3.8 HYDROLOGY AND WATER QUALITY

Froom Creek, an approximate 3.5-mile-long stream, bisects the 116.8-acre Project site and is a tributary to San Luis Obispo Creek.

This section of the EIR describes the potential impacts of the Project – including the realignment of Froom Creek within the Project site – on flooding, water quality, and other hydrologic conditions in the Froom Creek watershed. The information and analysis presented in this section is based largely upon Applicant-prepared technical studies, particularly for onsite flooding, which were subject to initial peer review by EIR consultant technical specialists, revisions, and final review and approval by the City. Please refer to Section 3.8.3.2, *Impact Assessment and Methodology* for a list of sources of information utilized in this section. For a discussion of potential impacts to wetland and stream habitats, please refer to Section 3.4, *Biological Resources*.

3.8.1 Environmental Setting

3.8.1.1 Regional Hydrology

According to the Central Coast RWQCB, the Project site is located within the San Luis Obispo Creek Hydrologic Subarea of the Estero Bay Hydrologic Unit, an area that corresponds to the coastal draining watersheds west of the Coastal Range. The Estero Bay Hydrologic Unit stretches roughly 80 miles between the Santa Maria River and the Monterey County line and includes numerous individual stream systems (Central Coast RWQCB 2017). Within the Estero Bay Hydrologic Unit, the San Luis Obispo Creek watershed drains approximately 83 square miles; Froom Creek is a tributary of San Luis Obispo Creek. Average seasonal precipitation in the San Luis Obispo Creek watershed ranges from 17 to 33 inches (SLO Watershed Project 2014).

The San Luis Obispo Creek watershed generally drains to the south-southwest via San Luis Obispo Creek where it meets the Pacific Ocean at Avila Beach. San Luis Obispo Creek originates in the Cuesta Grade area north of San Luis Obispo at an elevation of 2,200 feet above mean sea level, in the western slopes of the Santa Lucia Range. San Luis Obispo

Creek flows south through the City adjacent to U.S. 101 until it reaches the southern extent of the Irish Hills where it veers west to the Pacific Ocean near Avila Beach.

Froom Creek drains a 1,162-acre watershed within the Irish Hills.

The Project site is located within the Froom Creek watershed, which is a sub-basin of the San Luis Obispo Creek watershed. Froom Creek is an approximately 3.5-mile-long tributary that extends from the confluence of Froom Creek and San Luis Obispo Creek, immediately downstream of the Project site at U.S. 101 and north and west to the Irish Hills. The Froom Creek watershed drains approximately 1,162 acres (approximately 1.8 square miles) and is bordered on the north by the Prefumo Creek and Sycamore Creek watersheds, on the east by the San Luis Obispo Creek watershed, and on the south by the See Canyon Creek and Lower San Luis Obispo Creek watersheds (Land Conservancy of San Luis Obispo County 2002; Appendix J). Land use within the Froom Creek watershed is predominantly undeveloped open space in the upper reaches and residential and commercial development and grazing land in the lower reach in the Project vicinity.

Flood Hazards

Flooding occurs in response to heavy rainfall, when creek and drainage channels overflow. Flooding may also occur in low-lying areas that have poor drainage, or when culverts become blocked, even during moderate storms. Flood severity can be increased by structures or fill placed in flood-prone areas, and increased runoff resulting from development of impervious surfaces (such as parking lots, roads, and roofs). Floods damage human and natural environments and can have adverse health effects.

Low-lying valleys within the San Luis Obispo Creek watershed periodically experience substantial flood. Flooding within the San Luis Obispo Creek system is generally caused by intense Pacific storm systems that occur during annually from December through March. The great topographic variability of the watershed causes these systems to release large amounts of precipitation, especially along the higher ridgelines. For example, the Irish Hills, located just west of the Project area and cresting at approximately 1,650 feet in elevation, can experience twice the rainfall observed in the lower portions of the watershed

at the Project site. This upper-elevation rainfall is ultimately channeled through the Project site via Froom Creek to connect to San Luis Obispo Creek.

San Luis Obispo Creek water flows can respond very quickly to short high-intensity rainfall bursts. The San Luis Obispo Creek watershed is steep and is characterized by high-magnitude, short-duration floods. Floods have been a continuing problem along San Luis Obispo Creek, and significant flooding along the creek has been recorded in 1884, 1897, 1948, 1952, 1969, 1973, 1978, and 1995. In addition, many minor waterways, including Froom Creek, drain into one or more of the four major drainage features that create flood hazards in the City (i.e., San Luis Obispo Creek, Stenner Creek, Prefumo Creek, and Old Garden Creek). These minor waterways, although having relatively small drainage sheds, can also present flood hazards to lives and property, due to their steep slopes and high gradient that can lead to intense, fast moving flood events.

Flood zone mapping and drainage improvements are based on the probability of a certain amount of rainfall within a defined timeframe, usually 24 hours. From rainfall gauge records, the size of a storm that has a 1-percent probability of occurring in any one year within a watershed can be calculated. A storm with this probability is often referred to as the "100-year storm" or "Q100" since at least one such storm would be expected to occur in a 100-year period, and the associated overflow termed the "100-year flood." Similarly, a storm that has a 4 percent probability of occurring in any one year is referred to as the "25-year storm," and flows from this storm are called "Q25" flows or 25-year floods.

Water Quality

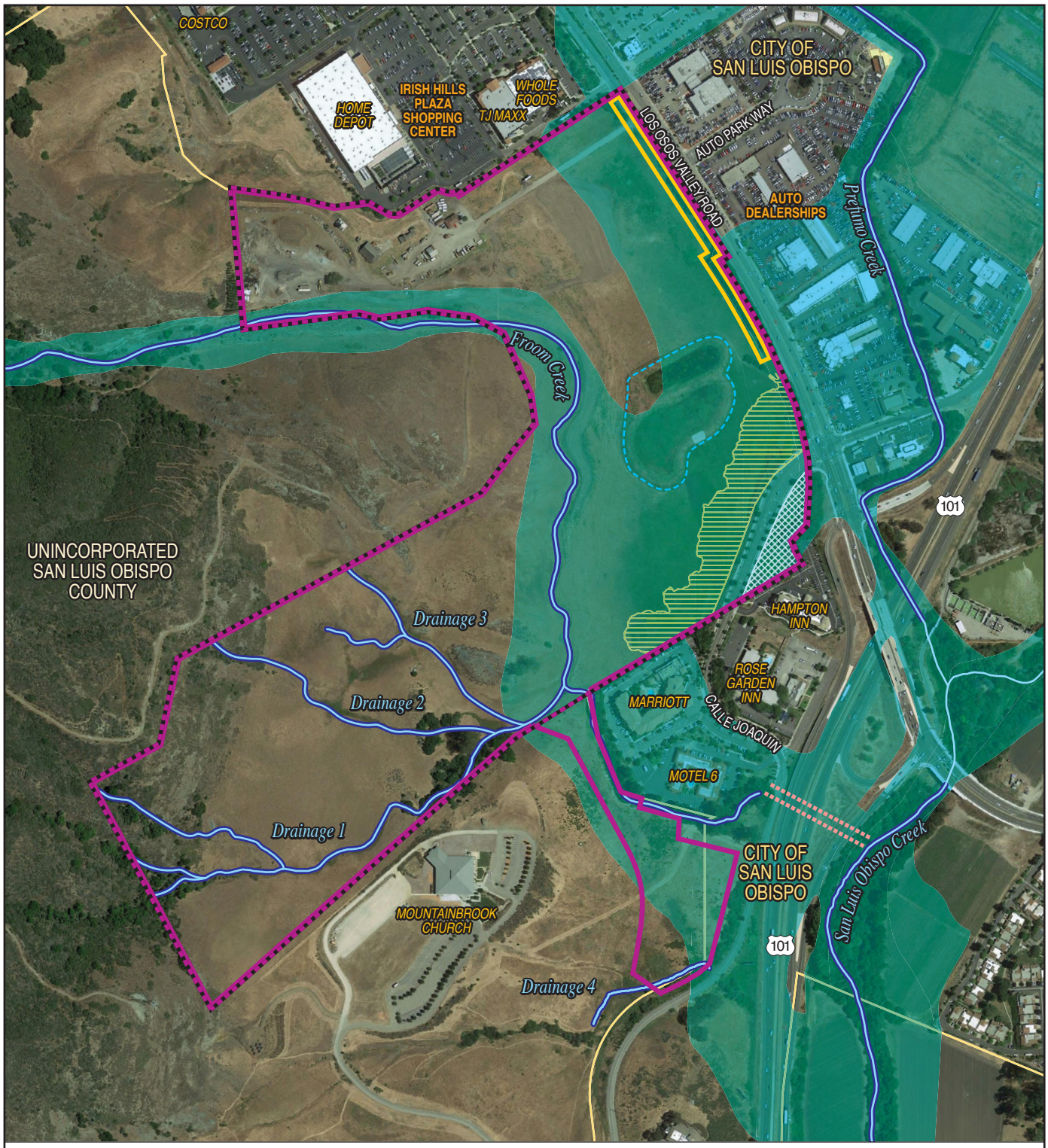
All storm drains within the City lead directly to creeks and ultimately to the Pacific Ocean. None of this stormwater is treated in a municipal treatment plant before entering these water bodies, although many more recent urban development projects include a variety of onsite stormwater treatment features designed to protect water quality. According to the Central Coast RWQCB, the two primary sources of pollutants to the watershed are uncontrolled sediment and agricultural runoff. The Central Coast RWQCB also notes that many other sources are also contributors, including pollutants from vehicles (e.g., oil, gasoline, and other fluids), trash, pharmaceuticals, and household chemicals. Infiltration and inflow into the wastewater collection mains causes excessive wet weather flows and can lead to intermittent discharges of partially treated wastewater to San Luis Obispo Creek (Central Coast RWQCB 2017).

