

4.8 HYDROLOGY AND WATER QUALITY

This section identifies hydrology and water quality conditions at the Green Valley 3 Apartments Project (proposed project) site and in the surrounding areas and evaluates the potential impacts to hydrology and water quality due to project implementation. Information in this section is based on the following references: the *City of Fairfield General Plan*, the *Preliminary Stormwater Control Plan Green Valley 3 Apartments*¹ (provided in **Appendix H** of this EIR), and the *Geotechnical Engineering Report Green Valley 3 Apartments*² (provided in **Appendix G** of this EIR).

4.8.1 Environmental Setting

This section describes the existing hydrology and water quality conditions at the project site, in the area immediately surrounding the project site, and in the broader region in which the project site is located.

4.8.1.1 Surface Waters

The project site is located within the Wooden Valley Creek-Frontal Suisun Bay Estuary Watershed, which is within the Suisun Bay Watershed Subbasin, which is part of the larger San Francisco Bay Watershed (refer to **Figure 4.8-1: Watersheds**).

A constructed drainage ditch and associated riparian corridor that follows the alignment of a historic tributary to Green Valley Creek are located along the western boundary of the project site. The drainage ditch connects to an old tributary of Green Valley Creek, and continues to a culvert that drains under Business Center Drive into a regional stormwater detention basin. Overflow from the basin then discharges south into Green Valley Creek.

Green Valley Creek, which is located just west of Green Valley Road in the project vicinity, is an intermittent to perennial stream that drains southeast into Cordelia Slough, which in turn drains into Suisun Slough and Marsh, eventually into Grizzly Bay which is a portion of the larger Suisun Bay (refer to **Figure 4.8-2: Surface and Ground Waters**). Suisun Bay is a shallow tidal estuary that lies at the terminus of the Sacramento Delta and flows into San Pablo Bay, then San Francisco Bay, and then out to the Pacific Ocean.

4.8.1.2 Stormwater Drainage

The project site has been rough graded previously and is relatively flat. The project site generally slopes from north to south at approximately 0.005 feet/foot. A detention basin serving the residential properties north of the project site drains through private 24-inch and 36-inch pipes that run through the property. Runoff from the project site is conveyed to a regional detention basin located south of Business Center Drive through the existing storm drain system.

¹ TDS Engineering Inc. *Preliminary Stormwater Control Plan Green Valley 3 Apartments*. February 2022.

² Wallace Kuhl & Associates. *Geotechnical Evaluation of Green Valley 3 Apartments*. February 16, 2022.

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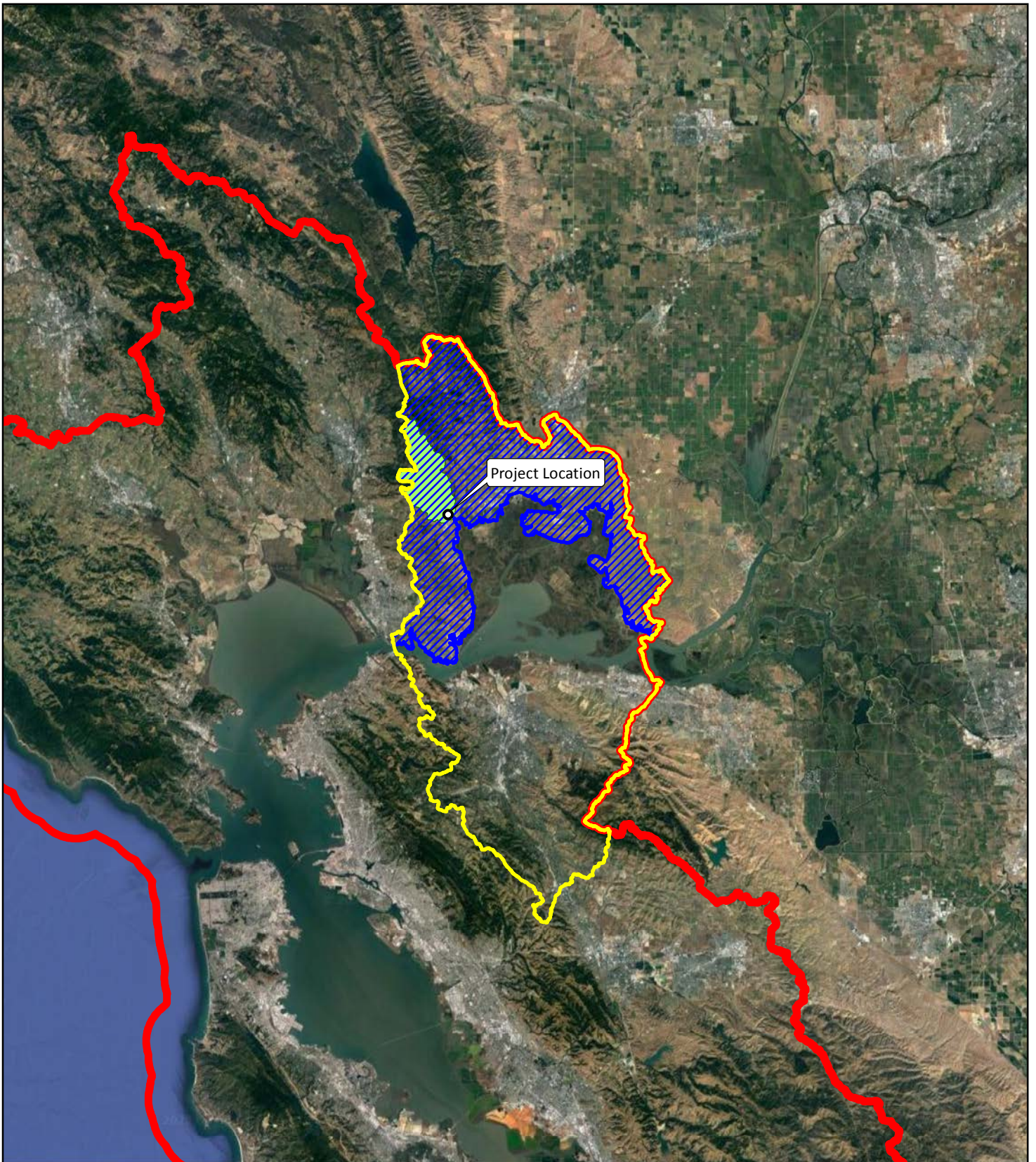
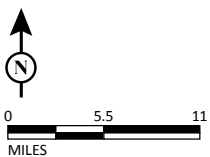


FIGURE 4.8-1

LEGEND

- Project Site
- ▭ Watershed Basin: San Francisco Bay
- ▭ Watershed Subbasin: Suisun Bay
- ▨ Watershed: Wooden Valley Creek-Frontal Suisun Bay Estuaries
- ▨ Subwatershed: Green Valley Creek



