream beds and through infiltration of precipitation on the valley floor. Little is known about the actual storage capacity of the subbasin or existing groundwater levels, but it is estimated that groundwater levels have rebounded somewhat since the early twentieth century when groundwater was used as the primary source for drinking and irrigation. Groundwater levels at the Project site were estimated from pore pressure dissipation test data at a depth of about 10 to 11 feet below current grades, corresponding to elevations 1 to 2 feet below mean sea level (msl).[11] The site is relatively flat, with elevations varying from 6 to 11 feet above msl.

Groundwater Quality. In general, groundwater quality in the Santa Clara Valley is good; water from public supply wells meets state and federal drinking water standards without treatment.[12] However, there are some known concerns. Near the Bay margin, historic groundwater overdraft has created areas of saltwater intrusion where groundwater salinity is elevated by contact with seawater infiltrating into subsurface aquifers.[13] The high level of salt in the native soils is also indicative of high concentrations of salts in groundwater. The high level of salt in the native soils has deteriorated the metal components of the irrigation system over time, resulting in leaks that cause loss of water. The groundwater tends to be

[11] Cornerstone Earth Group. 2012. Preliminary geotechnical investigation for Commonwealth Office Complex. Project number 102-11-11. Walnut Creek, CA. March 14.

[12] California Department of Water Resources. 2003. California's Groundwater—Bulletin 118, Update 2003, San Francisco Bay Hydrologic Region. Available: <http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_groundwater__bulletin_118_-_update_2003_/bulletin118_2-sf.pdf>. Accessed: April 19, 2013.

[13] California Department of Water Resources. 2003. California's Groundwater—Bulletin 118, Update 2003, San Francisco Bay Hydrologic Region. Available: < http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_groundwater__bulletin_118_-_update_2003_/bulletin118_2-sf.pdf>. Accessed: April 19, 2013.

quite hard (high mineral content) and have high concentrations of iron and manganese.[14] In addition, improperly abandoned wells or leaking underground storage tanks (LUSTs) also have the potential to contaminate groundwater supplies. As described in Section 3.10, *Hazards and Hazardous Materials*, several of the hazardous materials sites within the vicinity of the Project site comprise LUSTs with gasoline or waste oil contamination.

Designated beneficial uses identified for the Santa Clara Valley groundwater basin are as follows.[15]

- Municipal and domestic supply (MUN).
- Industrial process supply (PROC).
- Industrial service supply (IND).
- Agricultural supply (AGR).

Groundwater objectives consist primarily of narrative objectives combined with a limited number of numerical objectives. The primary groundwater objective is the maintenance of existing high quality groundwater. At a minimum, groundwater shall not contain concentrations of bacteria, chemical constituents, radioactivity, or substances producing taste and odor in excess of the objectives described below unless naturally occurring background concentrations are greater. Under existing law, the San Francisco Bay Regional Water Board regulates waste discharges to land that could affect water quality, including both groundwater and surface water quality. Waste discharges that reach groundwater are regulated to protect both groundwater and any surface water in continuity with groundwater. Waste discharges that affect groundwater that is in continuity with surface water cannot cause violations of any applicable surface water standards.[16] Table 3.9-3 describes groundwater quality objectives in the Project area for groundwater with a domestic or municipal supply (MUN) beneficial use.

Groundwater contamination can be the result of historical industrial activities or originate from underground storage tank releases of hazardous materials. There are numerous Regional Water Board or Department of Toxic Substance Control (DTSC) hazardous waste cleanup sites within Menlo Park. However, it does not appear that any of the potential infill sites are underlain by contaminated groundwater, as discussed in more detail in Section 3.10, *Hazards and Hazardous Materials*.

Flooding

The northernmost portion of the City is within the 100-year floodplain subject to tidal flooding from the Bay as designated by FEMA.[17] Areas within the 100-year flood hazard area are subject to 100-year flood, which means that in any given year, the risk of flooding in the designated area is 1 percent. Areas within

[14] California Department of Water Resources. 2003. California's Groundwater—Bulletin 118, Update 2003, San Francisco Bay Hydrologic Region. Available: < http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_groundwater__bulletin_118_-_update_2003_/bulletin118_2-sf.pdf>. Accessed: April 19, 2013.

[15] San Francisco Bay Regional Water Quality Control Board. 2011. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Originally published January 18, 2007. Last updated in 2011.

[16] San Francisco Bay Regional Water Quality Control Board. 2011. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Originally published January 18, 2007. Last updated in 2011.

[17] City of Menlo Park. 2013. Housing Element Update, General Plan Consistency Update, and Zoning Ordinance Amendments Environmental Assessment—Section 4.8, Hydrology and Water Quality. Prepared by The Planning Center/DC&E. Berkeley, CA. April 4. Available: < http://www.menlopark.org/departments/pln/he/ea/Chapters/4-8_HydroWQ.pdf>. Accessed: April 24, 2013.

the 500-year flood hazard area are subject to 500-year flood, which means that in any given year, the risk of flooding is 0.2 percent.