The City's Public Works, Utilities, and Community Development Departments are responsible for coordinating the implementation of the City's Stormwater Management Plan (SWMP). This comprehensive program is required under the Phase II Stormwater Regulations regulated by SWRCB, San Luis Obispo Region. The primary goal of the program is to minimize urban runoff that enters the municipal storm drain system, and carries bacteria and other pollutants into the local creeks, watershed, and to the ocean. As part of these requirements, the City has been mandated to establish a set of minimum designated BMPs and Pollution Prevention Methods (PPMs). BMPs are steps taken to minimize or control the amount of pollutants and runoff. PPMs are strategies to eliminate the use of polluting materials, and/or not exposing potential pollutants to rainwater or other runoff.

San Luis Obispo Creek below Marsh Street and the City's Downtown is designated by the Central Coast RWQCB as having present and potential beneficial uses for municipal supply; agricultural supply; recreation; groundwater recharge; wildlife habitat; warm and cold fresh water habitat; migration of aquatic organisms; spawning, reproduction, and/or early development of fish; and commercial and sport fishing. According to the Central Coast RWQCB, surface water quality in the San Luis Obispo Creek drainage system is generally considered to be good. However, the water quality fluctuates along with seasonal changes in flow rates. In summer months, when the flows decrease, water quality decreases. Degradation of San Luis Obispo Creek water quality is generally due to municipal discharge and agricultural runoff, as well as urban runoff. San Luis Obispo Creek is on the 2010 CWA Section 303(d) list of impaired waters for nutrients and pathogens, where nitrate-nitrogen and fecal coliform total maximum daily load (TMDL) levels exceed the Basin Plan numerical targets. As such, the use of National Pollutant Discharge Elimination System (NPDES) permits, Municipal Separate Storm Sewer System (MS4) permits, and Waste Discharge Requirements permits for irrigated lands and the City's Water Reclamation Facility are required (Central Coast RWQCB 2017).

Groundwater Resources

The City is underlain by the San Luis Obispo Valley Groundwater Basin, within which depth to groundwater is estimated to be 15 to 25 feet below ground surface (bgs). The majority of recharge to the basin is from precipitation falling in the hills to the west, north, and east. Refer to Section 3.14, *Utilities and Energy Conservation*, for more discussion on groundwater supply.



wood.

Existing Drainage Conditions on the Project Site

FIGURE 3.8-1

Groundwater quality is determined principally by the chemical nature of the sediments and rocks within which the groundwater is contained. Groundwater is typically evaluated for its chemical constituents to assess current conditions and potential beneficial uses, or to identify possible contamination sources. Chemical constituent sources can be natural (e.g., contact with mineralized rock) or human-related (e.g., pesticide or fertilizer contamination). Groundwater within the San Luis Obispo area is considered suitable for agricultural water supply, municipal and domestic supply, and industrial use. Groundwater quality in the San Luis Obispo Valley Groundwater Basin has been reduced in part due to the degradation of surface waters in San Luis Obispo Creek. Groundwater in the unconfined aquifers within the basin contains high levels of nitrates, iron, manganese, and organic compounds.

3.8.1.2 Project Site Hydrology

Runoff is conveyed on the Project site through natural and man-made drainage features and infrastructure. Froom Creek flows across the site in a north-to-south trajectory ultimately passing through two box culverts beneath Calle Joaquin and U.S. 101 before its confluence with San Luis Obispo Creek. There are four unnamed drainages that flow through the site from the Irish Hills, including Drainages 1, 2, and 3 in the Upper Terrace, and Drainage 4 to the south through the Mountainbrook Church property (Figure 3.8-1). Man-made stormwater infrastructure includes the LOVR ditch and the 3.2-acre existing stormwater detention basin in the Lower Area. These features receive runoff from the adjacent Irish Hills Plaza with some runoff from LOVR. Stormwater from the LOVR ditch and the existing stormwater detention basin either percolates/evaporates in place or under storm conditions flows to the Calle Joaquin wetlands. As described further below, the site's hydrologic setting has related flood hazards, high groundwater, and drainage constraints during storm events.

Onsite Drainage

Site topography causes onsite drainage to flow east and south across the site toward the lower elevation of the site near the Calle Joaquin wetlands. Froom Creek flows into the Project site from the west and then bends sharply to the south to bisect the Project site from north to south for approximately 0.4 miles (Figure 3.8-1). Froom Creek flows to the southeast for approximately 0.2 miles toward Calle Joaquin adjacent to the southern boundaries of the Marriott Hotel and Motel 6 properties before ultimately passing through a concrete double box culvert that conveys flows for nearly 300 feet under Calle Joaquin,

the main travel lanes of U.S. 101, and the northbound U.S. 101 offramp and ultimately to San Luis Obispo Creek.

Froom Creek traverses the Project site within a narrow channel composed of rock, gravel, and sand. Evidence of eroded, undercut banks from high-velocity flows was observed onsite (January 2018)

The Froom Creek channel onsite averages 30 feet in width and occupies roughly 2.1 acres. Froom Creek's alignment appears to have been substantially altered over time. Although the exact alignment of all historic tributaries and drainages is unknown, based on historic USGS topographic maps prior to 1940, Froom Creek was aligned along the north and eastern boundaries of the site near LOVR where it connected with Prefumo Creek before ultimately feeding into San Luis Obispo Creek. Since that time, Froom Creek has been realigned and reinforced through construction of an artificial earthen berm along the eastern bank of the creek in 2013. In dry weather, the creek bed is generally dry and devoid of vegetation within the Project site, with seasonal ponding of water in deeply incised segments. During wet weather, Froom Creek conveys substantial flows through the site, as the channel drains the 1,162-acre Froom Creek sub-watershed. Alteration of Froom Creek alignment and confinement to narrow channel has resulted in higher velocity flows, increased erosion, and significant bank cutting during larger storm events (Appendix J).

The man-made drainage ditch adjacent to LOVR conveys stormwater runoff from adjacent development to the north and east. Prolonged ponding of runoff has resulted in the establishment of high-quality wetland and riparian habitats.

Another key onsite drainage feature is the LOVR ditch, a roadside ditch adjacent to LOVR that conveys surface runoff from the roadway and the Irish Hills Plaza to the north. This ditch conveys these flows to the southeast toward the Calle Joaquin wetlands where they commingle with high groundwater to help sustain sensitive wetland and riparian scrub habitats (see Section 3.4, *Biological Resources*). These waters eventually flow south to a 36-inch storm drain that conveys water under Calle Joaquin and adjacent hotels and under U.S. 101 and into San Luis Obispo Creek. Based on field observations in January 2019, the Calle Joaquin wetland may also discharge into a 12-inch and/or 24-inch storm drain that conveys flows under Calle Joaquin to an isolated 1.77-acre area of the Project site, which is bounded by Calle Joaquin to the north and west, the Hampton Inn and Suites parking lot to the south, and LOVR to the east (Figure 3.8-1). These flows support approximately 1.0 acre of existing wetland, which is hydrologically connected under Calle Joaquin to the larger wetland. Water in these wetlands either percolates into the groundwater or evaporates.

The Calle Joaquin wetlands are fed primarily by surface flows across the site and from the LOVR ditch, runoff from Irish Hills Plaza, and high groundwater levels.

Four unnamed natural drainages carry surface runoff from undeveloped upper elevations of the site and the Irish Hills. These three drainages – designated Drainage 1, Drainage 2, and Drainage 3 – generally flow downslope from northwest to southeast (Figure 3.8-1). The three drainages are approximately 3,200 feet, 1,400 feet, and 1,100 feet in length, respectively. These drainages are partially fed by several on-and offsite seeps or springs, where water "daylights" out of the ground at fractures in the serpentine bedrock (see also, Section 3.6, *Geology and Soils*). Natural runoff and these springs and seeps support wetland habitat within each of these drainages (refer to Section 3.4, *Biological Resources* for more discussion). Drainage 4 flows for approximately 400 feet through the southernmost portion of the Project site and flows to San Luis Obispo Creek through a separate culvert; Drainage 4 does not flow to Froom Creek.

Offsite Drainage

Runoff from adjacent Irish Hills Plaza flows to onsite detention features on the Project site, including a 3.2-acre basin, and creates pooling in a former infiltration area adjacent to the existing driveway (pictured).

Runoff from the Irish Hills Plaza to the north drains onto the site through a 48-inch underground storm drain. This pipe runs from the western corner of the Irish Hills Plaza across the Project site to an approximately 3.2-acre stormwater detention basin developed and sized to contain runoff from the Irish Hills Plaza. This detention feature consists of a desiltation forebay, a main basin, and concrete spillway which, during large storm events, discharges runoff into the Calle Joaquin wetlands. A perimeter drain catches dry weather runoff (i.e., low flow) and conveys to the Calle Joaquin wetlands via a perimeter drain outlet adjacent to LOVR. Runoff from the Irish Hills Plaza may also flow onto the Project site via an existing culvert that discharges water into a low-lying drainage easement where water ponds and percolates into the ground or evaporates. Lastly, runoff from development to the north is also conveyed onto the Project site via a storm drain underneath the Irish Hills Plaza southern access road and into the manmade LOVR ditch located on the Project site's eastern boundary and adjacent to LOVR.

Properties adjacent to the east of the Project site include LOVR and automobile dealerships. Some runoff from LOVR may sheet flow and drain to the LOVR ditch which flows to the Calle Joaquin wetlands. Other runoff from LOVR and development to the west drains to storm drains that discharge to Prefumo Creek and/or San Luis Obispo Creek.

Peak Flows and Overtopping of Froom Creek Banks

An important component of the hydrologic analysis of a watershed is the timing of the peak flows that result from a rainfall-runoff event. As precipitation in a given storm rises and falls in intensity over time, the resulting runoff, or discharge, also rises and falls over time. Factors that influence the volume of runoff include: 1) rainfall intensity and pattern; 2) areal distribution of rainfall over the watershed; and 3) duration of the storm event. Physiographic factors of importance include: 1) size and shape of the drainage area; 2) nature of the stream network; 3) slope of the land and the main channel; 4) storage detention in the watershed; and 5) vegetation conditions of the watershed. Existing peak flows were estimated for the Froom Creek watershed, which includes the Specific Plan area, to the Froom Creek confluence at the double box culvert at U.S. 101. Peak flow calculations by storm severity are summarized in Table 3.8-1. Based on these conditions, overbanking of the Froom Creek channel may occur during at least a 10-year storm event (Appendix J).