Source: Google (2021); NHD (2021)
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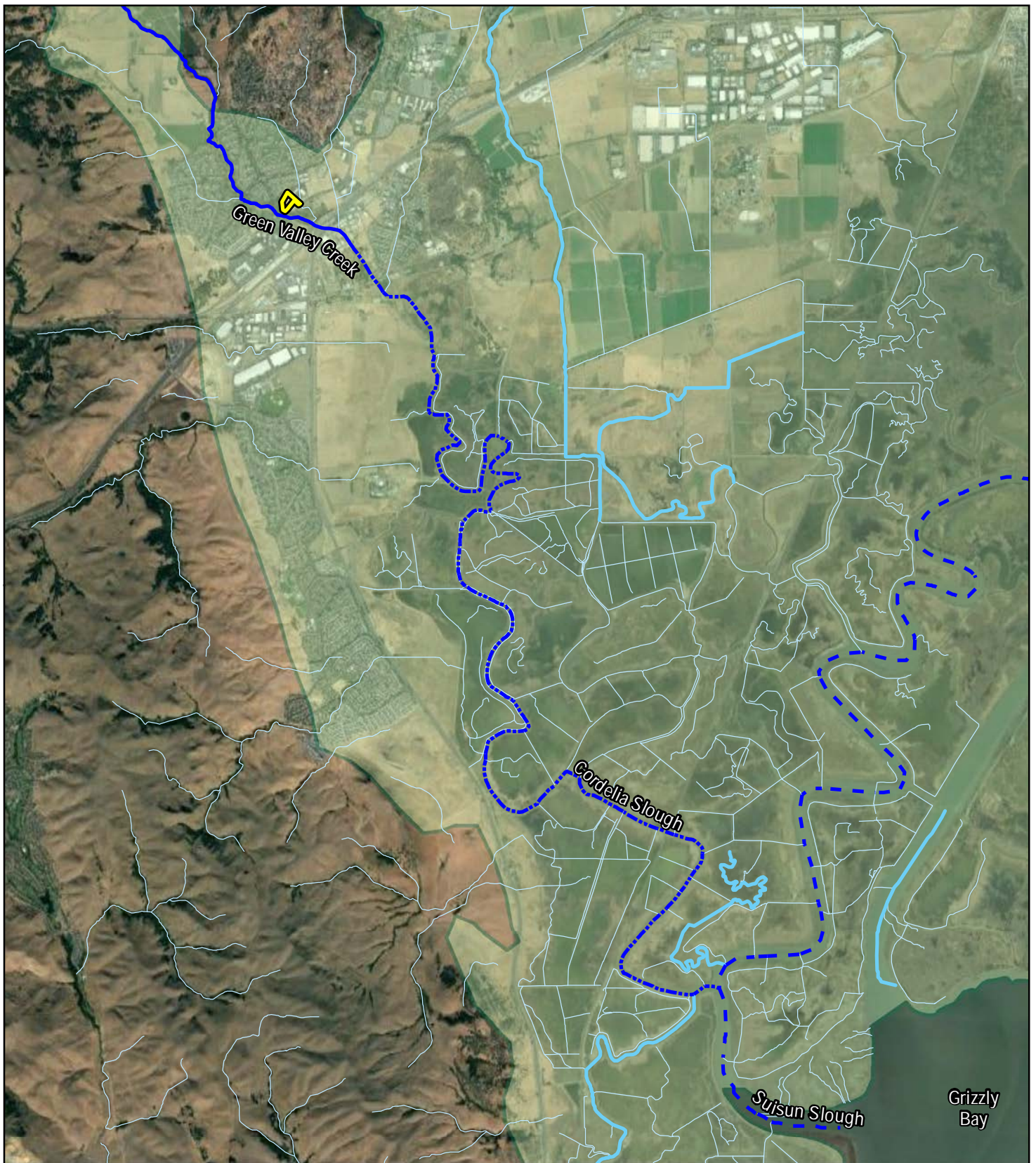








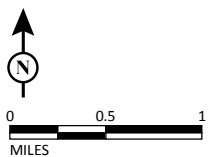


FIGURE 4.8-2

LEGEND

- | | |
|--|---|
|  Project Site |  Groundwater Basins |
|  Unnamed Surface Waters |  Suisun-Fairfield Valley |
|  Green Valley Creek | |
|  Cordelia Slough | |
|  Suisun Slough | |
|  Other Named Creek/Slough | |



Source: Google (2021); NHD (2021)

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Green Valley 3 Apartments Project
Surface and Groundwaters

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4.8.1.3 Surface Water Quality

Green Valley Creek is not listed as impaired on the 2018 California Integrated Report (Clean Water Act [CWA] Section 303(d) List/305(b) Report (Section 303 List of Impaired Water Bodies). Cordelia Slough is listed on the Section 303 List of Impaired Water Bodies as impaired for low dissolved oxygen and mercury. Suisun Marsh is impaired for low dissolved oxygen, mercury, nutrients, and salinity/total dissolved sediments/chlorides. Suisun Bay is impaired for furan compounds, polychlorinated biphenyls (PCBs), chlordane, dieldrin, dioxins, dichlorodiphenyltrichloroethane (DDT), mercury, and selenium. San Francisco Bay is impaired for furan compounds, PCBs, chlordane, dieldrin, dioxins, DDT, mercury, selenium, invasive species, and trash.

4.8.1.4 Groundwater

The project site is located within the Suisun-Fairfield Valley Groundwater Basin. The Suisun-Fairfield Valley Groundwater Basin covers an approximately 208 square mile area.³ The Groundwater Basin is composed of low alluvial plains, surrounding foothills, and mountains located immediately north of Suisun Bay. The basin is bounded on the west by the foothills of the Coast Ranges located west of Green Valley. The southern extent of the Vaca Mountains forms the basin boundary to the north, and its eastern extent is marked by low ridges of consolidated rock that appear near Vacaville and extend southeast to the Montezuma Hills. The basin drains to Suisun Bay in the south.⁴ Groundwater depths in the project area range from 10 to 20 feet below sea level.⁵ Based on borings conducted in 2021 as part of the geotechnical evaluation of the project site, groundwater was observed at depths ranging from 6 to 8 feet below existing grades.⁶

4.8.1.5 Groundwater Quality

Groundwater in the basin is slightly alkaline. Water, although scarce, in the area east of Fairfield has boron present in amounts that would be toxic to most plants. In the area south of Fairfield, the near proximity of the tidal marsh poses the threat of intrusion by brackish water if subjected to heavy groundwater draft.⁷

4.8.1.6 Flood Zones

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 06095C0432E (May 4, 2009), the project site is not located within a 100-year floodplain and is in

³ California Department of Water Resources. 2014. *California's Groundwater Basin Bulletin 118: Suisun-Fairfield Valley Groundwater Basin*. June 30, 2014.

⁴ California Department of Natural Resources. 2021. *Groundwater Basin Boundary Description*. September 2021. Website: <https://data.cnra.ca.gov/dataset/bbd2/resource/8a156704-8fbd-4eeb-aaa1-fa5cbc555ed3> (accessed March 7, 2022).

⁵ Solano Water Authority. 1999-2002. *Groundwater Conditions in Solano County*. Website: <https://www.scwa2.com/wp-content/uploads/2020/02/Ground-water-Annual-Report-1999-to-2002-ID-105148.pdf>

⁶ Wallace Kuhl & Associates. *Geotechnical Engineering Report. Green Valley 3 Apartments*. May 4, 2021 (Revised February 16, 2022)

⁷ California Department of Water Resources. 2014. op. cit.

Zone X.⁸ Zone X areas are defined by FEMA as areas of minimal flood hazard, which are the areas outside of the Special Flood Hazard Area and higher than the elevation of the 0.2 percent annual chance flood.

4.8.2 Regulatory Setting

The following discusses applicable standards and policies related to hydrology and water quality, including those from federal, State, regional, and local agencies.

4.8.2.1 Federal Laws and Regulations

Clean Water Act. In 1972, the Federal Water Pollution Control Act (now referred to as the Clean Water Act [CWA]) was amended to require that the discharge of pollutants into waters of the United States from any point source be effectively prohibited unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. In 1987, the CWA was again amended to require that the United States Environmental Protection Agency (USEPA) establish regulations for the permitting of stormwater discharges (as a point source) by municipal and industrial facilities and construction activities under the NPDES permit program. The regulations require that Municipal Separate Storm Sewer System (MS4) discharges to surface waters be regulated by an NPDES permit.

The CWA requires states to adopt water quality standards for water bodies and have those standards approved by the USEPA. Water quality standards consist of designated beneficial uses for a particular water body (e.g., wildlife habitat, agricultural supply, and fishing), along with water quality criteria necessary to support those uses. Water quality criteria are set concentrations or levels of constituents (e.g., lead, suspended sediment, and fecal coliform bacteria) or narrative statements that represent the quality of water that support a particular use. Because California had not established a complete list of acceptable water quality criteria for toxic pollutants, the USEPA Region IX (Pacific Southwest) established numeric water quality criteria for toxic constituents in the form of the California Toxics Rule (CTR).

When designated beneficial uses of a particular water body are being compromised by water quality, Section 303(d) of the CWA requires identifying and listing that water body as impaired. Once a water body has been deemed impaired, a Total Maximum Daily Load (TMDL) must be developed for each impairing water quality constituent. A TMDL is an estimate of the total load of pollutants from point, non-point, and natural sources that a water body may receive without exceeding applicable water quality standards (often with a “factor of safety” included, which limits the total load of pollutants to a level well below that which could cause the standard to be exceeded). Once established, the TMDL is allocated among current and future dischargers into the water body.