Table 3.9-3. Water Quality Objectives for Groundwater in the Project Area

Constituent	Groundwater Quality Objective
Bacteria	Median of the most probable number of coliform organisms over any seven-day period shall be less than 1.1 most probable number per 100 milliliters (MPN/100 mL)
Organic and Inorganic Chemical Constituents	All groundwater shall be maintained free of organic and inorganic chemical constituents in concentrations that adversely affect beneficial uses. At a minimum, shall not contain concentrations of constituents in excess of the maximum (MCLs) or secondary maximum contaminant levels (SMCLs) specified in the following provisions of Title 22.
Radioactivity	At a minimum, shall not contain concentrations of radionuclides in excess of the MCLs specified in Table 4 (Radioactivity) of Section 64443 of Title 22
Taste and Odor	Shall not contain taste or odor-producing substances in concentrations that cause a nuisance or adversely affect beneficial uses. At a minimum, shall not contain concentrations in excess of the SMCLs specified in Tables 64449-A (Secondary MCLs-Consumer Acceptance Limits) and 64449-B (Secondary MCLs-Ranges) of Section 64449 of Title 22.

Source: San Francisco Bay Regional Water Board 2010

The Project site is not within a 100-year FEMA-designated special flood hazard area for a 100-year flood. However, some areas surrounding the Project site, such as portions of US 101, Jefferson Drive, and areas in proximity to the salt ponds, are designed as 100-year flood hazard areas. The majority of the Project site (the portion that is currently the Commonwealth Site) is in an area designated as one of minimal flood risk. The northwestern part of the Project site (the portion that is currently the Jefferson Site) is in an area of moderate flood risk. The Project site is within FEMA-designated Zone X,[18] which is an area of moderate or minimal flood hazard subject to flood levels greater than the 100-year level, and/or up to or above the 500-year level. Zone X is also used to designate base floodplains of lesser hazards, such as areas protected by levees from a 100-year flood or areas prone to shallow flooding.[19]

[18] U.S. Department of Homeland Security. 2013. Flood Insurance Rate Map (FIRM) for San Mateo County and Incorporated Areas—Panel 306 of 510. Federal Emergency Management Agency. Available: <https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1>. Accessed: April 15, 2013.

[19] Federal Emergency Management Agency. 2013. Definitions of FEMA Flood Zone Designations. Available: <https://msc.fema.gov/webapp/wcs/stores/servlet/info?storeId=10001&catalogId=10001&langId=-1&content=floodZones&title=FEMA%2520Flood%2520Zone%2520Designations>. Accessed: April 24, 2013.

The Project site is located in an area subject to future sea level rise inundation. According to the National Oceanic and Atmospheric Administration (NOAA) online Sea Level Rise and Coastal Flooding Impact Viewer,[20] and maps available from the BCDC,[21] the northern portion of the Jefferson Site would potentially be subject to inundation with an expected mid-century sea level rise (1.3 and 1.57 feet by 2050). Sea level rise in combination with high tide events produce the most near-term damage from flooding. BCDC and other local agencies are in the process of developing and implementing mitigation and adaptation strategies to reduce the potential for these flood risks.

The Commonwealth Site and the Jefferson Site are not subject to flooding from tsunami, seiche, or dam failure inundation.[22] According to the State of California Tsunami Inundation Map for Emergency Planning (Redwood Point Quadrangle/Palo Alto Quadrangle) the Project site is not located within a tsunami inundation area.[23] However, the South Bay Salt Ponds and portions of Flood and Ravenswood sloughs, located approximately 0.3 mile to the west of the Project site, are located within designated tsunami inundation areas. Because there are no large bodies of water, such as reservoirs or lakes, within the City, and only a very small portion of the City is located within the tsunami inundation zone, there is no risk of seiches affecting the Project site. According to the ABAG online dam failure inundation maps, although portions of the City are within the Searsville and Searsville/Felt dam inundation zones, the Project site is not located within a dam inundation zone. Because the Project site, and the majority of the City, is relatively flat, and the City is outside of the impacted zones for earthquake-induced landslides or rainfall-inducted landslides, no mudflows or debris slides are expected to occur within the Project site. This is further discussed in Section 3.8, *Geology and Soils*.

Environmental Impacts

Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the Project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Violate any water quality standards or waste discharge requirements.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted).
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite.

[20] NOAA. 2013. Sea Level Rise and Coastal Flooding Impact Viewer. Accessed: October 28, 2013. Available: http://csc.noaa.gov/digitalcoast/tools/slrviewer.

[21] San Francisco Bay Conservation and Development Commission. 2007. San Francisco Bay Scenarios for Sea Level Rise Index Map. Available: http://www.bcdc.ca.gov/planning/climate_change/index_map.shtml. Accessed: April 16, 2013.

[22] San Mateo County. 1986. San Mateo County General Plan—Natural Hazards map. San Mateo County Planning and Building Department. Available: http://www.co.sanmateo.ca.us/planning/genplan/. Accessed: April 16, 2013.

[23] The California Emergency Management Agency (CalEMA), the University of Southern California (USC), and the California Geological Survey (CGS). 2009. Tsunamic Inundation Map For Emergency Planning. State of California, County of San Mateo. Redwood Point Quadrangle/Palo Alto Quadrangle. June 15.