Table 3.8-1. Existing Peak Flows in Froom Creek

Storm Occurrence Condition	Total Creek Flow (Overbank Flowrate) (cfs)
2-year	253.3 (0)
10-year	521.5 (89.4)
25-year	714.3 (282.2)
50-year	867.6 (435.5)
100-year	980.4 (548.3)

Source: Appendix J; Existing Froom Creek Hydrologic Analysis.

Flood Hazards

Given peak flows and capacity of the existing channel, Froom Creek has a history of periodic flooding with estimated overbank flows occurring every five to six years (Balance Hydrologics, Inc. 2005; Appendix J). The potential for overtopping and flooding of the Lower Area has been reduced since the 2013 installation of an artificial earthen berm that confines Froom Creek to its perched location on the eastern edge of the site (Appendix J). However, the existing Froom Creek

An existing double box culvert under U.S. 101 conveys water from Froom Creek to San Luis Creek. This box culvert is inadequately sized to convey flows from storm events larger than 10-year storms.

channel does not have adequate capacity to convey 100-year storm events to the U.S. 101 culverts. Consequently, in a 100-year storm, Froom Creek overtops its existing banks and sheet flows towards existing the LOVR ditch and the Calle Joaquin wetlands with localized flooding and ponding onsite. As a result, the Lower Area and portions of Madonna Froom Ranch include flood hazard areas. Approximately 35 percent of (38.4 acres) of the Specific Plan area lies within the 100-year floodplain hazard area of Froom Creek (Figure 3.8-1). These flood prone areas include the channel of Froom Creek and the low-lying areas along LOVR and Calle Joaquin that fall within Zone A of the 100-year floodplain as mapped by the Federal Emergency Management Agency (FEMA) on Flood Insurance Rate Maps (FIRM).[1] The existing concrete box culverts under U.S. 101 east of Calle Joaquin are inadequately sized to convey flows from storm events larger than 10-year storms. This physical limitation results in stormwater back-up, localized flooding, and U.S. 101 being overtopped during a 10-year storm when flows would exceed 547 cubic feet per second (cfs) (Appendix J). This flooding can require road closures and result in damage to infrastructure and buildings.

Groundwater Resources

The Project site overlies the San Luis Obispo Valley Groundwater Basin and flows toward the east-southeast, following the general gradient of surface topography. The lower areas of the Project site lie in a valley that is underlain by up to 200-feet-thick alluvium comprised of shallow alluvial fan deposits near the historic Froom Ranch Dairy complex and shallow clayey deposits elsewhere by permeable sand and gravel beds. The clayey deposits confine groundwater in these deeper sand and gravel beds but do allow for gradual upward leakage contributing water to the Calle Joaquin wetlands. Thus, groundwater levels are high in the lower elevations of the Project site adjacent to LOVR and portions of Calle Joaquin.

Groundwater recharge occurs from percolation of runoff where shallow alluvial fan deposits and stream channel deposits are present.

Groundwater level measurements in the eastern-lower elevations of the site found groundwater levels of about 10 feet bgs at the Madonna domestic well on the west and at ground surface at the Artesian Well by Calle Joaquin on July 31, 2018. The depth to water in the proximity of the existing stormwater detention basin was measured in several

[1] Zone A consists of areas of a floodplain where no base flood elevation has been determined; FIRM Number 06079C1330H, 06079C1331G, and 06079C1068G.

backhoe pits on September 20, 2018. The depths to water in the backhoe pits around the basin were between 3 and 6 feet and inside the basin the depths to water were 2.3 feet (forebay) and 2.6 feet (detention) below the lowest point in the basins. Based on historic groundwater monitoring at the Calle Joaquin wetlands, the groundwater level at the wetlands fluctuates seasonally 2 to 4 feet with a range of about 4 feet (from 3 feet bgs to 1+ feet above ground). During wet years during winter, groundwater levels are near ground surface in the higher topographic areas of the valley and in the lower elevation wetland area above ground surface. Historically, the groundwater levels declined more than 30 feet as a result of regional groundwater extraction during the 1987-1991 drought. During the most recent 2012-2017 drought, groundwater levels remained within 10 feet of ground surface over most of the Project area (Cleath-Harris Geologists, Inc. 2018; Appendix J). Groundwater has not been observed in the western upper-elevations of the Project site, though several springs have been mapped in this area, including the confluence of Drainages 1, 2, and 3 in the Upper Terrace (Appendix J).

No known sources of active groundwater contamination are located within the Project site. A total of eight groundwater contamination cleanup sites are located within 0.5-mile of the Project site, seven of these sites are closed leaking underground storage tank sites, and one is active for potential contamination of soils and groundwater along a crude oil pipeline within the U.S. 101 right-of-way near the City Waste Water Treatment Plant property across U.S. 101 to the east (SWRCB 2018). Existing onsite wells are currently idle and no groundwater pumping occurs onsite. However, in 2014, a total of eight shallow monitoring wells were installed adjacent to the Calle Joaquin wetlands to document groundwater levels within the top 18 inches of the soil (Appendix J).

Existing sources of potential groundwater quality contamination or degradation include percolation of leaked fuels and lubricants originating from staged construction equipment, equipment mobilization, and equipment refueling activities. In addition, a small outhouse for the John Madonna Construction Company disposes of wastewater via an existing septic tank near the barn. Wastewater generated by use of the outhouse is stored within the existing septic tank and pumped and disposed of offsite via a permitted third-party liquid waste hauler. There are no known leaks or groundwater contamination issues associated with this permitted septic system.

Water Quality

Froom Creek within the Project site has present and potential beneficial uses for municipal supply; recreation; wildlife habitat; rare, threatened, or endangered species; and

commercial and sport fishing (Central Coast RWQCB 2017). The primary beneficial use of Froom Creek onsite appears to be groundwater recharge, although upstream reaches in the Irish Hills support perennial flows, riparian habitat, and steelhead trout (Appendix J). Froom Creek is not listed on the 2010 CWA Section 303(d) list of impaired waters for any water quality pollutants or constituents.

At the Project site, existing sources of potential surface water quality contamination or degradation include mobilization of leaked fuels and lubricants into Froom Creek or the LOVR ditch from construction equipment, and equipment refueling activities. Frequent disturbance of stockpiled fill materials onsite, particularly within the existing quarry, also represents a potential source of existing water quality degradation associated with increased sedimentation, siltation, or erosion. Urban stormwater runoff generated by the Irish Hills Plaza and conveyed to the Project site via the LOVR ditch also has the potential to mobilize contaminants that would compromise surface water quality in Froom Creek and potentially downstream in San Luis Obispo Creek.

3.8.2 Regulatory Setting

Hydrologic resources and water quality are governed primarily by federal, state, and local laws that would apply to future development under the Project. Some activities under the Project would require coordination and permits from federal, state, and local agencies. Federal, state, and local regulations that are directly relevant to potential impacts associated with the Project are summarized below.

3.8.2.1 Federal

Federal Clean Water Act (CWA)

In 1972, the Federal Water Pollution Control Act (later referred to as the CWA) was amended to require that the discharge of pollutants into waters of the U.S. from any point source be effectively prohibited unless the discharge is in compliance with a NPDES permit. In 1987, the CWA was again amended to require that the 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 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 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 include quantitative set concentrations, levels, or loading rates of constituents—such as pesticides, nutrients, salts, suspended sediment, and fecal coliform bacteria—or narrative statements that represent the quality of water that support a particular use.

CWA Section 303, List of Water Quality Limited Segments: Section 303 of the CWA requires that the State adopt water quality standards for surface waters. 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 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.

CWA Section 402, National Pollutant Discharge Elimination System: Direct discharges of pollutants into waters of the U.S. are not allowed, except in accordance with the NPDES program established in Section 402 of the CWA. Non-point source discharges to stormwater are regulated under stormwater NPDES permits for municipal stormwater discharges, industrial activities, and construction activities. These permits require development of and adherence to a Storm Water Pollution Prevention Plan (SWPPP).

CWA Sections 404 and 401: Under Section 404 of the CWA, the USACE regulates the discharge of dredged or fill material into waters of the U.S., which are those waters that have a connection to interstate commerce, either directly via a tributary system or indirectly through a nexus identified in the USACE regulations. Under Section 401 of the CWA, the SWRCB must certify all activities requiring a permit in accordance with Section 404. The RWQCB regulates these activities and issues water quality certifications for those activities requiring a 404 permit.

3.8.2.2 State

California Department of Fish and Wildlife (CDFW)

Any work that is within CDFW jurisdiction, which includes the Froom Creek riparian zone, requires permitting through CDFW. Section 1602 of the Fish and Game Code requires an

entity notify the CDFW prior to commencing any activity that may substantially divert or obstruct the flow of any channel or bank.

California Department of Water Resources (DWR)

DWR is the state agency that studies, constructs, and operates regional-scale flood protection systems, in partnership with federal and local agencies. DWR also provides technical, financial, and emergency response assistances to local agencies related to flooding.

Several bills were signed by Governor Schwarzenegger in 2007, adding to and amending state flood and land use management laws. The laws contain requirements and considerations that outline a comprehensive approach to improving flood management at state and local levels.

State Water Resources Control Board (SWRCB) & Central Coast Regional Water Quality Control Board (RWQCB)

The Porter-Cologne Act mandates that waters of the state shall be protected such that activities that may affect waters of the state shall be regulated to attain the highest quality. The SWRCB is given authority to enforce Porter-Cologne Water Control Act as well as Section 401 of the Clean Water Act and has adopted a statewide general permit that applies to almost all stormwater discharges. This general permit, which is implemented and enforced in the San Luis Obispo area, is implemented by the local Central Coast RWQCB and requires all owners of land where construction activity occurs to:

- Eliminate or reduce non-stormwater discharges to stormwater systems and other waters of the U.S.;
- Develop and implement a Stormwater Pollution Control Plan emphasizing stormwater BMPs; and
- Perform inspections of stormwater pollution prevention measures to assess their effectiveness.