Direct discharges of pollutants into waters of the United States are not allowed except in accordance with the NPDES program established in Section 402 of the CWA.

⁸ Federal Emergency Management Agency (FEMA). Federal Emergency Management Act. May 4, 2009. *FEMA Flood Map Service Center: Search by Address*. Website: <https://msc.fema.gov/portal/search> (accessed October 2022).

Clean Water Act, Section 303, List of Impaired Water Bodies. The State Water Resources Control Board (SWRCB), in compliance with Section 303(d) of the CWA, prepared a 2014/2016 list of impaired water bodies in California. The SWRCB approved the 2014/2016 California Integrated Report (CWA Section 303(d) List/305(b) Report) on October 3, 2017. On April 6, 2018, the USEPA approved the 2014/2016 California 303(d) List of Water Quality Limited Segments (303[d] list). The 303(d) list includes a priority schedule for the development of TMDL implementation for each contaminant impacting the water body. As stated above, Green Valley Creek is not listed as impaired on the Section 303 List of Impaired Water Bodies.

National Flood Insurance Act. The U.S. Congress acted to reduce the costs of disaster relief by passing the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts was to reduce the need for large, publicly funded flood control structures and disaster relief efforts by restricting development in floodplains. FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in a floodplain. FEMA issues FIRMs of communities participating in the NFIP. These maps delineate flood hazard zones in the community. The City of Fairfield manages local storm drain facilities, and the Solano County Water Agency (SCWA) is responsible for regional flood control planning within Solano County.

4.8.2.2 State Laws and Regulations

Porter-Cologne Water Quality Control Act of 1970. The federal CWA places the primary responsibility for the control of water pollution and planning the development and use of water resources with the states, although it does establish certain guidelines for the states to follow in developing their programs.

California's primary statute governing water quality and water pollution is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the SWRCB and the nine RWQCBs broad powers to protect water quality and is the primary vehicle for the implementation of California's responsibility under the federal CWA. The Porter-Cologne Act grants the SWRCB and RWQCBs the authority and responsibility to adopt plans and policies, to regulate discharges to surface water and groundwater, to regulate waste disposal sites, and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, oil, or petroleum product.

Each RWQCB must formulate and adopt a water quality plan for its region. The regional plans are to conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State water policy. The Porter-Cologne Act also provides that an RWQCB may include in its region a regional plan with water discharge prohibitions applicable to particular conditions, areas, or types of waste. The City, including the project site, is within the jurisdictional boundaries of the San Francisco Bay RWQCB.

California Toxics Rule. As stated previously, because California had not established a complete list of acceptable water quality criteria for toxic pollutants, USEPA Region IX established numeric water quality criteria for toxic constituents in the form of the California Toxics Rule (CTR). The CTR provides

water quality criteria for certain potentially toxic compounds for inland surface waters, enclosed bays, estuaries, and waters designated for human health or aquatic life uses. The CTR is often used by the RWQCBs when establishing water quality objectives and TMDLs. Although the CTR criteria do not apply directly to discharges of stormwater runoff, they are utilized as benchmarks for toxics in urban runoff. The CTR is used as a benchmark to evaluate the potential ecological impacts of stormwater runoff to receiving waters. The CTR establishes acute and chronic surface water quality standards for certain water bodies. Acute criteria provide benchmarks for the highest permissible concentration below which aquatic life can be exposed for short periods of time without deleterious effects. Chronic criteria provide benchmarks for an extended period of time (i.e., 4 days or more) without deleterious effects. The acute CTR criteria have a shorter relevant averaging period (less than 4 days) and provide a more appropriate benchmark for comparison for stormwater flows.

CTR criteria are applicable to the receiving water body and therefore must be calculated based on the probable hardness values of the receiving waters. At higher hardness values for receiving waters, certain constituents (including copper, lead, and zinc) are more likely to be complex (bound with) components in the water column. This in turn reduces the bioavailability and resulting potential toxicity of these metals.

General Construction Activity Storm Water Permit. The *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities*, Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ (Construction General Permit), adopted by the SWRCB, regulates construction activity that includes clearing, grading, and excavation resulting in soil disturbance of at least 1 acre of total land area. The Construction General Permit authorizes the discharge of stormwater to surface waters from construction activities.

The Construction General Permit requires that all developers of land where construction activities will occur over more than 1 acre do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three risk levels established in the General Permit;
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the United States;
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP) that specifies best management practices (BMPs) that will reduce pollution in stormwater discharges to the Best Available Technology/Economically Achievable/Best Conventional Pollutant Control Technology standards;
- Perform inspections and maintenance of all BMPs; and
- Conduct stormwater sampling, if required based on risk level.

The Construction General Permit also authorizes non-stormwater discharges for the completion of construction projects, including uncontaminated groundwater dewatering, that are not subject to

separate general NPDES permit adopted by a region provided these non-stormwater discharges meet specific conditions. These authorized non-stormwater discharges must:

1. Be infeasible to eliminate;
2. Comply with BMPs as described in the SWPPP;
3. Filter or treat, using appropriate technology, all dewatering discharges from sedimentation basins;
4. Meet the numeric action levels (NALs) for pH and turbidity; and
5. Not cause or contribute to a violation of water quality standards.

Additionally, authorized non-stormwater discharges must not be used to clean up failed or inadequate construction or post-construction BMPs designed to keep materials onsite.

The San Francisco Bay RWQCB has not adopted a General Permit for general (uncontaminated) dewatering discharges. Therefore, dewatering discharges associated with the proposed project will be authorized by and subject to the requirements of the Construction General Permit.

To obtain coverage under the Construction General Permit, a project applicant must electronically file all permit registration documents with the SWRCB prior to the start of construction. Permit registration documents must include a:

- Notice of Intent,
- Risk Assessment,
- Site map,
- SWPPP,
- Annual fee, and
- Signed certification statement.

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, and control pollutants from construction materials. The SWPPP must also include a discussion of the program to inspect and maintain all BMPs.

Sustainable Groundwater Management Act. The Sustainable Groundwater Management Act (SGMA) of 2014 is a comprehensive three-bill package that Governor Jerry Brown signed into California state law in September 2014. The SGMA provides a framework for sustainable management of groundwater supplies by local authorities, with a limited role for State intervention if necessary to protect the resource. The plan is intended to ensure a reliable groundwater supply for California for years to come.

The SGMA requires governments and water agencies of high- and medium-priority basins to halt overdrafts of groundwater basins. The SGMA requires the formation of local groundwater

sustainability agencies (GSAs) that are required to adopt Groundwater Sustainability Plans to manage the sustainability of the groundwater basins.

4.8.2.3 Regional Plans and Regulations

The San Francisco Bay RWQCB has adopted a Basin Plan for its region of responsibility that delineates water resource area boundaries based on hydrological features. For the purposes of achieving and maintaining water quality protection, specific beneficial uses have been identified for each of the surface waters and groundwater management zones described in the Basin Plan. Once beneficial uses are designated, appropriate water quality objectives can be established, and programs that maintain or enhance water quality can be implemented to ensure the protection of beneficial uses.

The existing beneficial uses for Green Valley Creek, as designated by the RWQCB in the Basin Plan, are listed below.

- **Cold Freshwater Habitat (COLD):** Uses of water that support cold-water ecosystems, including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- **Freshwater Replenishment (FRSH):** Uses of water for natural or artificial maintenance of surface water quantity or quality.
- **Fish Migration (MIGR):** Uses of water that support habitats necessary for migration, acclimatization between fresh water and salt water, and protection of aquatic organisms that are temporary inhabitants of waters within the region.
- **Preservation of Rare and Endangered Species (RARE):** Uses of water that support habitats necessary for the survival and successful maintenance of plant or animal species established under state and/or federal law as rare, threatened, or endangered.
- **Contact Water Recreation (REC1):** Uses of water for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and SCUBA diving, surfing, white water activities, fishing, or use of natural hot springs.
- **Noncontact Water Recreation (REC2):** Uses of water for recreational activities involving proximity to water but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.
- **Fish Spawning (SPWN):** Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

- **Warm Freshwater Habitat (WARM):** Uses of water that support warm-water ecosystems, including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- **Wildlife Habitat (WILD):** Uses of water that support terrestrial ecosystems, including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

Basin Plans also establish implementation programs to achieve water quality objectives to protect beneficial uses and require monitoring to evaluate the effectiveness of the programs. These objectives must comply with the State antidegradation policy (State Board Resolution No. 68-16), which is designed to maintain high-quality waters while allowing some flexibility if beneficial uses are not unreasonably affected.