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite.
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Otherwise substantially degrade water quality.
- Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows.
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.
- Contribute to inundation by seiche, tsunami, or mudflow.

Methods for Analysis

All Project elements were analyzed by comparing baseline conditions, as described in the *Environmental Setting*, to conditions during construction and/or operations of the Project. Analysis focused on issues related to surface hydrology, flood hazards, groundwater supply, and surface and groundwater quality. The key construction-related impacts were identified and evaluated qualitatively based on the physical characteristics of the Project site and the magnitude, intensity, location, and duration of activities.

- **Surface Water Hydrology.** The surface water hydrology impact analysis considered changes in water bodies, impervious surfaces, and drainage patterns. Information on the change in impervious surface, runoff quantities, and drainage patterns was provided by the City. The analysis of changes of onsite water bodies involved a comparison of existing onsite hydrological conditions and new/modified conditions proposed as part of the Project, which were provided in the stormwater report for the Project (Appendix 3.9), by the City, and other sources.
- **Flood Hazards.** The impact analysis for flood risk was conducted using FEMA mapping to determine the existing flood zone and information from the City regarding changes in the drainage system and layout that may affect flood risk.
- **Groundwater Supply.** Impacts on groundwater supply were analyzed using information from the California Department of Water Resources (DWR) Groundwater Bulletin 118 v4.1 and a comparison of existing sources of recharge versus Project modified recharge capabilities. Recharge is determined by the ability for water to infiltrate into the soil. Although the extent of the groundwater aquifer is unknown within the Project site due to lack of data from DWR, this analysis assumes that groundwater exists within the entire Project site.
- **Surface and Groundwater Quality.** Impacts of the Project on surface water and groundwater quality were analyzed using existing information on potential existing sources of pollution generated by industrial and commercial operation activities, such as vehicle use, building maintenance, pesticide use, trash, and storage of hazardous materials. These impacts were then compared to potential Project-related sources of pollution during Project construction, such as sediments and other construction materials, and during Project operation, such as vehicle use, building maintenance, pesticide use, trash, and storage of hazardous materials.

Impacts Not Evaluated in Detail

Housing and Structures within a 100-Year Flood Hazard Area. Implementation of the Project would entail demolishing the existing structures at the Commonwealth and Jefferson Sites and constructing two four-story buildings for office, biotech, and/or research and development (R&D) uses. The Project does not include a housing component and, as such, implementation of the Project would not place housing within a 100-year flood hazard area. Similarly, the Project site is not within the 100-year flood hazard area and, therefore, no structures would be placed within a 100-year flood hazard area that would impede or redirect flood flows. There would be ***no impact***, and this issue is not evaluated further.

Tsunami, Seiche, or Dam Failure Impacts. As previously described, the Commonwealth and Jefferson Sites are not subject to flooding from tsunami, seiche, or dam failure inundation[24] and implementation of the Project would not contribute to inundation by seiche, tsunami, or mudflow. There would be ***no impact***, and this issue is not evaluated further.

Impacts and Mitigation Measures

Impact WQ-1: Violation of Water Quality Standards or Waste Discharge Requirements. The Project would not violate any water quality standards or waste discharge requirements. (LTS)

Construction

Implementation of the Project would include construction activities, such as site clearing and grubbing, demolition and removal of existing structures and pavement, cut and fill activities, grading and excavation, paving, building construction, tree removal, and landscaping. These land-disturbing activities and placement of stockpiles within proximity to storm drain inlets may also result a temporary increase in sediment loads to the Lower San Francisco Bay. Sediment transport to local drainage facilities such as drainage inlets, culverts, and storm drains could also result in reduced storm flow capacity, resulting in localized ponding or flooding during storm events. Sediment can affect surface water quality through interference with photosynthesis, oxygen exchange, and the respiration, growth, and reproduction of aquatic species. Other pollutants, such as nutrients, trace metals, and hydrocarbons, can adsorb to sediment and be transported with sediment to downstream locations and degrade water quality. Land disturbance would occur across the Project site (578,472 sf).[25] The Project would remove a total of approximately 16,025 cubic yards (cy) of concrete, asphalt concrete, and construction and demolition (C&D) debris (wood, metal roofing, steel work, etc.), 75 percent of which is assumed would be recycled. In addition, a total of approximately 12,700 cy of soil would be removed; of which 6,000 cy would be reused as fill for the Project, resulting in approximately 6,700 cy of soil exported.[26,27]

[24] San Mateo County. 1986. San Mateo County General Plan—Natural Hazards map. San Mateo County Planning and Building Department. Available: http://www.co.sanmateo.ca.us/planning/genplan/. Accessed: April 16, 2013.

[25] Sobrato Organization. 2010. NPDES Checklist for Project Applicants. Checklist prepared by City of Menlo Park and San Mateo Countywide Water Pollution Prevention Program.

[26] City of Menlo Park. 2013. Housing Element Update, General Plan Consistency Update, and Zoning Ordinance Amendments Environmental Assessment—Section 4.8, Hydrology and Water Quality. Prepared by The Planning Center/DC&E. Berkeley, CA. April 4. Available: <http://www.menlopark.org/departments/pln/he/ea/Chapters/4-8_HydroWQ.pdf>. Accessed: April 24, 2013.