In addition, SWRCB regulations mandate a "non-degradation policy" for state waters, especially those of high quality. Under the authority of the SWRCB, the protection of water quality in San Luis Obispo Creek and its tributaries is under the jurisdiction of the Central Coast RWQCB. The RWQCB establishes requirements prescribing the quality of point sources of discharge and establishes water quality objectives. These objectives are established based on the designated beneficial uses for a particular surface water or groundwater. Within city limits of San Luis Obispo, the jurisdiction for the water quality

of the San Luis Obispo Creek Watershed overlaps with the city public works and utilities agencies.

In accordance with the California Water Code, the Central Coast RWQCB developed a Water Quality Control Plan for the Central Coast Basin (2017) designed to preserve and enhance water quality and protect the beneficial uses of all regional waters. Water quality objectives for the Central Coastal Basin satisfy state and federal requirements established to protect waters for beneficial uses and are consistent with existing statewide plans and policies.

The Central Coast RWQCB has adopted Watershed Management Zones (WMZs) and Post-Construction Requirements (PCRs) that apply to projects in the Central Coast Region. Four PCRs are applied by WMZ to reduce pollutant discharges and prevent stormwater discharges from contributing to or causing violation of water quality standards. The PCRs address site design and runoff reduction, water quality treatment, runoff retention, and peak management.

3.8.2.3 Local

The protection of water quality in San Luis Obispo Creek and its tributaries is under the jurisdiction of the RWQCB. The City also has the responsibility for regulating water quality under its NPDES MS4 permits program. This board establishes requirements prescribing the quality of point sources of discharge and establishes water quality objectives. These objectives are established based on the designated beneficial uses for a particular surface water or groundwater. Within the City limits, the jurisdiction for the water quality of the San Luis Obispo Creek Watershed overlaps with the City Public Works and Utilities agencies.

City of San Luis Obispo General Plan

The City addresses hydrology and water quality issues through implementation of adopted General Plan policies and programs. These policies are found in the General Plan LUE, COSE, and SE. The goals and policies from the existing General Plan relate to protecting water quality and minimizing flood hazard risk within the City. The City seeks to protect and enhance creek corridors to promote wildlife and water conservation. The City seeks to accomplish these goals by promoting responsible stormwater management techniques including using porous paving, preventing creek bank encroachment, and ensuring new developments do not decrease flood capacity of waterways. Under the General Plan, any

property within the FIRM defined 100-year flood zone is considered as having a hazard potential requiring specified controls or protective measures.

Land Use Element (LUE)

The City has adopted a LUE as part of their General Plan. This element contains the following policies relevant to hydrology and water quality:

Policy LU 6.6.1 Creek and Wetlands Management Objectives. The City shall manage its lake, creeks, wetlands, floodplains, and associated wetlands to achieve the multiple objectives of:

B. Preventing loss of life and minimizing property damage from flooding;

C. Providing recreational opportunities which are compatible with fish and wildlife habitat, flood protection, and use of adjacent private properties.

Policy LU 6.6.5 Runoff Reduction and Groundwater Recharge. The City shall require the use of methods to facilitate rainwater percolation for roof areas and outdoor hardscaped areas where practical to reduce surface water runoff and aid in groundwater recharge.

Policy 6.6.6 Development Requirements. The City shall require project designs that minimize drainage concentrations and impervious coverage. Floodplain areas should be avoided and, where feasible, any channelization shall be designed to provide the appearance of a natural water course.

Policy 6.6.7 Discharge of Urban Pollutants. The City shall require appropriate runoff control measure as part of future development proposals to minimize discharge of urban pollutants (such as oil and grease) into area drainages.

Policy 6.6.8 Erosion Control Measures. The City shall require adequate provision of erosion control measures as part of new development to minimize sedimentation of streams and drainage channels.

Conservation and Open Space Element (COSE)

The City has adopted a COSE as part of their General Plan. This element contains the following goals and policies relevant to hydrology and water quality:

Program COS 7.7.9 Creek Setbacks. As further described in the Zoning Regulations, the City will maintain creek setbacks to include: an appropriate separation from the physical top of the bank, the appropriate floodway as identified in the Flood Management Policy,

native riparian plants or wildlife habitat and space for paths called for by any City-adopted plan. In addition, creek setbacks should be consistent with the following:

A. The following items should be no closer to the wetland or creek than the setback line: buildings, streets, driveways, parking lots, above-ground utilities, and outdoor commercial storage or work areas.

B. Development approvals should respect the separation from creek banks and protection of floodways and natural features identified in part A above, whether or not the setback line has been established.

Goal COS 10.1.3 Water Quality. Protect and maintain water quality in aquifers, Laguna Lake, streams, and wetlands that supports all beneficial uses, agriculture, and wildlife habitat.

Policy COS 10.2.1 Water Quality. The City will employ the best available practices for pollution avoidance and control, and will encourage others to do likewise. "Best available practices" means behavior and technologies that result in the highest water quality, considering available equipment, life-cycle costs, social and environmental side effects, and the regulations of other agencies.

City of San Luis Obispo Municipal Code

17.70.030 Creek Setbacks. The City's Creek Setback requirement applies to all creeks that are shown on Figure 9 of the COSE in the General Plan, including Froom Creek. A 35-foot setback is required for Froom Creek "from the existing top of bank (or the future top of bank resulting from a creek alteration reflected in a plan approved by the City), or from the edge of the predominant pattern of riparian vegetation, whichever is farther from the creek flow line." The setback along all creeks other than those identified in Section 17.70.030 shall be 20 feet.

City of San Luis Obispo NPDES Phase II Program

The City submitted a their SWMP to the Central Coast RWQCB in July 2013 under the NPDES Phase II program. Development is required to be undertaken in strict accordance with conditions and requirements of that program, which includes distinct Post-Construction Requirements for on-site retention/volume control, treatment of runoff, channel protection, flood control, and redevelopment.

San Luis Obispo Waterway Management Plan (WMP) (2003)

The WMP incorporates three volumes: the WMP, the Drainage Design Manual (DDM), and the Stream Management and Maintenance Program. The WMP is a watershed-based management plan for San Luis Obispo Creek and its tributaries within the City and County. The WMP serves as a basis for future project planning, decision-making, and permitting. Volume III of the WMP is a DDM, providing design guidance and criteria intended to meet surface water management objectives, which includes revised policies for floodplain and stream corridor management and new design flows for stream channels within the City. Procedures for hydrologic and hydraulic analysis, and guidelines and criteria for the design of channels, storm drain systems, stormwater detention facilities, bank repair and stream restoration, and erosion control are described within this document. The floodplain management policies in the DDM generally require that fill placed on floodplains be managed so that there is no adverse impact in terms of flooding or bank stability. These are referred to as the "Managed Fill" and "No Adverse Impact" policies of the DDM. The DDM also requires applicants that create adverse hydrologic impacts to fully mitigate them.

Special Floodplain Management Zone Regulations (Managed Fill Criteria)

The City's Floodplain Management Regulations require that all building pads within a 100-year flood zone be raised at least 1 foot above the specified 100-year flood elevation. The regulations also state that, cumulatively, developments will not displace floodwater sufficient to raise the flood elevation more than one foot at any point, without causing damage to any offsite properties. Development of vacant lands in Special Floodplain Management Zone areas have been determined to have a potentially significant effect on downstream flooding and bank stability. These potential impacts can be mitigated by incorporation of the specific floodplain management policies in project design. For any development or subdivision proposal within the 100-year FEMA floodplain, on individual parcels or developments larger than 2.5 acres, the development proposal shall include a Concept Grading Plan and Master Drainage Plan. These Plans shall be submitted to the City or County Public Works Director for approval and shall meet specific criteria, including:

- The project shall not cause the 100-year flood elevation to increase more than 2.5 inches.
- The project shall not cause stream velocities to increase more than 0.3 feet per second.

- The project shall not cause a significant net decrease in floodplain storage volume unless several exceptions are met.

City of San Luis Obispo Engineering Standards

The current Engineering Standards for the City include the following requirements relevant to water quality:

- All new development or redevelopment shall comply with the criteria and standards set forth in the WMP – DDM, applicable area specific plans, and the Post-Construction Stormwater Management Requirements for Development Projects in the Central Coast Region, adopted by the Central Coast RWQCB, and included in the appendices. Where requirements conflict, the stricter shall apply. Stormwater Control Plan, and Operation and Maintenance Plan are required prior to final approvals.
- **Source Control** (per 2013 State General Stormwater Permit Section E.12.d)**:**
    - Projects with pollution generating activities and sources must be designed to implement operation or source control measures consistent with recommendations from the California Stormwater Quality Association Handbook for New Development and Redevelopment or equivalent, including:
        - Accidental spills or leaks
        - Interior floor drains
        - Parking/storage areas and maintenance
        - Indoor and structural pest control
        - Landscape/outdoor pesticide use
        - Pools, spas, ponds, decorative fountains and other water features
        - Restaurants, grocery stores, and other food service operations
        - Refuse areas
        - Industrial processes
        - Outdoor storage of equipment or materials
        - Vehicle and equipment cleaning, repair, and maintenance
        - Fuel dispensing areas
        - Loading docks
        - Fire sprinkler test water
        - Drain or wash water from boiler drain lines, condensate drain lines, rooftop equipment, drainage sumps, and other sources
        - Unauthorized non-stormwater discharges
        - Building and grounds maintenance

- Design should prevent water from contacting work areas, prevent pollutants from coming in contact with surfaces used by stormwater runoff, or where contact is unavoidable, treat stormwater to remove pollutants.
- Operations and maintenance activities required to achieve Source Control are to be included in the Operation and Maintenance Plan submitted for approvals and recorded with the property as required by ordinance.