Basin Plans have established narrative and numeric water quality objectives for inland surface streams and groundwater. If water quality objectives are exceeded, the RWQCBs can use their regulatory authority to require municipalities to reduce pollutant loads to the affected receiving waters. Relevant surface water quality objectives for all inland surface waters and groundwater under the jurisdiction of the San Francisco Bay RWQCB that are applicable to Green Valley Creek are shown in **Table 4.8.A: Surface Water Quality Objectives** and **Table 4.8.B: Groundwater Quality Objectives** below.

Table 4.8.A: Surface Water Quality Objectives

Constituent	Objective
Bacteria, Coliform	In waters designated for REC-1, the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a log mean of 200 organisms/100 mL, nor shall more than 10 percent of all samples collected during any 30-day period exceed 400 organisms/100 mL.
Bacteria, E. Coli	In fresh waters designated for REC-1, the steady-state E. coli concentration shall not exceed 126 colonies/100 mL, the maximum concentration shall not exceed 406 colonies/100 mL at moderately or lightly used areas, and the maximum concentration shall not exceed 576 colonies/100 mL for infrequently used areas.
Bacteria, Enterococci	In salt waters designated for REC-1, the steady-state enterococci concentration shall not exceed 33 colonies/100 mL, the maximum concentration shall not exceed 108 colonies/100 mL at moderately or lightly used areas, and the maximum concentration shall not exceed 151 colonies/100 mL for infrequently used areas.
Bioaccumulation	Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.
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 the water for beneficial uses. Changes in chlorophyll and associated phytoplankton communities follow complex dynamics that are sometimes associated with a discharge of biostimulatory substances. Irregular and extreme levels of chlorophyll or phytoplankton blooms may indicate exceedance of this objective and require investigation.
Color	Waters shall be free of coloration that causes nuisance or adversely affects the water for beneficial uses.

Table 4.8.A: Surface Water Quality Objectives

Constituent	Objective
Dissolved Oxygen	<p>Dissolved oxygen levels shall not be less than 5 mg/L in inland surface waters with a designated WARM beneficial use. The annual mean dissolved oxygen concentration shall not be less than 7 mg/L more than 20 percent of the time.</p> <p>For Suisun Marsh, the following objectives apply: The dissolved oxygen (DO) acute objective is 3.8 mg/L minimum daily average and the chronic objective is 5.0 mg/L minimum daily average for all sloughs and channels.</p>
Floating Materials	Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect the water for 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, or that cause nuisance or otherwise adversely affect beneficial uses.
Population and Community Ecology	All 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	The pH shall not be depressed below 6.5 nor raised above 8.5. This encompasses the pH range usually found in waters within the basin. Controllable water quality factors shall not cause changes greater than 0.5 units in normal ambient pH levels.
Radioactivity	Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life or 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. Waters designated for use as domestic or municipal supply shall not contain concentrations of radionuclides in excess of limits specified in Section 64443 (Radioactivity) of Title 22 of the California Code of Regulations.
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	The suspended sediment load and suspended sediment discharge rate of surface water 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	<p>All water shall be free from dissolved sulfide concentrations above natural background levels. Sulfide occurs in San Francisco Bay muds as a result of bacterial action on organic matter in an anaerobic environment.</p> <p>Concentrations of only a few hundredths of a milligram per liter can cause noticeable odor or be toxic to aquatic life. Violation of the sulfide objective will reflect violation of dissolved oxygen objectives as sulfides cannot exist to a significant degree in an oxygenated environment.</p>
Tastes and Odors	Waters shall not contain taste- or odor-producing substances in concentrations that impact undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.

Table 4.8.A: Surface Water Quality Objectives

Constituent	Objective
Temperature	The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the San Francisco Bay RWQCB that such alteration in temperature does not adversely affect beneficial uses. Additionally, at no time or place shall the temperature of cold or warm freshwater habitat be increased more than 5 degrees Fahrenheit above the natural receiving water temperature.
Toxicity	<p>All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental responses in aquatic organisms. Detrimental responses include, but are not limited to, decreased growth rates and decreased reproductive success of resident or indicator species. There shall be no acute toxicity in ambient waters. Acute toxicity is defined as median of less than 90 percent survival, or less than 70 percent survival, 10 percent of the time, of test organisms in a 96-hour static or continuous flow test.</p> <p>There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.</p> <p>Attainment of this objective will be determined by analyses of indicator organisms, species diversity, population density, growth anomalies, or toxicity tests, or other methods selected by the San Francisco Bay RWQCB, which will also consider other relevant information and numeric criteria and guidelines for toxic substances developed by other agencies, as appropriate.</p>
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.
Un-Ionized Ammonia	The discharge wastes shall not cause receiving waters to contain concentrations of un-ionized ammonia in excess of 0.025 mg/L annual median, a maximum of 0.16 mg/L in the Central Bay, and a maximum of 0.4 mg/L in the Lower Bay.

Source: San Francisco Bay RWQCB, *Water Quality Control Plan for the San Francisco Bay Basin* (2017).

mg/L = milligrams per liter

mL = milliliter

NTU = nephelometric turbidity units

REC-1 = Contact Water Recreation

RWQCB = Regional Water Quality Control Board

Table 4.8.B: Groundwater Quality Objectives

Constituent	Objective
Organic and Inorganic Chemical Constituents	<p>All groundwater shall be maintained free of organic and inorganic chemical constituents in concentrations that adversely affect beneficial uses. To evaluate compliance with water quality objectives, the Water Board will consider all relevant and scientifically valid evidence, including numerical criteria and guidelines developed and/or published by other agencies and organizations.</p>
	<p>At a minimum, groundwater designated for use as MUN shall not contain concentrations of constituents in excess of the maximum or secondary maximum contaminant levels specified below:</p>
	<p>Inorganic Chemicals:</p>
	<p>Aluminum 1.0 / 0.2</p>
	<p>Antimony 0.006</p>
	<p>Arsenic 0.05</p>
	<p>Asbestos 7 MFL</p>
	<p>Barium 1.0</p>
	<p>Beryllium 0.004</p>
	<p>Cadmium 0.005</p>
	<p>Chromium 0.05</p>
	<p>Cyanide 0.15</p>
	<p>Mercury 0.002</p>
	<p>Nickel 0.1</p>
	<p>Nitrate (as NO₃) 45.0</p>
	<p>Nitrate + Nitrite (as N) 10.0</p>
	<p>Nitrite (as N) 1.0</p>
	<p>Selenium 0.05</p>
	<p>Thallium 0.002</p>
	<p>Fluoride:</p>
	<p>Fluoride 0.6 - 1.7</p>
	<p>Organic Chemicals:</p>
	<p>Endrin 0.002</p>
	<p>Lindane 0.0002</p>
	<p>Methoxychlor 0.03</p>
	<p>Toxaphene 0.003</p>
	<p>2,3,7,8-TCDD (Dioxin) 3 x 10⁻⁸</p>
	<p>2,4-D 0.07</p>
	<p>2,4,4-TP Silvex 0.05</p>
	<p>Alachor 0.002</p>
	<p>Atrazine 0.001</p>
	<p>Bentazon 0.018</p>
	<p>Benzo(a)pyrene 0.0002</p>
	<p>Dalapon 0.2</p>
	<p>Dinoseb 0.007</p>
	<p>Diquat 0.02</p>
	<p>Endothall 0.1</p>
	<p>Ethylene dibromide 0.00005</p>
	<p>Glyphosate 0.7</p>
	<p>Heptachlor 0.00001</p>
	<p>Heptachlor epoxide 0.00001</p>
	<p>Hexachloreyclopentadiene 0.001</p>
	<p>Molinate 0.02</p>
	<p>Oxarnyl 0.05</p>