[27] Sobrato Organization and City of Menlo Park. 2013. Data Needs List for the Commonwealth Corporate Campus EIR. Information request prepared by ICF International. March 7.

The delivery, handling, and storage of construction materials and wastes (e.g., concrete debris), as well as the use of heavy construction equipment, could also result in stormwater contamination, and thereby impact water quality. Construction activities may involve the use of chemicals and operation of heavy equipment that could result in accidental spills of hazardous materials (e.g., fuel and oil) during construction activities that could enter the groundwater aquifer or nearby surface water bodies via runoff or storm drains. Constituents in fuel, oil, and grease can be acutely toxic to aquatic organisms and/or bioaccumulate in the environment. Staging areas or building sites can be sources of pollution because of the use of paints, solvents, cleaning agents, and metals during construction. The construction staging area is located adjacent to Jefferson Drive, where several storm drains leading to the Lower San Francisco Bay are located. Impacts associated with metals in stormwater include toxicity to aquatic organisms, such as bioaccumulation, and the potential contamination of drinking supplies.

All Project construction activities would be subject to existing regulatory requirements. All construction activities would comply with the General Construction Permit from the San Francisco Bay Regional Water Board, which contains standards to ensure that water quality is not degraded. Permitees also have to comply with the appropriate water quality objectives for the region. As part of this permit, standard erosion control measures and BMPs would be identified in a SWPPP and would be implemented during construction to reduce sedimentation of waterways and loss of topsoil. As a performance standard, BMPs to be selected would represent the best available technology (BAT) that is economically achievable and the best conventional pollutant control technology (BCT) to reduce pollutants. Commonly practiced BMPs may consist of a wide variety of measures taken to reduce pollutants in stormwater and other nonpoint-source runoff.

Measures would include installing erosion control such as silt fences, staked straw wattles, and geofabric to prevent silt runoff to storm drains or waterways. Topsoil and backfill would be stockpiled, protected, and replaced at the conclusion of construction activities. Disturbed soil would be revegetated as soon as possible with the appropriate selection and schedule for turf, plants, and other landscaping vegetation. No disturbed surfaces would be left without erosion control measures in place during the wet season, which generally occurs between October 1 and April 30. Project construction is expected to take approximately 15 months and, therefore, some activities would occur during the wet season. Efforts would be made by the Sobrato Organization (Project Sponsor) to conduct the majority of land-disturbance work outside of the typical wet season period and to minimize the potential for large rain events to mobilize loose sediment during construction. In addition, coverage under the General Construction Permit typically covers dewatering activities, but no dewatering would be required for the Project.

The SWPPP would include the following erosion- and sediment-control BMPs.

- Keep disturbed areas (areas of grading and related activities) to the minimum necessary for demolition or construction of the project.
- Keep runoff away from disturbed areas during grading and related activities.
- Stabilize disturbed areas as quickly as possible, either by vegetative, mechanical and/or physical methods.
- Trap sediment before it leaves the site with such techniques as check dams, sediment ponds, or straw wattles including perimeter protection.
- Use dirt and sediment tracking BMPs, including stabilized construction entrances and wheel washes.

- Implement routine street sweeping.
- Cover exposed soils and material stockpiles to prevent wind erosion.
- Use interceptor ditches, drainage swales, or detention basins to prevent storm runoff from transporting sediment into drainage ways and to prevent sediment-laden runoff from leaving any disturbed areas.
- Use landscaping and grading methods that lower the potential for down-stream sedimentation (e.g., modified drainage patterns, longer flow paths, encouraging infiltration into the ground, and slower storm-water conveyance velocities).
- During the installation of the erosion and sediment transport control structures, the erosion control professional must be on the site to supervise the implementation of the designs, and the maintenance of the facilities throughout the grading and construction period.
- Perform routine monitoring of erosion control facilities during construction and during/after rain events.

Further, as part of the SWPPP, the Project Sponsor would implement the following construction BMPs, as necessary, to protect stormwater quality.

- Store, handle, and dispose of construction materials and wastes.
- Control and prevent discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, washwater, and non-stormwater discharges to storm drains and watercourses.
- Avoid cleaning, fueling, or maintaining vehicles onsite, except in a designated area where washwater is contained and treated.
- Perform clearing and earth moving activities only during dry weather.
- Limit and time applications of pesticides and fertilizers to prevent polluted runoff. Delineate with field markers clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses.
- Train and provide instruction to all employees and subcontractors regarding construction BMPs.

Since the land disturbance for the Project would be more than 1 acre, coverage under the Construction General Permit would be required. Land disturbance for the Project would cover approximately 13 acres. In addition to compliance with the Construction General Permit, the City's Municipal Code (Title 7, Chapter 7.42) and the permit review process, the Project Sponsor would be required to prepare and implement a G&D Plan. BMPs implemented as part of the G&D Plan would reduce the amount of stormwater runoff and prevent the entry of Project-related sediment and pollutants into the City's storm drain system and other surface waters. BMPs to protect stormwater quality that would be implemented as part of the G&D Plan include the following.