3.8.3 Environmental Impact Analysis

3.8.3.1 Thresholds of Significance

With respect to hydrology and water quality impacts, applicable sections of Appendix G of the State CEQA Guidelines state that a project would normally have a significant impact if it would:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

c) 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 addition of impervious surfaces, in a manner that would:

   i. Result in substantial erosion or siltation on- or offsite;

   ii. Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or offsite;

   iii. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage system or provide substantia additional sources of polluted runoff; or

   iv. Impede or redirect flood flows;

d) Be in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation;

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Non-Applicable Threshold(s)

- Threshold (d) (*Seiche, Tsunami, or Mudflow*): The Project site is not located within an area identified as being subject to inundation by a seiche, tsunami, or mudflow. Implementation of the Project is not anticipated to exacerbate effects or damage

from a seiche, tsunami, or mudflow on residents and visitors of the Project and surrounding development.

- Threshold (b) (*Groundwater Quality*): Wastewater and sanitary waste services would be provided via City wastewater infrastructure. The Project does not propose any onsite waste treatment systems (e.g., septic tanks, leach fields) that could contribute to degradation of groundwater quality. Potential polluted stormwater discharges which could percolate into the underlying groundwater system and degrade groundwater quality would be appropriately managed onsite through stormwater detention and treatment systems (see Impact HYD-3).

3.8.3.2 Impact Assessment Methodology

In the City, hydrology impacts would be considered potentially significant if shallow groundwater encountered building foundations and retaining walls, exposing people or structures to potentially adverse effects. Flooding impacts would be considered potentially significant if the development is proposed within an identified flood-prone area, as determined by the City FIRM, thereby increasing the structures exposed to the existing flood hazard; or if the new development conflicts with Flood Hazard avoidance policies in the General Plan SE. Water quality impacts would be considered potentially significant if development of the proposed Project would result in the increased degradation of surface water quality, including indirect impacts to threatened and endangered species downstream of the Downtown area.

This hydrology and water quality impact assessment is based on literature review, discussions with City staff, and initial peer review of 7 technical studies prepared by the Project applicant (Appendix J). These include:

- Preliminary Engineering Geology Investigation prepared by GeoSolutions, Inc. in April 2017;
- Groundwater Impacts Assessment prepared by Cleath-Harris Geologists, Inc. in September 2018;
- Delineation of Waters of the United States and State of California prepared by KMA in August 2015;
- Preliminary Hydrologic and Hydraulic Calculations prepared by RRM Design Group, updated as of February 2019;
- Existing Froom Creek Hydrologic Analysis prepared by RRM Design Group in July 2019; and

- Preliminary Sediment Transport Analysis and Calculations prepared by RRM Design Group in July 2019.

This assessment also included review of the Project's preliminary VTTM, which includes preliminary Project grading and drainage information.

The findings of this Preliminary Hydrologic and Hydraulic Calculations form the primary basis for the drainage and flooding analysis in this impact assessment. This report built upon the watershed-wide hydrologic and hydraulic analysis that was completed for the San Luis Obispo Creek Watershed for the City and the San Luis Obispo County Flood Control District Zone 9 as part of the San Luis Obispo Creek WMP and utilizes USACE's HEC – HMS digital model (City of San Luis Obispo 2003; Appendix J). This information was used to establish the locations and extent of drainages, wetland features, and groundwater resources, and serves as the environmental baseline upon which impacts resulting from the Project are assessed. These calculations also serve as the basis for impact analysis related to flooding, water quality, erosion, and groundwater.

In addition, Wood Environment & Infrastructure Solutions, Inc. (Wood) conducted a reconnaissance-level site visit in January 2018 to assess and document existing conditions present at the site. Attention was paid to attempting to document or confirm the location, function, operation, and capacity of existing drainage improvements such as the onsite detention basins, Calle Joaquin wetlands, and the size of drainage culverts and lines conveying water to and from these facilities. Wood staff conducted in-depth literature review of prior plans and hydrologic studies to assess these drainage improvements. These include: the Final Supplementation Environmental Impact Report for the Madonna / Eagle Hardware & Garden (SCH No. 1998031015; County of San Luis Obispo 1998) and associated technical reports; the Final Environmental Impact Report for the Costco / Froom Ranch (SCH No. 2002051036; City of San Luis Obispo 2003) and associated reports; the Drainage and Flood Analysis for Calle Joaquin Realignment Public Improvements (Cannon Associates 2004); the Hydrologic Monitoring Plan for Sustaining a Separated Wetland Near Calle Joaquin (Balance Hydrologics, Inc. 2005); the Revised Location Hydraulic Study Report for the LOVR / U.S. 101 Interchange Improvements Project (WRECO 2010); and the Irish Hills Plaza Detention Basin Report (Wallace Group 2006). Impacts associated with the disturbance and/or loss of wetlands with regard to habitat and biological value are assessed in detail in Section 3.4, *Biological Resources.*

3.8.3.3 Project Impacts and Mitigation Measures

This section discusses the potential hydrology and water quality impacts associated with the construction and operation of the Project. Hydrology and water quality impacts associated with the Project are summarized in Table 3.8-2 below.

Table 3.8-2. Summary of Project Impacts

Hydrology and Water Quality Impacts	Mitigation Measures	Residual Significance
HYD-1. Project construction activities would result in impacts to water quality due to polluted runoff and increased erosion or siltation.	MM HYD-1 MM HYD-2 MM HYD-3	Less than Significant with Mitigation
HYD-2. The Project would potentially exacerbate flooding and erosion hazards onsite and in areas downstream, particularly related to the proposed realignment and design of Froom Creek and developed areas of the site.	MM HYD-4	Less than Significant with Mitigation
HYD-3. Operation of the Project would potentially impact water quality of Froom Creek and San Luis Obispo Creek due to polluted urban runoff and sedimentation.	No Mitigation Required	Less than Significant
HYD-4. The Project would involve development of new impervious surfaces and potentially interfere with groundwater recharge.	No Mitigation Required	Less than Significant

Impact HYD-1 Project construction activities would result in impacts to water quality due to polluted runoff and increased erosion or siltation (Less than Significant with Mitigation).

Construction would include excavation, grading, and other earthwork that would disturb soils across the Project site, including construction of a new realigned channel for Froom Creek and installation of the proposed stormwater basin, along with supporting stormwater management infrastructure such as the Home Depot ditch and LOVR ditch. During this time when soils are disturbed or stockpiled onsite, rainfall has the potential to cause substantial soil erosion and sediment transport into Froom Creek due to runoff waters moving over exposed areas and newly created slopes and entering the new drainage system leading to the realigned Froom Creek and the Calle Joaquin wetlands. Construction runoff flowing into Froom Creek and onsite wetlands would also potentially affect water quality in San Luis Obispo Creek.

Project construction is assumed to occur over four phases extending for an approximate 5-year period. The Project would require approximately 160,000 cy of cut soil and

approximately 378,700 cy of fill, with 220,000 cy of fill imported to the site for distribution and compaction within the Lower Area and Madonna Froom Ranch. This disturbed state is expected to occur over approximately three years while the Project is constructed in phases (see Section 2.0, *Project Description*).

Although mass grading and major creek realignment would be concentrated in Phases 1 and 2, major grading and importation of fill would extend well into Phase 3. Soil would be redistributed across the site, particularly to fill over 38.4 acres of lower-lying floodplain. Several disturbed areas, stockpiles, and internal balancing of loose soils would occur onsite during construction. During storm events, surface runoff from exposed construction areas could flow into onsite wetlands and Froom Creek, potentially carrying pollutants such as oils, fuels, lubricants, excess concrete, chemicals, sediments, and construction debris. Following completion of the realignment of Froom Creek, runoff from exposed construction areas would primarily be directed into the realigned creek. These construction activities could impact water quality by exposing disturbed ground to potential erosion, particularly during major storms and high intensity rainfall events, or by introducing pollutants into the runoff.

Phase 1 of construction would involve realignment of Froom Creek, installation of stormwater management infrastructure, and construction activities near or within a drainage channel. Grading for construction of the Upper Terrace would occur within 5 feet of unnamed Drainages, 1, 2, and 3, as well as instream construction of four headwall and pipe culverts. In addition, grading, excavation, and placement of hundreds of thousands of cubic yards of fill near Froom Creek would occur to increase site elevation by 1 foot to bring building pads above the floodplain. The presence and use of large construction machinery within close proximity of drainages has the potential to result in a spill of fluids, such as oil, gasoline, and hydraulic fluids, which could be mobilized by stormwater runoff. See Section 3.4, *Biological Resources*, for additional detail on impacts of stormwater infrastructure installation and runoff within the creek to biological resources.

In addition, soil erosion could result in the creation of onsite rills and gully systems, clog existing and planned drainage channels, breach erosion control measures, and transport soil into down-gradient areas on the Project site. Soil movement would occur in these exposed graded or excavated areas, as well as in unprotected drainage culverts or basins. These changes to site hydrology would occur during Phase 1 of Project implementation between February 2020 to September 2021, which could overlap with winter storms between October and March.

As part of Project construction, erosion control, sediment barriers and temporary sediment basins would be constructed to minimize the extent of construction site impacts to on- and offsite surface waters. These measures include, but are not limited to, the requirements of the City's NPDES Phase II Program and SWMP, SWRCB's Construction General Permit Order 2009-0009-DWQ, Central Coast RWQCB PCRs 1-4, and the City's Storm Water Quality Ordinance (Municipal Code Chapter 12.08) (Section 3.8.2 above). These state and local regulations are adopted to ensure the quality of water during construction activities is not significantly degraded and that appropriate BMPs and control measures are implemented to ensure adequate management of onsite runoff. However, the potential for water quality degradation from erosion, sedimentation, and pollutants flowing to Froom Creek and the Calle Joaquin wetlands would be *potentially significant*.

Mitigation Measures

MM HYD-1 *Prior to the issuance of any construction/grading permit and/or the commencement of any clearing, grading, or excavation, the Applicant shall submit a Notice of Intent (NOI) for discharge from the Project site to the California SWRCB Storm Water Permit Unit.*

Plan Requirements and Timing. The NOI shall be submitted for review and approval to the SWRCB. The City will verify that a Waste Discharge Identification (WDID) number is assigned by the Board prior to the issuance of grading permits for construction activities. The NOI shall address discharge during all phases of development of the site until all disturbed areas are permanently stabilized.