Table 4.8.B: Groundwater Quality Objectives

Constituent	Objective
Pentachlorophenol	0.001
Picloram	0.5
Polychlorinated Biphenyls	0.0005
Simazine	0.004
Thiobencarb	0.07 / 0.001
Benzene	0.001
Carbon Tetrachloride.....	0.005
1,2-Dibromo-3-chloropropane.....	0.0002
1,2-Dichlorobenzene	0.6
1,4-Dichlorobenzene	0.005
1,1-Dichloroethane.....	0.005
1,2-Dichloroethane.....	0.0005
cis-1,2-Dichloroethylene	0.006
trans-1,2-Dichloroethylene	0.01
1,1-Dichloroethylene.....	0.006
Dichloromethane.....	0.005
1,2-Dichloropropane	0.005
1,3-Dichloropropene	0.0005
Ethylbenzene	0.7
Methyl-tert-butyl ether	0.13 / 0.005
Monochlorobenzene	0.07
Styrene	0.1
1,1,2,2-Tetrachloroethane	0.001
Tetrachloroethylene	0.005
1,2,4-Trichlorobenzene	0.005
1,1,1-Trichloroethane.....	0.200
1,1,2-Trichloroethane.....	0.005
Trichloroethylene	0.005
Trichlorofluoromethane	0.15
1,1,2-Trichloro-1,2,2-trifluoromethane	1.2
Toluene	0.15
Vinyl Chloride.....	0.0005
Xylenes (single or sum of isomers).....	1.750

Source: San Francisco Bay RWQCB, *Water Quality Control Plan for the San Francisco Bay Basin* (2017).

mg/L = milligrams per liter

mL = milliliter

RWQCB = Regional Water Quality Control Board

California Water Quality Control Board San Francisco Bay Regional Municipal Regional Stormwater National Pollution Discharge Elimination System Permit. The City of Fairfield is under the purview of the California Water Quality Control Board San Francisco Bay Regional Municipal Regional Stormwater National Pollution Discharge Elimination System Permit (San Francisco Bay MRP) for the discharge of stormwater runoff from the municipal separate storm sewer systems (MS4s), Order R2-2015-0049, as amended by Order No. R2-2019-0004, Permit No. CAS612008, adopted November 18, 2015.

To comply with the requirements of the San Francisco Bay MRP, the cities of Fairfield and Suisun City have joined together to form the Fairfield-Suisun Urban Runoff Management Program (Fairfield-

Suisun URMP) to reduce or eliminate pollutants discharged from the urban environment into storm drains, local creeks, and Suisun Marsh.⁹ The Fairfield-Suisun URMP is permitted under and subject to the requirements of the San Francisco Bay MRP. The Fairfield-Suisun Sewer District, which is a special district that was established to manage wastewater and stormwater in a multi-jurisdictional environment, is responsible for overseeing and implementing the Fairfield-Suisun URMP.

The Fairfield-Suisun Urban Runoff Management Program developed the *Stormwater C.3 Guidebook* to outline the requirements developments must implement to address stormwater quality during construction and post-construction in order to protect water quality consistent with the San Francisco Bay MRP. As discussed further below, most new development and redevelopment projects must use construction BMPs and implement appropriate site design and source control measures to reduce pollutant discharges in stormwater. Additionally, projects that meet the following criteria must comply with more stringent standards:

- New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
- New and redevelopment projects that create 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses:
 - Auto service
 - Gas stations
 - Restaurants
 - Uncovered parking lots

Low Impact Development (LID): For projects that meet any of the bulleted criteria above, in addition to construction BMPs used to prevent stormwater pollution during construction, and site design and source controls for post-construction, projects will need to include Low Impact Development (LID) design and/or post-construction treatment measures. In certain areas of Fairfield, where increased runoff flow and volume may cause excessive creek or storm erosion, projects may need to control the quantity of stormwater runoff.

4.8.2.4 Local Plans and Regulations

City of Fairfield General Plan. The following policies of the *City of Fairfield General Plan* pertaining to hydrology and water quality would be applicable to the proposed project:

Policy PF 8.1: The City shall condition approval of development projects on the provision of adequate storm drainage improvements.

Policy PF 8.2: The City shall extend storm drains to new areas in accordance with the phasing of a storm drainage master plan.

⁹ Fairfield-Suisun Sewer District. 2022. Website: <https://www.fssd.com/stormwater-management/> (accessed April 28, 2022).

Policy PF 8.5: Detention basins should be considered for multiple use (recreation, parking, etc.) particularly larger basins, providing the basic detention function is not lost or impaired, and maintenance and liability issues are satisfactorily resolved.

Policy PF 9.1: Natural and manmade channels, detention basins, and other drainage facilities shall be maintained to ensure that their full use and carrying capacity is not impaired.

Policy PF 9.2: Continue to require new development to discharge storm runoff at volumes no greater than the capacity of any portion of the existing downstream system by utilizing detention or retention or other approved methods, unless the project is providing drainage pursuant to an adopted drainage plan.

Policy PF 9.3: All drainage improvements shall comply with the City of Fairfield Standard Specifications and Details, Engineering Design Standards (Section 4 - Storm Drainage).

City of Fairfield Municipal Code. Chapter 22B of the *City of Fairfield Municipal Code* sets forth water quality regulations for stormwater discharges within the City.

- **Section 22B.030** of the Municipal Code requires that construction is consistent with the requirements of the Federal Clean Water Act, applicable implementing regulations, and NPDES Permit No. CAS612008 adopted by Order R2-2009-0074 (October 14, 2009) and any amendment, revision or reissuance thereof.
- **Section 22B.130** of the Municipal Code requires the following:
 - A. Any construction contractor performing work in the City, where discharge of stormwater to the City storm drain system is possible, shall at a minimum implement BMPs to retain any debris, dirt or other pollutant on the project site from flowing into the City's storm drain system. The Public Works Director may establish controls on the volume and rate of stormwater runoff from new developments and redevelopments as may be appropriate to minimize the discharge and transport of pollutants.
 - B. All construction sites must implement and maintain at least the following minimum best management practices:
 1. Erosion control at the site;
 2. Run-on and run-off controls to and from the site;
 3. Control of sediments and fines on the site;
 4. Active treatment systems (as necessary);
 5. Good site management; and
 6. Non-stormwater management.

4.8.3 Significance Criteria

The significance criteria for hydrology and water quality impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. The proposed project may be deemed to have a significant impact with respect to hydrology and water quality if it would:

- **Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.**
- **Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.**
- **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in substantial erosion or siltation on- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or, iv) impede or redirect flood flows.**
- **In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.**
- **Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.**

4.8.4 Methodology

Project impacts to hydrology and water quality are evaluated based on the proposed project's adherence to local, regional, State and federal standards; the proposed land uses and project design; changes in pre- and post-project stormwater flows; and proposed best management practices (BMPs) for control of surface runoff and reduction of pollutants in stormwater runoff.

4.8.5 Project Impacts

The following describes the potential impacts to hydrology and water quality that could result from implementation of the proposed project. As applicable, conditions of approval and mitigation measures are presented to reduce significant impacts. Note that the water quality related impacts to wetlands are addressed in **Section 4.3: Biological Resources**.

4.8.5.1 Water Quality Standard Violations

Impact HYD-1: The project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

The following section discusses potential hydrology and water quality impacts associated with implementation of the proposed project. Potential impacts are differentiated between project construction and operational phases.

Construction-Period Impacts. Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During soil-disturbing construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via stormwater runoff into receiving waters (e.g., Green Valley Creek and Suisun Marsh). Sediment from increased soil erosion and chemicals from spills and leaks have the potential to be discharged to downstream receiving waters during storm events, which can affect water quality and impair beneficial uses.