- Site drainage shall be designed so that stormwater flows through vegetated or grassed swales or other pervious landscaped areas prior to entering the public right of way.
- Site drainage shall be designed to utilize on-site infiltration.
- Drainage systems shall be designed to prevent erosion and vector control problems (e.g., mosquito spawning grounds).

- Site drainage shall include onsite retention systems (or detention systems where retention is impracticable) designed so that the post-project runoff rate will not exceed preproject levels.
- Stormwater runoff generated by the project shall not drain onto adjacent properties. However, any existing storm drainage from adjacent properties shall not be blocked by the Project.
- To reduce the amount of directly connected impervious area, roof downspouts should connect to splash blocks (minimum 2 feet long) that allow water to be deflected away from the building to onsite landscaping or other pervious areas (including vegetated/grassy swales) that provide detention/retention.
- Adjacent properties and undisturbed areas shall be protected from construction impacts. Sediment-laden water shall not leave the site. Storage, handling, and disposal of construction materials shall be accomplished using methods that prevent them and other site wastes from coming into contact with stormwater.
- The groundwater table is relatively shallow at the Project site, and pollutants associated with construction activities (e.g., fuel, petroleum products) could migrate or percolate into the groundwater and contribute to degradation of the local groundwater aquifer. Implementation of construction BMPs, such as spill prevention and good housekeeping BMPs (e.g., proper storage, handling, and disposal of construction-related materials) would be included in the SWPPP and would minimize the potential for impacts on groundwater quality during construction.

Construction activities could result in short-term surface and groundwater quality impacts, such as input of sediment loads that exceed water quality objectives or chemical spills into water bodies if proper minimization measures are not implemented. However, because the Project would be in compliance with the General Construction Permit, local stormwater ordinances, and other related requirements, potential water quality impacts from construction activities would be ***less than significant***.

Operation and Maintenance

Under the Project, two buildings for office, biotech, and/or (R&D) purposes would be constructed, as would an associated surface parking lot, landscaping, and stormwater treatment (biotreatment) areas. External building and parking area maintenance activities would likely entail periodic painting of buildings and parking space demarcation lines and trash collection. Hazardous materials used for Project operation and maintenance (O&M) activities would be stored with secondary containment, and proper disposal techniques would be applied for associated wastes.

Up to eight stormwater treatment (or biotreatment) areas would be located throughout the Project site in order to limit stormwater runoff and provide for biotreatment of contaminants. These biotreatment areas would be open, level areas vegetated to allow runoff to be distributed evenly across the area. They would be designed to treat runoff by filtering raw runoff through the soil media in the treatment area. These biotreatment areas would trap particulate pollutants (suspended solids and trace metals) and promote infiltration. Project biotreatment areas would be designed to treat runoff so that pollutants (e.g., sediment, landscape fertilizers and/or pesticides, oil from parking areas) can be filtered out and, therefore, the Project would not contribute a substantial number of additional pollutants to runoff. There would be a 20 percent reduction in impervious surfaces relative to existing conditions once Project construction is complete. The new development would have a larger landscaped area, which would result in a net decrease in the amount of runoff leaving the Project site, and thus a reduced volume of potential contaminated runoff. Further, the Project site would be drained by a combination of

existing and new onsite storm drain systems. This combined system would collect runoff from the parking, roof, and hardscape areas and convey it to a pump(s). The pump(s) would be sized to discharge the flow to biotreatment areas. The balance of runoff not directed to the biotreatment areas would discharge directly to Jefferson Drive via a piped stormdrain system.

Project O&M activities would primarily entail landscape and biotreatment area maintenance, as well as periodic parking and external building maintenance. Biotreatment area maintenance would be performed routinely to prevent sediment buildup and clogging in order to ensure optimal pollutant removal efficiency. Maintenance activities would include the following and would be done periodically.

- Remove obstructions, debris and trash and dispose of properly.
- Inspect to ensure proper drainage between storms and within 5 days following rainfall.
- Inspect inlets for channels, soil exposure, or other evidence of erosion.
- Remove obstructions and sediment.
- Maintain vegetation via pruning and weeding, and treat with preventative and low-toxic methods.
- Check that mulch is maintained at an appropriate depth and replenish as necessary.
- Use soil that meets specifications included in the San Mateo County C.3 Stormwater Technical Guidance Manual. Specifically, soils must percolate at a rate of 5 to 10 inches per hour. Provide a laboratory analysis, from an approved testing laboratory, to the City to confirm that the soils provided meet the above requirement.
- Verify that pump(s) are operational.

A biotreatment area inspection and maintenance checklist will be used to conduct inspections, identify needed maintenance, and record maintenance that is conducted. Operation of the biotreatment areas would be expected to improve the quality of stormwater from the Project site. Maintenance of these areas would help eliminate or minimize impacts on stormwater quality.

Groundwater quality can also be impacted during Project operation. Implementation of the SMCWPPP would prevent substantial degradation of groundwater quality through adherence to source-control and nonstructural BMPs. The Project would not violate any water quality standards or waste discharge requirements as a result of Project O&M activities.