Monitoring. The City will confirm WDID number assignment prior to approval of the grading permit(s). City monitoring staff will periodically inspect the site during construction to ensure compliance.

MM HYD-2 *For each phase of construction, the Applicant shall require the building contractor to prepare and submit a Storm Water Pollution Prevention Plan (SWPPP) to the City 45 days prior to the start of work for approval. The contractor is responsible for understanding the State General Permit and instituting the SWPPP during construction. A SWPPP for site construction shall be developed prior to the initiation of grading and implemented for all construction activity on the Project site in excess of 1 acre, or where the area of disturbance is less than 1 acre but is part of the Project's plan of*

development that in total disturbs 1 or more acres. The SWPPP shall identify potential pollutant sources that may affect the quality of discharges to stormwater and shall include specific BMPs to control the discharge of material from the site, including, but not limited to:

- *Temporary detention basins, straw bales, sand bagging, mulching, erosion control blankets, silt fencing, and soil stabilizers shall be used.*
- *Sufficient physical protection and pollution prevention measures to prevent sedimentation, siltation, and/or debris from entering the Calle Joaquin wetlands.*
- *Soil stockpiles and graded slopes shall be covered after 14 days of inactivity and 24 hours prior to and during inclement weather conditions.*
- *Fiber rolls shall be placed along the top of exposed slopes and at the toes of graded areas to reduce surface soil movement, as necessary.*
- *A routine monitoring plan shall be implemented to ensure success of all onsite erosion and sedimentation control measures.*
- *Dust control measures shall be implemented to ensure success of all onsite activities to control fugitive dust.*
- *Streets surrounding the Project site shall be cleaned daily or as necessary.*
- *BMPs shall be strictly followed to prevent spills and discharges of pollutants onsite (material and container storage, proper trash disposal, construction entrances, etc.).*
- *Sandbags, or other equivalent techniques, shall be utilized along graded areas to prevent siltation transport to the surrounding areas.*

Additional BMPs shall be implemented for any fuel storage or fuel handling that could occur onsite during construction. The SWPPP must be prepared in accordance with the guidelines adopted by the SWRCB. The SWPPP shall be submitted to the City along with grading/development plans for review and approval. The Applicant shall file a Notice of Completion for construction of the development, identifying that pollution sources were

controlled during the construction of the Project and implementing a closure SWPPP for the site.

Plan Requirements and Timing. The Applicant shall prepare a SWPPP that includes the above and any additional required BMPs addressing each phase of construction and timing. The SWPPP and notices shall be submitted to the SWRCB under their Stormwater Multi-Application, Reporting, and Tracking System (SMARTS). The SWPPP shall be designed to address erosion and sediment control during all phases of development of the site until all disturbed areas are permanently stabilized. The development plans submitted to the City shall include and reflect the erosion control plan and BMPs submitted to the State.

Monitoring. City monitoring staff shall periodically inspect the site for compliance with the SWPPP during grading to monitor runoff and after conclusion of grading activities. A Qualified SWPPP Practitioner (QSP) will be retained by the developer for overall management and reporting responsibility regarding the SWPPP and documentation under SMARTS in accordance with their permitting requirement. The Applicant will keep a copy of the SWPPP on the Project site during grading and construction activities.

MM HYD-3 *Installation of the stormwater management system shall occur during the dry season (May through October), including realignment and restoration of Froom Creek, installation of hydrological connections for the stormwater detention basin, construction of onsite retention basins, and the installation of the Home Depot and LOVR ditches. Stormwater management system features shall be fully installed and restored to ensure soil stabilization and adequate stormwater conveyance capacity prior to the storm season (October through April).*

Plan Requirements and Timing. The Applicant shall demonstrate compliance within grading and construction phasing plans subject to City review and approval prior to issuance of grading permits for each Project phase.

Monitoring. The City shall review grading and construction plans for all phases to ensure compliance. City grading monitors shall spot check for compliance.

Residual Impact

Implementation of MM HYD-1 and MM HYD-2 above would avoid or substantially reduce the potentially significant construction runoff, erosion, and associated impacts to water quality. Implementation of MM HYD-3 would prevent construction of the stormwater management system during the rainy season, thereby reducing the potential for erosion and construction runoff from installation of the drainage facilities to flow downstream to San Luis Obispo Creek or to the Calle Joaquin wetlands. As a result, impacts would be *less than significant with mitigation*.

Impact HYD-2 The Project would potentially exacerbate flooding and erosion hazards onsite and in areas downstream, particularly related to the proposed realignment and design of Froom Creek and developed areas of the site (Less than Significant with Mitigation).

Altered Site Drainage and Increased Runoff

Project development would substantially alter onsite drainage patterns through realignment of Froom Creek, reconstruction of LOVR ditch, installation of the Home Depot ditch, replacement of the existing onsite detention basin with the proposed stormwater detention basin on Mountainbrook Church property, increases in development and impervious surfaces, and fill of the Lower Area and Madonna Froom Ranch areas to raise site elevation by approximately one foot. In addition, Project construction and proposed stormwater conveyance systems would substantially alter the volume and velocity of surface water flows and runoff. Further, the existing stormwater detention basin serving adjacent development would be removed and a new detention basin would be constructed within the southern downstream portion of the Project site adjacent to Calle Joaquin to detain flood flows from the proposed Project, as well as those from Irish Hills Plaza and Mountainbrook Church. These changes to the creek and proposed new stormwater conveyance system would substantially alter surface water flows through the site, as well as peak surface flows downstream.

The direct effects of development of the Project would result from replacement of approximately 50.7 acres of undeveloped land with residential, commercial, and recreational development. Substantial areas of new impervious surfaces would increase

both the total volume of stormwater runoff and the peak flow of runoff. Project design features such as the ditches, retention and detention basins, parks, planted parkways, and the drainage conveyance system are proposed to avoid flooding and retain runoff to meet Central Coast RWQCB PCRs for peak flow and water quality. However, considering the available information considered for this analysis, Project implementation would substantially increase the amount of surface flows, especially following major storm events.

Removal of the 2,145 linear feet of Froom Creek through the Project site and construction of a new 3,745-foot-long realigned creek channel of an average of 65 feet in width and varying depths are major Project features. At the downstream end of the Project site adjacent to the proposed stormwater detention basin, the existing creek channel would be widened to 5 feet with a spill-over feature to allow conveyance of storm flows in excess of a 10-year event to flow to the stormwater basin. These proposals are developed at a conceptual level as described in the Preliminary Hydrologic and Hydraulic Calculations report and Draft FRSP (see also Figures 2-5, 2-15, and 2-16). These proposed changes to site hydrology would occur during Phase 1 of Project implementation between February 2020 to September 2021.

The new creek would feature substantial bioengineered water flow and bank erosion control features, including restored in-channel and creek bank riparian habitat, installation of 2,300 cy of boulders along the toe of creek banks to reduce erosion from high-velocity flows and flooding within the creek channel and Calle Joaquin wetlands, and creation of pool and riffle sequences in the channel bottom to slow flows and create aquatic habitat, particularly for the Southern steelhead trout (see also, Section 3.4, *Biological Resources*). Although detailed specifications and design are not yet fully developed, the resiliency of these proposed improvements to survive high-velocity flows and flood volumes during storm events, reduce or avoid creek bank erosion, and provide habitat mitigation and benefits are central to successful creek realignment and redesign (see also, Section 3.4, *Biological Resources*).

As summarized in Table 3.8-3, based on the preliminary design of the realigned Froom Creek corridor, the improved and realigned Froom Creek would result in a net increase in peak flow capacity, increasing the ability of Froom Creek to accommodate flows during large storm events and resulting runoff caused by increased impervious surfaces at the Project site. Under the Project, Froom Creek would overbank only after the 2-year peak flow is achieved. Flows greater than a 2-year storm would overbank to the Calle Joaquin

wetlands or be contained within the channel when not adjacent to the wetland, where the creek channel would be sized to handle up to a 100-year storm event with a minimum of one foot of freeboard (Appendix J).

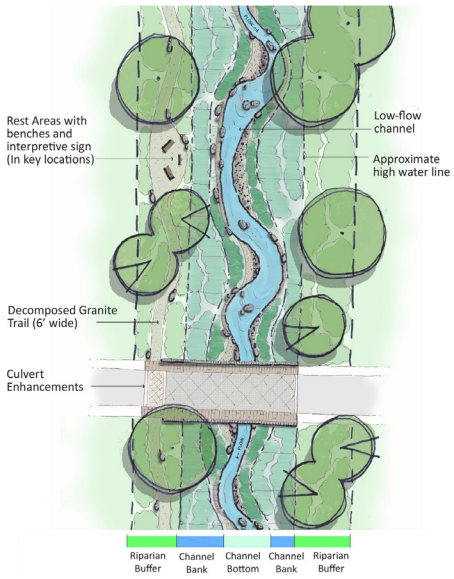
The proposed stormwater detention basin would provide additional "surge" storage for flows larger than 2-year storm events, where the existing box culverts overtop Calle Joaquin during 10-year events. The proposed stormwater detention basin would allow for storage enough to allow the 25-year event to pass entirely through the culverts. The 50-year and 100-year events are prohibitively large to allow for storage during these events and overtop Calle Joaquin as safe overflow (Appendix J).

Table 3.8-3. Projected Peak Flow in Realigned Froom Creek

Storm Reoccurrence Interval	Total Creek Flow (Overbank Flowrate) (cfs)		
	Existing Froom Creek	Proposed Froom Creek	Net Change
2-year	253.3 (0)	518.7 (0)	265.4 (0)
10-year	521.5 (89.4)	707.3 (188.6)	185.8 (99.2)
25-year	714.3 (282.2)	877.2 (358.5)	162.9 (76.3)
50-year	867.6 (435.5)	1,098.1 (579.4)	230.5 (143.9)
100-year	980.4 (548.3)	1,240.8 (722.1)	260.4 (173.8)

Source: Appendix J; Existing Froom Creek Hydrologic Analysis.