Construction of the proposed project would disturb greater than 1 acre of land, and therefore the proposed project is subject to the NPDES Construction General Permit, which requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) during the construction of the project. A SWPPP identifies all potential pollutants and BMPs to be implemented during construction to reduce the discharge of construction-related stormwater pollutants. A SWPPP must include a detailed description of controls to reduce pollutants and outline maintenance and inspection procedures. Typical sediment and erosion control BMPs include protecting storm drain inlets and establishing and maintaining construction exits and perimeter controls to avoid tracking sediment off site onto adjacent roadways. A SWPPP also defines proper building material staging and storage areas, paint and concrete washout areas, describes proper equipment/vehicle fueling and maintenance practices, measures to control equipment/vehicle washing and allowable non-stormwater discharges, and includes a spill prevention and response plan. The SWPPP must also include a construction site monitoring program. Depending on the project risk level, the monitoring program would involve visual observation of site discharges, water quality monitoring of site discharges (e.g., pH, turbidity, and non-visible pollutants, if applicable), and receiving water monitoring (e.g., pH, turbidity, suspended sediment concentration, and bioassessment, if applicable). In addition, in compliance with the *Fairfield-Suisun Urban Runoff Management Program, Stormwater C.3 Guidebook*, and *City of Fairfield Municipal Code Section 22B.130*, the construction contractor would be required to develop and implement a construction BMP plan, which shall include the site design, source control, and Low Impact Development (LID) measures that would be implemented to prevent and/or reduce pollutant discharges in stormwater during construction by:

1. Controlling erosion at the site;
2. Controlling run-on and run-off to and from the site;
3. Controlling sediments and fines on the site;
4. Implementing active treatment systems (as necessary);
5. Implementing good site management; and
6. Ensuring non-stormwater discharges are not released into the public storm drain system.

The construction BMP plan would be prepared and submitted to the City, or designee, prior to issuance of a grading permit in compliance with the *Fairfield-Suisun Urban Runoff Management Program, Stormwater C.3 Guidebook*, and *City of Fairfield Municipal Code Section 22B.130*. Compliance with the requirements of the Construction General Permit, the *Fairfield-Suisun Urban*

Runoff Management Program and Stormwater C.3 Guidebook, and *City of Fairfield Municipal Code* Section 22B.130, including incorporation of construction BMPs to target and reduce pollutants of concern in stormwater runoff, would ensure that construction impacts related to waste discharge requirements, water quality standards, and degradation of water quality would be less than significant.

A Preliminary Geotechnical Investigation was prepared for the project and during borings conducted on the project site, groundwater was measured at a depth of approximately 6 to 8 feet below ground surface.¹⁰ Additionally, based on the available groundwater information, groundwater levels on the project site can be as shallow as 2 feet below the existing grade and, therefore, dewatering of groundwater may be required during construction activities involving excavation. Release of dewatered groundwater to surface waters can introduce total dissolved solids and other constituents to surface waters and could cause degradation of the receiving water quality. In the event that groundwater is encountered during construction and groundwater dewatering is necessary, any groundwater dewatering during excavation would be conducted in accordance with the requirements of the Construction General Permit.

The Construction General Permit allows the discharge of dewatering effluent if the source of the water is uncontaminated groundwater and is properly filtered or treated, using appropriate technology. The discharge of dewatering effluent is authorized under the Construction General Permit if the following conditions are met:

- The discharge does not cause or contribute to a violation of any water quality standard;
- The discharge does not violate any other provision of the Construction General Permit;
- The discharge is not prohibited by the applicable Basin Plan;
- The discharger has included and implemented specific BMPs required by the Construction General Permit to prevent or reduce the contact of the non-stormwater discharge with construction materials or equipment;
- The discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants;
- The discharge is monitored and meets the applicable numeric action levels; and
- The discharger reports the sampling information in the annual report.

If any of the above conditions are not satisfied, the discharge of dewatering effluent is not authorized by the Construction General Permit and the discharger must notify the local RWQCB to determine whether a separate NPDES permit is necessary.

¹⁰ Wallace Kuhl & Associates. *Geotechnical Engineering Report Green Valley 3 Apartments*. May 4, 2021

If the water is not suitable for discharge to the storm drain/receiving water, as discussed above, dewatering effluent may be discharged to the sanitary sewer system if discharge criteria are met. These include, but are not limited to, application of treatment technologies or BMPs which achieve compliance with the wastewater discharge limits. Discharges to the sanitary sewer facilities must occur under a Discharge Permit from the Fairfield-Suisun Sewer District. The Fairfield-Suisun Sewer District manages the wastewater it accepts into its treatment facilities so that it can ensure proper treatment prior to discharge.¹¹ The Fairfield-Suisun Sewer District Ordinance No.2017-01 prohibits groundwater from being directly discharged into the City's sanitary sewer collection system. Pre-treatment is required to be used to separate solids and liquid prior to discharging. The discharge rate is required to be regulated to ensure it does not impede the existing sanitary sewer flow and cause an overflow.

If it is infeasible to meet the requirements of the Construction General Permit, acquire a site-specific NPDES permit, or meet the Fairfield-Suisun Sewer District discharge requirements, the construction contractor would be required to transport the dewatering effluent off site for treatment and disposal.

Therefore, if complying with the requirements of the Construction General Permit for dewatering activities during construction is not feasible, the proposed project would either be required to obtain a project specific NPDES permit for the dewatering activities during construction, obtain a Discharge Permit from the Fairfield-Suisun Sewer District to discharge to the sanitary sewer system, or transport the dewatering effluent off site for treatment and disposal.

Implementation of the requirements of the Construction General Permit, the *Fairfield-Suisun Urban Runoff Management Program, Stormwater C.3 Guidebook*, and *City of Fairfield Municipal Code* Section 22B.130, would ensure that impacts related to violation of water quality standards or waste discharge requirements, and degradation of surface or groundwater quality, during construction would be less than significant.

Operation-Period Impacts. During the operational phase of the proposed project, pollutants associated with vehicles (e.g., fuel, oil/lubricants, brake dust, and fallout from exhaust) would be deposited on the surface of parking areas and driveways which would contribute petroleum hydrocarbons, heavy metals, and sediment to the pollutant load in runoff being transported to receiving waters. Debris and particulates that gather on impervious surfaces such as paved play areas and roofs of buildings can also add metals and sediment to the pollutant load in runoff. In addition, landscape maintenance activities may involve the use of chemicals such as pesticides/herbicides and fertilizers which could also impact the quality of stormwater runoff. Long-term degradation of runoff water quality from the project site could adversely affect water quality in the receiving waters.

The City of Fairfield is under the purview of the San Francisco Bay MRP for the discharge of stormwater runoff from the municipal separate storm sewer systems. To implement the

¹¹ Fairfield-Suisun Sewer District. 2017. Fairfield-Suisun Sewer District Wastewater Discharge Ordinance. Website: <https://www.fssd.com/wp-content/uploads/2020/07/Ord-1701-1.pdf> (accessed March 23, 2022).

requirements of the San Francisco Bay MRP, the Cities of Fairfield and Suisun City have joined together to form the Fairfield-Suisun URMP to reduce or eliminate pollutants discharged from the urban environment into storm drains, local creeks, and Suisun Marsh.¹² The Fairfield-Suisun Sewer District, which is a special district that was established to manage wastewater and stormwater in a multi-jurisdictional environment, is responsible for overseeing and implementing the Fairfield-Suisun URMP.

A Preliminary Stormwater Control Plan (SWCP) has been prepared for the project in compliance with the *Fairfield-Suisun Urban Runoff Management Program, Stormwater C.3 Guidebook*. The SWCP includes the following Source Control, Site Design, and LID BMPs:

- Installation of four bioretention basins, including underdrains and overflow risers, to provide for some infiltration but to also convey any excess runoff through a private onsite storm drain system to a regional detention basin located south of the project site;
- Disconnection of roof drains, where possible, allowing runoff to surface flow to bio-retention basins;
- Drain inlets, which will be stamped with “Flows to Bay” or similar text, to convey runoff to bioretention basins through underground pipes in areas that cannot surface drain directly to bio retention basins; and
- Interceptor trees and landscaping to slow rates of discharge and promote infiltration.

The bioretention basins have been sized to cover a minimum area equivalent to 4 percent of the contributing watershed’s impervious area. Stormwater runoff from the site would be conveyed to a regional detention basin located south of Business Center Drive, ultimately discharging to Grizzly Bay.

The BMPs identified in the SWCP have been incorporated into the proposed project. The proposed bioretention basins and interceptor landscaping are depicted in **Figure 3-13: Proposed Storm Water Control Plan**, in **Chapter 3.0: Project Description**. The BMPs included in the project would target and reduce pollutants of concern from stormwater runoff associated with project operations in compliance with the San Francisco Bay MRP and the Fairfield-Suisun URMP requirements. Compliance with the requirements of the San Francisco Bay MRP and the Fairfield-Suisun URMP, including incorporation of operational BMPs to target pollutants of concern, would ensure that impacts related to waste discharge requirements, water quality standards, and degradation of water quality during project operation would be less than significant.