Impacts of Project O&M activities on stormwater quality would be eliminated or minimized as the Project would be required to comply with the Municipal Regional Permit SMCWPPP Provision C.3 Stormwater Technical Guidance. The Municipal Regional Permit SMCWPPP Provision C.3 Stormwater Technical Guidance was designed to help developers include post-construction stormwater controls to help reduce long term impacts on stormwater quality and receiving waters. The SMCWPPP requires the use of structural and non-structural stormwater BMPs. Structural BMPs would remove targeted substances from runoff, while non-structural BMPs, such as integrated pesticide management practices, would assist with source reduction. The San Francisco Bay Regional Water Board has incorporated requirements in the Municipal Stormwater NPDES Permit to be protective of water quality and approved the SMCWPPP as being in compliance with the Municipal Stormwater NPDES Permit.

In summary, the Project would be in compliance with the San Francisco Bay Region MS4 Permit, SMCWPPP, and local stormwater ordinances, through implementation of BMPs and biotreatment

measures, among other activities, as part of the project. Therefore, potential water quality impacts resulting from Project O&M, would be ***less than significant***.

Impact WQ-2: Effects on Groundwater Supplies and Recharge. The Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that a net deficit in aquifer volume or a lowering of the local groundwater table level would result. (LTS)

The Project would not substantially deplete groundwater supplies or substantially interfere with groundwater recharge because it would not increase groundwater demand or decrease groundwater recharge areas. As described in the *Environmental Setting*, the majority of the water supplied to the Project site is from surface water sources, and this would not change during or following Project implementation. Construction of the Project would not require dewatering activities, so there would be no potential for reducing the volume of water in the local aquifer table.

In addition, natural groundwater recharge of the San Mateo subbasin occurs primarily by infiltration of water from streams. Additional recharge occurs by percolation of precipitation that falls directly on the ground surface. Because implementation of the Project would result in an increase of approximately 2.5 acres (110,300 sf) in pervious surface area, there would be an increase in groundwater recharge potential at the Project site. In addition to other landscaping features, the biotreatment areas would allow water infiltrations. Therefore, the Project's impact on groundwater supplies and recharge would be ***less than significant***.

Impact WQ-3: Changes to the Existing Drainage Patterns. The Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation, or flooding onsite or offsite. (LTS)

Project construction activities would alter existing drainage patterns and could result in local (onsite) and temporary erosion and siltation. However, although drainage patterns on the Project site would be altered, drainage would ultimately be improved because Project implementation would result in increased pervious area that would further minimize runoff volumes and the potential for ponding and other drainage issues onsite. In addition, as previously described, the Project would minimize the potential for erosion and sedimentation.

The Project would be in compliance with existing NPDES permits and the City's Municipal Code for construction and stormwater management (Chapter 7.42), including preparation and implementation of a G&D Plan and a SWPPP (as described under Impact WQ-1). Operation of the Project would also require soil stabilization (e.g., vegetation, other protective cover, and stabilized slopes and fills) in accordance with the SMCWPPP, SWPPP, and City Municipal Code (Chapter 7.42), which would reduce erosion and sediment transport. Further, because there would be less impervious surface area under the Project relative to existing conditions, Project site drainage characteristic would be such that there would be a reduced potential for erosion and siltation. Additionally, the Project would not alter the course of an existing stream or river because these features do not exist onsite. Therefore, implementation of the project would have a less-than-significant impact with regard to resulting in substantial erosion or siltation through alterations of existing drainage.

The Project site is not within a FEMA-designated special flood hazard area for a 100-year flood. Following Project implementation, there would be an increase in pervious surface area relative to existing conditions, which would ultimately reduce the potential for moderate flood risks associated

with low flood elevations and ponding in areas throughout the Project site. As described in the stormwater report for the Project site (Appendix 3.9), following Project development, there would be a 20 percent reduction in impervious surfaces relative to existing conditions (from 93.4 percent to 74.4 percent). Pervious surfaces will increase from 37,895 sf to 148,194 sf following project development. The stormwater report prepared for the Project (Appendix 3.9) estimated pre-and post-construction 10-year storm runoff rates (Q10). The stormwater report states that the existing Project site Q10 is 19.43 cfs. As a result of the increase in pervious area and other improvements, the Project site Q10 would decrease by 2.58 cfs to 16.85 cfs post Project development.[28] The overall effect of these changes would be an approximate 13.3 percent reduction in the total volume of stormwater runoff rate at the Project site. Drainage plans typically focus on preventing street flooding during a 10-year storm, which is representative of smaller, frequent storms compared to the 100-year storm event.

In addition, surface runoff from the Project site would be collected into a combination of new and existing storm drain inlets and pipes, and a portion required for stormwater treatment would be directed to pumps and ultimately be pumped to the biotreatment areas located throughout the site.

As described in the *Environmental Setting*, according to BCDC maps, the northwestern portion of the Project site (i.e., adjacent to Jefferson Drive) would potentially be subject to inundation with an expected mid-century sea level rise (2050). However, no buildings are proposed in this portion of the Project site; the area where the buildings would be constructed is not subject to flooding due to sea level rise. Because the Project would ultimately reduce the potential for flooding at the Project site through increased pervious area, biotreatment, and storm drainage, it would not contribute to flood risks associated with sea level rise. In addition, there are no aspects of the Project that would physically or directly alter water surface elevations in the Bay or where sea level rise-induced flooding is projected to occur. According to the Project stormwater report, development of the Site would not cause or increase offsite flooding.[29] There would be no changes in the magnitude or extent of sea level rise induced by the Project that would increase flood risk elsewhere.