Creek Bank Stability and Erosion



The proposed Froom Creek channel would include 2,300 cy of rock and boulders to create pools and slow flows, as well as some toe rocks to help stabilize banks during storm events.

As discussed in Section 3.1 *Environmental Setting* above, the Froom Creek watershed can experience high intensity rainfall events that can result in short duration high intensity flows of up to 1,241 cfs under 100-year storm conditions, with potential for scouring of the channel bottom and erosion along the banks of the newly realigned creek (Appendix J). Similar conditions are frequently experienced within the existing Froom Creek, which demonstrated deep incising and scouring of creek banks. To address this concern for the proposed alignment, the Project includes use of 2,300 cy of imported rock to create a series of channel bottom pools along upper reaches of the creek within the Specific Plan area. This creek design would retain and slow flows and to provide slope protection toe rock (i.e., boulders) along the base of the creek bank to prevent or minimize bank erosion, along with in-channel and creek bank revegetation.[2] Based on an analysis of sedimentation and erosion of the proposed Froom Creek realignment, it is anticipated that installation of proposed features to reduce flow velocity (e.g., channel bottom pools) and stabilize channel banks would be effective at reducing or preventing scour and bank erosion (Appendix J; Preliminary Sediment Transport Analysis and Calculations).

The Preliminary Hydrologic and Hydraulic Calculations report prepared by RRM Design Group notes the flow velocities of the proposed Froom Creek channel would range from 2 – 8 feet per second (fps). Based on an analysis of sedimentation and erosion of the proposed Froom Creek realignment, these proposed velocities, as well as installation of bank stabilization features, would be effective at reducing scour and bank erosion (Appendix J).

[2] It should be noted that the FRSP is a planning document with no detailed engineering drawings; therefore, specifications regarding the location or design of creek bank stabilization or armoring are not known. As such, it cannot be determined at this time that design of the realigned Froom Creek would prevent or avoid bank erosion or scouring.

Where the realigned Froom Creek bends to the south and runs adjacent to the Calle Joaquin wetlands, the realigned creek channel would be constructed with an approximately 1,500-foot-long low-flow channel. A low berm would separate the low-flow channel from the Calle Joaquin wetlands. The low-flow channel would be designed to handle normal flow events, but flows in excess of a 2-year storm event would overtop the low-flow channel and spread laterally to and flood the Calle Joaquin wetlands, submerging the low berm. Effectively, the low-flow channel at the Calle Joaquin wetlands would allow the realigned creek to expand into a wide floodplain area in the Calle Joaquin wetlands. The frequency of bank overtopping of the realigned creek channel at this segment is intended to mimic the historic frequency of bank overtopping of the existing Froom Creek prior to 2013 when an artificial earthen berm was installed immediately downslope of the existing channel to reduce potential overtopping (see Table 3.8-3). Flow velocity along this portion of the creek during large flow events would be less than 1 foot per second, which would not result in substantial erosion of the low-flow channel, low berm, or the Calle Joaquin wetlands (refer also to Section 3.4, *Biological Resources*).

Flood Flow Retention and On and Offsite Flooding Potential

Based on the findings of the Preliminary Hydrologic and Hydraulic Calculations prepared by RRM Design Group, using the City WMZ rainfall mapping, and a 24-hour storm event which equates to 1.9 inches of rainfall over the WMZ development area, implementation of the Project would result in generation of an additional 4.9 AF of runoff, which would be detained and treated within the proposed onsite stormwater treatment areas (see Table 3.8-4). Based on the combined runoff generated by offsite development during such a storm event (4.0 AF) and natural Froom Creek flood flows entering the Project site (16.9 AF), the flows being conveyed via Froom Creek through the site under the Project equates to 20.9 AF (see Table 3.8-5). Based on the analysis prepared by RRM Design Group, all on- and offsite stormwater detention and control measures are adequately sized to detain on- and offsite flows, consistent with the City's Drainage Design Manual requirements for attenuation of runoff from 2-year through 100-year events. Implementation of these measures would adequately attenuate all Project stormwater peak flows and even slightly reduce peak flows at the U.S. 101 double box culvert; however, peak flow at the U.S. 101 double box culvert would continue to exceed capacity during storm events greater than 10-year event. Projected peak flows accommodated by the realigned Froom Creek channel summarized in Table 3.8-3.

Table 3.8-4. Required Onsite Runoff Retention

Drainage Management Area	Development Area (acres)	Retention Value Required (AF)
Onsite		
Madonna-Froom (Residential / Park)	12.7	0.9
Madonna-Froom (Commercial)	10.1	1.1
Lower Area	26.9	2.3
Upper Terrace	12.5	0.6
Total	**62.2**	**4.9**

Source: Appendix J; Preliminary Hydrologic and Hydraulic Calculations.

Table 3.8-5. Required Offsite Runoff Retention

Drainage Management Area	Development Area (acres)	Retention Value Required (AF)
Offsite		
Home Depot	10.1	1.3
Irish Hills	15.2	2.3
Mountainbrook Church	3.7	0.4
Total	**29.0**	**4.0**
Froom Creek 100-year Flow	**-**	***16.9***
Grand Total	29.0	20.9

Note: The grand total of Development Area in Table 1-2 of Appendix J is incorrectly summed to 32.43. The value presented in this table is the corrected sum; however, it cannot be determined if the total Retention Value Required reflects the correct sum of Developed Area.
Source: Appendix J.; Preliminary Hydrologic and Hydraulic Calculations

The Project would include substantial stormwater retention and treatment facilities to accommodate runoff from both existing sources (i.e., Froom Creek watershed, Irish Hills Plaza) and the new impervious areas onsite to avoid on and offsite increases in flooding, consistent with the requirements of the City's Drainage Design Manual and the SWRCB's Post-Construction Requirements. Attenuation of onsite surface water runoff would be provided via point and non-point source water retention features to slow and retain increased flows, including vegetated retention basins and pervious paving, and other elements designed to promote bio-infiltration. Froom Creek would also be designed with a low-flow channel in the creek's centerline to convey flows occurring from flows under a 2-year storm event.

For flows below the intensity of a 2-year storm event, runoff would be directed through the realigned Froom Creek to the existing box culvert under U.S. 101. Flows greater than a 2-year storm event would overtop the creek banks and flow to either the Calle Joaquin

wetlands or downstream to the stormwater detention basin. The Calle Joaquin wetlands would serve as part of the creek corridor and the first line of defense in flood conditions with the capacity to store up to 11 AF of flood water. It appears that under normal storm conditions (i.e., 2- to 10-year events) the Calle Joaquin wetlands would not be hydrologically reconnected to the Froom Creek channel downstream or the proposed stormwater detention basin, meaning flood waters flowing to the Calle Joaquin wetlands would not have any outlet other than percolation and evaporation; however, under large storm conditions (e.g., 25-year to 100-year events) when capacity within the Calle Joaquin wetland floodplain is reached, the Froom Creek low-flow channel and Calle Joaquin wetlands would effectively become a single, wide channel, allowing flows to reconnect and potentially continue downstream within the realigned channel (Appendix J).

Storm flows and runoff exceeding a 2-year storm condition would also be conveyed along Froom Creek and into the Calle Joaquin wetlands and the proposed stormwater detention basin when flooding begins to occur at the U.S. 101 box culverts. The Calle Joaquin wetlands have total storage capacity of 11 AF. The proposed stormwater detention basins would have a capacity of 28.8 AF to accommodate the anticipated 20.9 AF of post-development flow generated from the Home Depot, Irish Hills Plaza, Mountainbrook Church, and Froom Creek watershed during a 100-year storm event and allow for storage enough to allow the 25-year event to pass entirely through the U.S. 101 box culvert (Appendix J). Further, the Draft FRSP outlines the following BMPs which, once adopted, would guide development of the Project to manage stormwater runoff consistent with City and RWQCB requirements:

- Site and landscape design should integrate sustainable practices to manage stormwater onsite to the maximum extent practical. These practices may include bioswales, rain gardens, and detention basins.
- Stormwater retention areas should be designed to be visually attractive and functional, and fencing should be avoided to the maximum extent possible.
- Stormwater runoff should be diverted from impervious areas such as roofs and paths, to landscape areas and infiltration basins where water can seep into the ground.
- Site drainage may be designed to integrate a decentralized system that distributes stormwater across a project site to replenish groundwater supplies. In addition, various devices that filter water and infiltrate water into the ground should be considered.

Considering proposed stormwater management systems improvement and the Preliminary Hydrologic and Hydraulic Calculations prepared by RRM Design Group, stormwater

would be adequately managed, maintained, and attenuated through on- and offsite stormwater control features, which are designed consistent with the requirements of the City Drainage Design Manual and State Post Construction Requirements.

Development Within a Flood Zone

Most of the low elevation areas of the Project site are currently located within a designated floodplain, Zone A, and development of the Project within this area could pose risk of new development to flooding hazards. However, as discussed above, the Project would relocate and redesign Froom Creek to provide additional flood-flow capacity and would fill the Lower Area and Madonna Froom Ranch portions of the site within these flood zones to engineered elevations above the 100-year floodplain. Implementation of the proposed improvements would remove the site development area from the FEMA floodplain and require a Conditional Letter of Map Revision/Letter of Map Revision from FEMA.

Based on the Preliminary Hydrologic and Hydraulic Calculations prepared by RRM Design Group, the proposed stormwater management system would be sized and designed to accommodate and attenuate 100-year storm event flood waters to ensure proposed development would lie outside a flood hazard zone and the Project would not change the potential for flooding offsite; the existing flood risks associated with 10-year storm events due to the existing box culvert under U.S. 101 would remain under the Project. However, the proposed design of Froom Creek would not ensure a fixed location and high velocity flows would potentially cause erosion, scouring, and bank undercutting, which would lead to creek rerouting and bank destabilization with unpredictable effects on flows, flooding, and sedimentation. This impact would be *potentially significant*.