A majority of the site would be covered with impervious surfaces. The site plan includes some interceptor trees and landscaping used to disconnect impervious surfaces and promote infiltration and slow the rate of discharge from the site. However, given the percentage of impervious surface, stormwater infiltration will be minimal. A majority of the surface flow would be directed to

¹² Fairfield-Suisun Sewer District. 2022. Website: <https://www.fssd.com/stormwater-management/> (accessed April 28, 2022).

bioretention basins and then conveyed to the underground storm drain system. Furthermore, consistent with the *Fairfield-Suisun Urban Runoff Management Program, Stormwater C.3 Guidebook*, and *City of Fairfield Municipal Code Section 22B.130*, the proposed project would be required to implement LID features to treat stormwater before it could reach groundwater. Therefore, project operations would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade groundwater quality and impacts would be less than significant.

Level of Significance Prior to Mitigation: Less Than Significant

Mitigation Measures: No mitigation measures are required.

Level of Significance after Mitigation: Not Applicable

4.8.5.2 Groundwater Supply

Impact HYD-2: The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Construction-Period Impacts. According to the Geotechnical Evaluation that was prepared for the proposed project, groundwater encountered during the geotechnical evaluation ranged from 6 to 8 feet below ground surface (bgs) and the historical high groundwater at the site was 2 feet below the lowest portion of the site.¹³ Because groundwater levels fluctuate, excavation for installation of some project features (e.g., parking structure, the swimming pool, etc.) has a potential to encounter groundwater, and groundwater dewatering may be required. Groundwater dewatering would be localized and temporary, and the volume of groundwater removed would not be substantial. In addition, any volume of water removed during groundwater dewatering would be minimal compared to the size of the Suisun-Fairfield Groundwater Basin, which has a surface area of 208 square mile and a storage capacity of 226,000 acre-feet (af).¹⁴ Furthermore, the California Department of Water Resources designated the Suisun-Fairfield Valley Groundwater Basin as a low priority groundwater basin meaning that the conditions in the basin are currently satisfactory and therefore it does not require the formation of a groundwater sustainability agency and the implementation of a groundwater sustainability plan.¹⁵ Temporary groundwater dewatering during construction would not interfere with the sustainable management of the Suisun-Fairfield Valley Groundwater Basin. Therefore, construction impacts related to a decrease in groundwater supplies or interference with groundwater recharge in a manner that may impede sustainable groundwater management would be less than significant, and no mitigation is required.

Operational-Period Impacts. Development of the proposed project would increase impervious surface area by approximately 3.9 acres compared to the existing condition, which would decrease

¹³ Wallace Kuhl & Associates. *Geotechnical Evaluation of Green Valley 3 Apartments*. February 16, 2022

¹⁴ California Department of Water Resources. *California's Groundwater Basin Bulletin 118: Suisun-Fairfield Valley Groundwater Basin*. June 30, 2014.

¹⁵ California Department of Water Resources. SGMA Basin Prioritization Dashboard, Groundwater Basins 2016. Website: <https://gis.water.ca.gov/app/bp-dashboard/p2/> (accessed May 2, 2022).

on-site infiltration. However, any decrease in infiltration would be minimal in comparison to the size of the Suisun-Fairfield Groundwater Basin. Furthermore, neither groundwater extraction nor injection would occur during operation. For these reasons, project operations would not result in the depletion of groundwater supplies or interference with groundwater recharge in a manner that may impede sustainable groundwater management. The impact would be less than significant.

Level of Significance Prior to Mitigation: Less than Significant

Mitigation Measures: No mitigation measures are required.

Level of Significance After Mitigation: Not Applicable

4.8.5.3 Drainage Pattern Alteration

Impact HYD-3: The project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in substantial erosion or siltation on- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or, iv) impede or redirect flood flows.

Erosion or Siltation.

Construction-Period Impacts. During project construction activities, soil would be exposed and disturbed, drainage patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion and siltation could occur at an accelerated rate. Project construction would not disturb the constructed drainage that is tributary to Green Valley Creek because the proposed project does not include physical improvements to the drainage or the associated riparian corridor. As discussed above under **Impact HYD-1**, the Construction General Permit requires preparation of a SWPPP and the *City of Fairfield Municipal Code* requires the implementation of BMPs to address erosion and to retain debris, dirt, and other pollutants on the project site during construction. With compliance with the requirements of the Construction General Permit and the *City of Fairfield Municipal Code*, construction impacts related to on- or off-site erosion or siltation would be less than significant, and no mitigation is required.

Operational-Period Impacts. The existing project site contains approximately 0.45 acre of impervious surface area and the rest of the site is pervious. In the proposed condition, approximately 4.32 acres (75 percent) of the project site would be impervious surface area and not prone to on-site erosion or siltation because no exposed soil would be included in these areas. The remaining approximately 1.47 acres (25 percent) of the site would consist of pervious surface area. About 0.4 acre of the pervious surface area would be in the riparian corridor and would not be developed or disturbed by the project and about 1 acre would contain landscaping and interceptor trees that would stabilize the soil and promote infiltration and thereby minimize

on-site erosion and siltation. Therefore, on-site erosion and siltation impacts would be minimal. With regard to potential off-site erosion, the proposed project would increase impervious area on the project site by 3.9 acres, which would result in a net increase in stormwater runoff that could lead to downstream erosion in receiving waters. However, stormwater runoff would be collected and conveyed into bioretention basins located throughout the project site and then conveyed via existing underground pipes to a regional detention basin located south of Business Center Drive. Therefore, any increase in stormwater runoff from the project site would not surface flow into the drainage ditch adjacent to the project site or into Green Valley Creek and therefore would not have a potential to result in downstream erosion or siltation. For these reasons, operational impacts related to substantial on- or off-site erosion or siltation would be less than significant, and no mitigation is required.

Increase Surface Runoff/Flooding.

Construction-Period Impacts. As discussed above under **Impact HYD-1**, project construction would comply with the requirements of the Construction General Permit and the *City of Fairfield Municipal Code* and would include the preparation and implementation of a SWPPP. The SWPPP and the project construction plans would specify construction BMPs to control and direct on-site surface runoff to ensure that stormwater runoff from the construction site does not exceed the capacity of the stormwater drainage system. With implementation of BMPs, construction impacts related to a substantial increase in the rate or amount of surface runoff that would result in flooding would be less than significant, and no mitigation is required.

Operational-Period Impacts. The existing project site is undeveloped. The proposed project would convert 3.9 acres to impervious surfaces (e.g., buildings, parking lots, etc.). An increase in impervious surfaces could lead to an increase in the velocity and rate of surface runoff. The proposed project includes a system of bio-retention basins, inlets, and underground pipes located throughout the project site that would collect stormwater from impervious surfaces. The four proposed on-site detention basins have been appropriately sized to retain and infiltrate a portion of the stormwater runoff and excess stormwater would be conveyed via existing underground pipes to a regional detention basin located south of Business Center Drive so that on-site flooding would not occur. Therefore, the proposed project would result in less than significant impacts related to flooding on or off the project site as a result of increased runoff from impervious surfaces.

Stormwater Drainage System Capacity/Additional Polluted Runoff. As discussed above, the stormwater would be directed to on-site detention basins which have been appropriately sized to detain and infiltrate stormwater runoff so that excess runoff does not exceed the capacity of the existing stormwater system. Additionally, implementation of BMPs to reduce pollutants of concern in stormwater runoff in compliance with the post construction requirements of the *Fairfield-Suisun Urban Runoff Management Program*, the *Stormwater C.3 Guidebook*, and *City of Fairfield Municipal Code Section 22B.130*, would ensure that the proposed project would result in less-than-significant impacts related to discharge of polluted runoff during project operations. Therefore, the proposed project would have a less than significant impact related to stormwater drainage system capacity or additional polluted runoff.