Because the Project would ultimately reduce surface runoff rates and would incorporate biotreatment areas, it would be in compliance with the San Francisco Bay Region MS4 Permit Provision C.3 requirements. In addition, the Project would not increase flood risks associated with sea level rise. The Project would not alter the course of an existing stream or river because these features do not exist onsite. Therefore, the Project would not result in flooding onsite or offsite as a result altering existing drainage patterns or substantially increase the rate or amount of runoff. The impact would be ***less than significant***.

Impact WQ-4: Changes to Stormwater Runoff. The Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. (LTS)

As discussed for Impact WQ-3, implementation of the Project would result in a 13.3 percent reduction in the total stormwater runoff rate for a 10-year storm event (as compared to the existing conditions). The redeveloped site would be drained by a combination of existing and new onsite storm drain systems, as described under Impact WQ-1; the new development would have a larger landscaped area relative to existing conditions, and biotreatment measures would be incorporated. These features would result in a

[28] Kier & Wright Civil Engineers & Surveyors. 2013. Stormwater Report for 151 Commonwealth Drive and 164 Jefferson Drive, Menlo Park, California. Project No. A11089-2. April 12. Santa Clara, California.

[29] Kier & Wright Civil Engineers & Surveyors. 2013. Stormwater Report for 151 Commonwealth Drive and 164 Jefferson Drive, Menlo Park, California. Project No. A11089-2. April 12. Santa Clara, California.

net decrease in the amount of runoff, and associated pollution leaving the Project site. Thus, runoff water from the Project site would not exceed the capacity of existing or planned stormwater drainage systems. The Project also would not provide substantial additional sources of polluted runoff, as discussed in Impact WQ-1. Therefore, this would be a ***less-than-significant*** impact.

Impact WQ-5: Degradation of Water Quality. The Project would not otherwise substantially degrade water quality. (LTS)

Impact WQ-1 discusses impacts involving violations of water quality objectives and standards. This impact addresses "other" water quality impacts, such as those that can result from wetland dredge and fill. However, there will be no wetland dredge or fill as part of the Project. The Project would involve other minor alterations to water quality, but they would all be related to compliance with water quality standards. Therefore, similar to Impact WQ-1, this impact would be ***less-than-significant***.

Impact WQ-6: Impacts from Flooding. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. (LTS)

Several levees are located along the San Francisco Bay shoreline to protect facilities, such as high-tech businesses and schools. The Project facilities would not cause an increase in impervious area or obstructions large enough to impede flows that would greatly increase the flood risks associated with levee failure.

There are no dams located in the Project vicinity; therefore, there is no risk of dam failure.

The increase in impervious area will not be large enough to affect flood capacities within the floodplains. Therefore, potential flooding impacts associated with levee failure would be ***less than significant***.

Cumulative Impacts

The cumulative projects considered in this impact analysis consist of two categories, as shown in Table 3.0-1 and Table 3.0-2. The first category of projects, identified as Tier 1, consist of reasonably foreseeable development projects identified by the City and largely within City limits. The second category, identified as Tier 2, encompasses a larger geographic area and would be San Mateo County. This cumulative analysis examines the effects of the Project in combination with other current projects, probable future projects, and projected future growth within the applicable geographic context in the next 20 years.

Impact C-WQ-1: Cumulative Degradation of Water Quality. The Project would not contribute to a cumulative degradation of water quality. (LTS)

Tier 1

Development of the Project and other development within the City would potentially degrade stormwater quality by contributing pollutants during construction and operation. As previously discussed, stormwater quality varies according to surrounding land uses, impervious surface area, and topography, as well as with the intensity and frequency of rainfall or irrigation. Runoff can contain grease, oil, and metals accumulated in streets and driveways, as well as sediment and other particulates, animal waste, pesticides, herbicides, fertilizer, and trash.

Cumulative development could affect water quality if the land use change, the intensity of land use changes, and/or drainage is altered such that the introduction of pollutants to surface water or groundwater is facilitated. Land use changes would potentially alter the type and concentration of pollutants in stormwater runoff, and increased intensity of land use would potentially increase pollutant concentrations. The most common sources of stormwater pollutants in urban areas are from construction sites, streets, parking lots, large landscaped areas, and household and industrial materials dumped into storm drains.

When the effects of the Project on water quality are considered in combination with the potential effects of projects listed in Table 3.0-1, there would be the potential for cumulative impacts to surface, stormwater and groundwater quality. The incremental water quality impact contribution from implementation of the Project would be minor for the reasons discussed under Impacts WQ-1, WQ-5, and WQ-6. The combined effects on water quality from the Project and other projects in the City could result in a cumulatively significant impact. However, new projects within the City are subject to the requirements of the SMCWPPP, the associated Municipal NPDES Permit, the Construction General Permit, and the City's municipal codes as they relate to water quality; these regulatory requirements have been designed to be protective of water quality. Additionally, development projects would be subject to an environmental review process, which would identify potential site- and/or project-specific water quality impacts, and mitigate for any potential significant impacts. Therefore, there would be a ***less-than-significant*** cumulative impact on water quality as a result of Project implementation.