Mitigation Measures

MM HYD-4 *The Applicant shall submit final Froom Creek Realignment plans and supporting technical studies that provide a refined bio-engineering approach to ensure creek bank and channel bottom stability and avoidance or reduction of further erosion. Final creek design plans and a supporting engineering study shall address appropriate boulder sizes and bank protection measures necessary to prevent dislodgement or remobilization of in-channel or toe-slope protection rock. Natural methods (e.g., additional rock) shall be employed as needed to maintain the proposed creek alignment and downslope bank location between the channel and LOVR and the Calle Joaquin wetlands, and to protect mid- to upper-bank*

areas and top-of-bank from erosion from flood flows and aid in maintenance of riparian vegetation.

Plan Requirements and Timing. The Applicant shall submit revised plans and additional supporting technical studies to the City for review and approval prior to recordation of the final VTM. The final VTM shall depict all necessary revisions or improvements identified in the revised Froom Creek Realignment plans and supporting studies.

Monitoring. City staff shall inspect Froom Creek realignment improvements and ensure compliance throughout all construction phases. Permit compliance monitoring staff shall perform periodic site inspections to verify compliance with planned improvements.

Residual Impact

Implementation of MM HYD-4, requiring revised Froom Creek realignment plans and additional supporting technical studies would ensure the realigned creek and erosion protection features are sufficient to prevent or significantly reduce erosion and destruction of the creek channel and bank. Implementation of this measure would also ensure stability of proposed in-stream fish habitat improvements (e.g., for Southern steelhead), supporting the success and longevity of improved habitat; thus, impacts are considered *less than significant with mitigation.*

Impact HYD-3 Operation of the Project would potentially impact water quality of Froom Creek and San Luis Obispo Creek due to polluted urban runoff and sedimentation (Less than Significant).

Project development would replace approximately 50.7 acres of undeveloped land with a roughly equivalent area of urban development consisting of new residential units, a senior life plan community, a 100-room hotel, commercial center, and 2.9 acres of developed parks and open space. This development would substantially increase the amount of impervious surface onsite and would involve activities that would generate new sources of pollutants onsite, such as pesticides, fertilizers, oils, grease, lubricants, and sediment in urban runoff. New impervious surfaces, including roads and parking lots, collect automobile derived pollutants such as oils, greases, heavy metals, and rubber. During storm events, these pollutants would be transported into the proposed stormwater management system by surface runoff. An increase in point source and non-point source pollution could result from increases in development intensity that may directly impact water quality

specific to site drainage patterns. Accordingly, disturbed soils, sedimentation, and contaminants that are mobilized by water flow may ultimately be conveyed to Froom Creek, and subsequently, San Luis Obispo Creek located 0.3 mile downstream.

However, the Project includes a comprehensive stormwater management system with approximately five stormwater retention and treatment areas on site, as well as the LOVR and Home Depot ditches, which would capture and bio-filter runoff before it enters Froom Creek or the Calle Joaquin wetlands. Additionally, the Draft FRSP outlines the following BMPs which, once adopted, would guide development of the Project to manage stormwater runoff consistent with City and Central Coast RWQCB requirements:

- Site and landscape design should integrate sustainable practices to manage stormwater onsite to the maximum extent practical. These practices may include bioswales, rain gardens, and detention basins.
- Implementation of BMPs for water quality treatment is required for each development area prior to discharging to a storm drain system or into the Froom Creek corridor.
- Stormwater runoff should be diverted from impervious areas such as roofs and paths, to landscape areas and infiltration basins where water can seep into the ground.

The Project would be subject to the Central Coast RWQCB's PCRs and NPDES discharge permits. Once adopted, implementation of proposed BMP strategies of the FRSP would reduce impacts from urban runoff. Further, upon compliance with the City's SWMP, Engineering Standards, General Plan, and City Municipal Code requirements, adverse effects to water quality from operation of the Project would be reduced, and impacts are considered *less than significant.*

Impact HYD-4 The Project would involve development of new impervious surfaces and potentially interfere with groundwater recharge (Less than Significant).

Reduction in Groundwater Recharge

The Project could result in a decrease in percolation to the groundwater basin, due to the increase in the amount of impervious surface it would create. However, since the City stopped its reliance on groundwater for drinking water in April 2015, and the San Luis Obispo Groundwater Basin is not in overdraft and recharges quickly during normal rainfall

years, the Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Further, the Project does not propose the use of groundwater within the site. There would be an incremental loss of basin-wide groundwater recharge due to the increase in impervious surfaces. Project impacts related to groundwater would be offset by implementation of Project BMPs to manage stormwater onsite. The Draft FRSP outlines the following BMPs which, once adopted, would guide development of the Project to manage stormwater consistent with City and RWQCB requirements:

- Stormwater runoff should be diverted from impervious areas such as roofs and paths, to landscape areas and infiltration basins where water can seep into the ground.
- Site drainage may be designed to integrate a decentralized system that distributes stormwater across a project site to replenish groundwater supplies. In addition, various devices that filter water and infiltrate water into the ground should be considered.

In addition, all surface flows would either percolate within developed areas or flow to the realigned Froom Creek channel. The realigned Froom Creek channel is anticipated to result in some increase in recharge to the groundwater basin and extend the period during the winter when standing water is present in the wetland area. The longer reach and flatter grade of the realigned stream channel allows for a greater surface area and longer duration of wetter channel conditions, increasing groundwater recharge when stream flow occurs. The realigned channel will traverse alluvial fan deposits along portions of the historic channel alignment and will not flow over Obispo weathered bedrock soils as occurs in the current channel alignment. The detention basin downstream of the Specific Plan area, when saturated, is anticipated to result in a higher groundwater level than currently exists and reduce the groundwater flow gradient in the proximity to the wetlands (Cleath-Harris Geologists, Inc. 2018; Appendix J). Therefore, the Project would not adversely affect groundwater levels, even though the Project would increase impervious surfaces within the Specific Plan area.

Potential to Encounter Shallow Groundwater

The Project would involve the development of one-level subterranean parking structures within the eastern lower elevations of the site as part of the Lower Area, where groundwater levels were observed at depths of 2.3 to 10 feet bgs (Appendix J). Investigation of groundwater levels using soil borings and existing onsite groundwater wells did not

thoroughly measure for groundwater within the areas proposed for construction of subterranean development – within areas overlying the current alignment of Froom Creek where surface water seepage may create areas of shallow groundwater. Therefore, depending on the timing of construction and seasonal fluctuations in groundwater levels, subsurface construction in this area may encounter groundwater or saturated soils. However, the proposed Project would relocate Froom Creek to the base of the slope within the Project site and raise the ground surface to at least 1 foot above the 100-year floodplain, which would eliminate the potential for the proposed development to encounter groundwater resources. The higher site elevation would increase the depth to water below grade, assuming the groundwater level elevation will be similar to the recent groundwater elevations. However, since the Project would not deplete or degrade groundwater resources or impede or encounter groundwater, groundwater impacts would be *less than significant* (see also, Impact GEO-4, Section 3.6, *Geology and Soils)*.

Cumulative Impacts

The Project, in combination with approved, pending, and proposed development within the City, particularly recently approved large residential development projects (e.g., San Luis Ranch Specific Plan, Avila Ranch Development Plan) would further contribute to the increase in development and associated water quality impacts, as well as alter the existing hydrologic environment, thereby altering the abundance and natural flow of water resources of the area, including San Luis Obispo Creek. As analyzed in the LUCE Update EIR, cumulative impacts of the LUE, which includes the Project site, to hydrology and water quality would be reduced to a less than significant level with the implementation of and adherence to the policies and requirements discussed above.

Cumulative development would result in a change from agricultural to urban pollutant discharge to surface water runoff and groundwater percolation. Construction activities could also result in the pollution of natural watercourses or underground aquifers. The types of pollutant discharges that could occur as a result of construction include accidental spillage of fuel and lubricants, discharge of excess concrete, and an increase in sediment runoff. Storm runoff concentrations of oil, grease, heavy metals, and debris increases as the amount of urban development increases in the watershed. However, when properly implemented, water quality requirements of the Central Coast RWQCB and the City and County of San Luis Obispo would be expected to mitigate any adverse impacts resulting from new development. Therefore, the proposed Project, in conjunction with pending cumulative development, would not significantly increase the concentration of urban

pollutants in surface runoff or groundwater. Polluted runoff that may be generated during construction activities of cumulative development and projects considered in this analysis would be regulated by the SWRCB under General Construction, NPDES permits, and would be minimized using standard construction BMPs. Cumulative impacts would therefore be less than significant for water quality. With adherence to these regulatory standards, the cumulative contribution from the Project would be *less than significant*.

Flooding and Site Hydrology

Regarding flooding, several projects included on the cumulative projects list (see Table 3.0-1) are located within the 100-year floodplain associated with San Luis Obispo Creek. Cumulative development in the City and the San Luis Obispo Creek Watershed is anticipated to contribute to an incremental increase in runoff and peak flood flows. No planned or pending projects are located upstream or downstream on Froom Creek from the Project site that would contribute to the risk of flooding on- or offsite. Avila Ranch Development Plan and San Luis Ranch Specific Plan projects would contribute runoff to the San Luis Obispo Creek Watershed. However, each cumulative project within the City would be expected to provide its own facilities or other mitigations, where feasible, to mitigate increased peak flows and exacerbated downstream flooding. The Project, through the proposed realigned creek design and stormwater detention basin, would adequately attenuate all Project-related increases in flood flows on- or offsite, such that flooding would not occur.

Based on post-development flows, capacity of the existing U.S. 101 box culvert would continue to be exceeded under during a 10-year or greater storm event, resulting in continued flooding potential downstream of the Project site. However, policies and design measures of the FRSP would reduce the Project's contribution to this cumulative flooding impact to the extent feasible, even such that peak flows experienced at the U.S. 101 box culvert may be less than existing flood flows. Therefore, the Project's contribution to cumulative flood impacts are considered *less than significant*.