Impede or Redirect Flood Flows. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 06095C0432E (May 4, 2009), the project site is not located within a 100-year floodplain and is in Zone X. Zone X areas are defined by FEMA as areas of minimal flood hazard, which are the areas outside of the Special Flood Hazard Area and higher than the elevation of the 0.2 percent annual chance flood. The proposed project would not impede or redirect flood flows; therefore, the proposed project would have no impact.

Level of Significance Prior to Mitigation: Less than Significant

Mitigation Measures: No mitigation measures are required.

Level of Significance after Mitigation: Not Applicable

4.8.5.4 Flood Hazard, Tsunami or Seiche Zone

Impact HYD-4: The project is not in a flood hazard, tsunami, or seiche zones, and would not result in the release of pollutants due to project inundation.

As discussed above, according to the FEMA FIRM mapping, the project site is not located within a 100-year floodplain and is in Zone X, an area of minimal flood hazard. Additionally, the project is not located within a tsunami or seiche zone.^{16,17} Therefore, the proposed project would not be inundated, risking the release of pollutants. There would be no impact.

Level of Significance Prior to Mitigation: No Impact

Mitigation Measures: No mitigation measures are required.

Level of Significance After Mitigation: Not Applicable

4.8.5.5 Conflict with Water Quality Control Plan or Sustainable Groundwater Management Plan

Impact HYD-5: The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

The proposed project is within the jurisdiction of the San Francisco Bay RWQCB. The San Francisco Bay RWQCB adopted the first comprehensive Water Quality Control Plan (Basin Plan) in 1975. Major revisions to the Basin Plan were adopted in 1982, 1986, 1992 and 1995. Since 1995, the Basin Plan has been updated on an ongoing basis.¹⁸ The Basin Plan designates beneficial uses for all surface and groundwater within its jurisdiction and establishes the water quality objectives and standards necessary to protect those beneficial uses. As discussed above under **Impact HYD-1**, project

¹⁶ California Department of Conservation (DOC). 2021. Website: <http://conservation.ca.gov/cgs/tsunami/maps> (accessed March 29, 2022).

¹⁷ California Governor's Office of Emergency Services. 2021. Website: <http://myhazards.caloes.ca.gov>. (accessed March 29, 2022).

¹⁸ San Francisco Bay RWQCB. *Basin Plan*. Website: https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/#basinplan (accessed May, 2, 2022).

construction would comply with the requirements of the Construction General Permit and the *City of Fairfield Municipal Code*. This would include the applicable NPDES permits and would implement construction and operational BMPs to reduce pollutants of concern in stormwater runoff during project construction and operation. Therefore, the proposed project would result in a less than significant impact related to conflicts with or obstruction of the Basin Plan.

The Sustainable Groundwater Management Act (SGMA) was enacted in September 2014. SGMA requires governments and water agencies of high- and medium-priority basins to halt overdraft of groundwater basins. SGMA requires the formation of local Groundwater Sustainability Agencies (GSAs), which are required to adopt Groundwater Sustainability Plans to manage the sustainability of the groundwater basins. The project site is located within the Suisun-Fairfield Valley Groundwater Basin, which has been identified by the Department of Water Resources as a low-priority basin.¹⁹ Therefore, development of a Groundwater Sustainability Plan is not required. Because there is not an adopted Groundwater Sustainability Plan applicable to the groundwater basin, the proposed project would not conflict with or obstruct the implementation of a sustainable groundwater management plan. Furthermore, as discussed above under **Impact HYD-2**, the proposed project does not have the potential to impact groundwater quality, interfere with groundwater recharge, or decrease groundwater supplies. Therefore, the proposed project would result in a less than significant impact related to conflicts with or obstruction of a sustainable groundwater management plan.

Level of Significance Prior to Mitigation: Less than Significant

Mitigation Measures: No mitigation measures are required.

Level of Significance After Mitigation: Not Applicable

4.8.5.6 Cumulative Impacts

Cumulative Impact C-HYD-1: The proposed project, in conjunction with other past, present, and reasonably foreseeable future development in the project area, would not result in significant cumulative impacts related to hydrology and water quality.

The cumulative study area for hydrology and water quality is the Wooden Valley Creek-Frontal Suisun Bay Estuary Watershed. Cumulative development in the Wooden Valley Creek-Frontal Suisun Bay Estuary Watershed is a continuation of the existing urban patterns of development that have already resulted in extensive modifications to watercourses in the area. The area's watercourses have been channelized and drainage systems have been put into place to respond to the past urbanization that has occurred in this area. For the cumulative analysis related to hydrology and water quality, the cumulative projects being considered include the related projects listed in **Table 4.A: Cumulative Projects in the Vicinity of the Project Site in Chapter 4.0: Environmental Setting, Impacts, and Mitigation Measures**, which all discharge to the same watershed as the proposed project (i.e., the Wooden Valley Creek-Frontal Suisun Bay Estuary Watershed). Each of

¹⁹ California Department of Water Resources, *SGMA Basin Prioritization Dashboard, Groundwater Basins 2016*. Website: <https://gis.water.ca.gov/app/bp-dashboard/p2/> (accessed May 2, 2022).

these related projects could potentially increase the volume of stormwater runoff and contribute to pollutant loading in stormwater runoff reaching both the City's storm drain system and the Wooden Valley Creek-Frontal Suisun Bay Estuary Watershed, thereby potentially resulting in cumulative impacts to hydrology and surface water quality.

New development and redevelopment can result in increased stormwater runoff and increased urban pollutants in stormwater runoff from project sites. Each related project must include BMPs to reduce impacts to water quality and hydrology in compliance with local ordinances and plans adopted to comply with requirements of the various NPDES permits. Specifically, all projects that disturb 1 acre or more of soil must comply with the requirements of the Construction General Permit, the San Francisco Bay RWQCB MS4 Permit, and the *City of Fairfield Municipal Code*. The preparation, approval and implementation of a SWPPP and pollution control plan, construction BMP plan, and/or erosion and sediment control plan (for construction), and a Stormwater Control Plan (for operation) would be required for each related project to minimize water quality impacts. In addition, the Stormwater Control Plan would be required to determine the stormwater controls required to minimize increases in runoff from each site so they do not exceed regulatory requirements or exceed the capacity of downstream storm drain systems. In addition, the City's Public Works Department reviews all development projects on a case-by-case basis to ensure that sufficient local and regional drainage capacity is available.

Each related project must consider impaired receiving waters and TMDLs for receiving waters. The TMDL program is designed to identify all constituents that adversely affect the beneficial uses of water bodies and then identify appropriate reductions in pollutant loads or concentrations from all sources so that the receiving waters can maintain/attain the beneficial uses in the Basin Plan. Thus, by complying with TMDLs, a project's contribution to overall water quality improvement in the Wooden Valley Creek-Frontal Suisun Bay Estuary Watershed in the context of the regulatory program is designed to account for cumulative impacts.

Regional programs and BMPs such as TMDL programs and the MS4 Permit Program have been designed under an assumption that the Wooden Valley Creek-Frontal Suisun Bay Estuary Watershed would continue their pattern of urbanization. The regional control measures contemplate the cumulative effects of proposed development. Per **Impact HYD-1**, the proposed project would be required to comply with the requirements of the Construction General Permit and the San Francisco Bay RWQCB MS4 Permit and implement construction and operational BMPs pursuant to approved SWPPP and the SWCP to reduce pollutants in stormwater runoff. Compliance with these regional programs and permits constitutes compliance with programs intended to address cumulative water quality impacts. As stated above, each related project would be required to develop a SWPPP; pollution control plan, construction BMP plan, and/or erosion and sediment control plan; a Stormwater Control Plan; and a hydrology study and would be evaluated individually to determine appropriate BMPs and treatment measures to reduce impacts to surface water quality and hydrology. Because the proposed project and other related projects would comply with applicable NPDES and City requirements and would include BMPs to reduce the volume of stormwater runoff and pollutants of concern in stormwater runoff, the cumulative hydrology and water quality impacts of the proposed project and the related projects would be less than significant. In addition, the cumulative projects do not encroach into the 100-year floodplain, so there is no cumulative impact

from placement of developments within the floodplain. Therefore, the proposed project's incremental hydrology and water quality impacts would not be cumulatively considerable.

Level of Significance prior to Mitigation: Less than Significant

Mitigation Measures: No mitigation measures are required.

Level of Significance after Mitigation: Not Applicable

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