Tier 2

The Tier 2 projects encompass a larger geographic area, i.e., San Mateo County, and consist of projects that are in the early stages of planning/programming or whose development could be considered somewhat speculative (Table 3.0-2). The Project's incremental water quality impact contribution would be minor, as described in the Tier 1cumulative impact analysis above. Similarly, for the reasons described in the Tier 1 analysis, there would be a ***less-than-significant*** cumulative impact on water quality in San Mateo County as a result of Project implementation.

Impact C-WQ-2: Cumulative Impacts on Groundwater Supply. The Project would not contribute to a cumulative interference with groundwater supply or recharge. (LTS)

Tier 1

The City is located in the San Mateo groundwater subbasin, which is recharged through infiltration into stream beds and through infiltration of precipitation on the Santa Clara Valley floor. Most of the cumulative projects (Table 3.0-1) are redevelopment or infill projects in urbanized areas where recharge does not occur. Cumulative development would not be expected to substantially increase the amount of impervious surfaces, so groundwater recharge potential from percolating rainfall would not be adversely affected, and indirect lowering of the local groundwater table is not likely to occur. As explained in Impact WQ-2, implementation of the Project would result in an increase in pervious surface area and, therefore, the Project would potentially contribute to groundwater recharge. Further, there would be a reduction of impervious surfaces with Project implementation. As a result, groundwater recharge would not be adversely affected. The Project's contribution to cumulative groundwater recharge impacts would not be cumulatively considerable, and there would be a ***less-than-significant*** cumulative impact.

The Project's contribution to cumulative impacts on water supply is discussed in Section 3.13, *Utilities and Service Systems*.

Tier 2

For the reasons discussed in the above Tier 1 cumulative impact analysis on groundwater recharge, the Project's incremental impact contribution to cumulative groundwater impacts from projects listed in Table 3.0-2 would be minor, and there would be a ***less-than-significant*** cumulative impact on groundwater recharge.

For the reasons discussed for Tier 1 cumulative impact analysis and as a result of other efforts of local agencies to reduce the risks of flooding from sea level rise, the Project would not contribute to a cumulative exposure of people and structures to risks of flooding, and there would be a ***less-than-significant*** cumulative impact.

Impact C-WQ-3: Cumulative Contribution to Storm Drainage Capacity. The Project would not contribute to a cumulative exceedance of the City's storm drainage capacity. (LTS)

Tier 1

Cumulative development in the City could increase the volume and rate of stormwater runoff. Such increases could cause localized flooding if the storm drainage capacity is exceeded or if flows exceed channel capacities and are conveyed to overbank areas where flood storage may not be available. For the most part, the cumulative projects in the City would occur in developed areas with impervious surfaces, and these projects would not be expected to substantially increase the amount of impervious surfaces. All cumulative projects within the City would be required to include design features to reduce flows to preproject conditions. If improvements to storm drainage capacity are needed, the project applicants would be required to coordinate with the City to ensure the appropriate conditions of approval for storm drainage improvements are identified. As described under Impact WQ-4, following Project development, there would be a reduction in impervious surfaces relative to existing conditions and an increase in pervious surfaces. The overall effect of these changes would be a reduction in the total system stormwater runoff rate at the Project site. Therefore, the Project would not likely contribute to the cumulative exceedance of the City's storm drainage capacity, and there would be a ***less-than-significant*** cumulative impact.

Tier 2

For the reasons discussed for Tier 1 cumulative impact analysis on exceeding storm drainage capacity, the Project would not likely contribute incrementally to the cumulative exceedance of storm drain capacity along with the projects listed in Table 3.0-2, and there would be a ***less-than-significant*** cumulative impact on storm drainage.

Impact C-WQ-4: Cumulative Flooding Impacts. The Project would not contribute to cumulative exposure of people and structures to a significant risk of loss, injury, or death due to flooding. (LTS)

Tier 1

Cumulative development in the City could increase the exposure of people and structures to flood risks. Projects that increase impervious area or result in development within low-lying areas (i.e., infill and/or near the Bay front), would be most at risk. However, the County of San Mateo, BCDC, and other local agencies are currently implementing requirements that will minimize increased impervious area and will promote methods for reducing flood risks with new development. These efforts will also help

minimize the potential impacts of flooding from sea level rise and events associated with a combination of high tides and sea level rise. Therefore, the Project would not contribute to a cumulative exposure of people and structures to risks of flooding, and there would be a ***less-than-significant*** cumulative impact.

Tier 2

For the reasons discussed in the above Tier 1 cumulative impact analysis, the Project would not contribute to a cumulative exposure of people and structures to risks of flooding Mitigation strategies include limiting development in flood-prone areas and adaptation strategies include flood-improvement projects, such as the San Francisquito Joint Powers Authority's efforts to reduce flood risks along San Francisquito Creek and a potential tidal barrier along a portion of the coastline of the Bay. In addition, the BCDC and other local agencies are currently working on developing and implementing climate change mitigation and adaptation strategies to prevent potential future impacts of sea level rise and events associated with a combination of high tides and sea level rise.