3.7 - Hydrology and Water Quality

3.7.1 - Introduction

This section describes the existing hydrology and water quality setting and potential effects from the implementation of the Specific Plan on the affected area and its surroundings. Descriptions and analysis in this section are based on the City of San Ramon General Plan 2030 and information provided by the California Department of Water Resources.

3.7.2 - Environmental Setting

Climate

San Ramon is characterized by a Mediterranean climate, with mild winters and warm summers. Temperatures range from an average low of 36.7 degrees Fahrenheit (°F) in January to an average high of 89.0°F in July. Average rainfall is 14.24 inches. Table 3.7-1 summarizes local meteorology, as measured at Livermore Municipal Airport.

Table 3.7-1: Meteorological Summary

Month	Temperature (°F)		Precipitation (inches)
	Average Minimum	Average Maximum	
January	36.7	56.7	2.99
February	39.4	61.2	2.48
March	41.3	65.2	2.15
April	43.6	70.4	0.99
May	47.6	76.3	0.44
June	51.6	83.1	0.11
July	54.2	89.0	0.02
August	54.0	88.2	0.04
September	52.5	85.9	0.22
October	47.7	77.7	0.67
November	41.1	66.4	1.55
December	37.0	57.5	2.58
Annual Average	**45.6**	**73.1**	**14.24**

Notes:
Measurements taken at Livermore Municipal Airport, the nearest weather station to the Specific Plan area.
Period of Record: January 1, 1903 through October 31, 2011.
Source: Western Regional Climate Center, 2012.

Watersheds and Drainage

The Specific Plan boundaries are located within both the San Ramon Creek watershed and the Watson Canyon Drainage watershed. Crow Canyon Road serves as the boundary between the two watersheds. Each watershed is discussed below.

San Ramon Creek

San Ramon Creek runs south to north and drains the northern portion of the City of San Ramon, as well as much of Danville and Alamo. The creek originates in the hills northwest of San Ramon and skirts around the northwestern portion of the Specific Plan boundaries. The drainage meanders northward through Danville, Alamo, and ultimately joins Walnut Creek, which discharges into Suisun Bay near Martinez.

Drainage Features

North of Crow Canyon Road, an ephemeral drainage parallels the west side of the Iron Horse Trail before entering a culvert under Fostoria Way. This drainage ultimately outlets into San Ramon Creek in Danville. All other drainage features consist of inlets and underground piping associated with the City's municipal storm drain system.

Watson Canyon Drainage

Watson Canyon Drainage originates in the hills to the east of the Specific Plan area and runs south, draining the Bishop Ranch area before joining South San Ramon Creek. The drainage is located within and parallel to the Iron Horse Trail corridor from Executive Parkway south to its confluence with South San Ramon Creek near Montevideo Elementary School. South San Ramon Creek conveys flows south to Alamo Canal in Dublin, then to Arroyo De La Laguna in Pleasanton and ultimately to Alameda Creek, which outlets to San Francisco Bay in Fremont.

Drainage Features

Aside from landscaped swales located within various properties, all other drainage features consist of inlets and underground piping associated with the City's municipal storm drain system.

Water Quality

The State Water Resources Control Board indicates that three downstream water bodies from San Ramon are designated as impaired water bodies on the United States Environmental Protection Agency 2010 Clean Water Act Section 303(d) List of Water Quality Limited Segments. The water bodies are summarized in Table 3.7-2. Note that no water bodies within the Specific Plan area are on the 303(d) List.

Table 3.7-2: Impaired Water Body Summary

Watershed	Downstream Water Body	Pollutant/Stressor	Source
San Ramon Creek	Walnut Creek	Diazinon	Urban Runoff/Sewers
Watson Canyon Drainage	Arroyo De La Laguna	Diazinon	Urban Runoff/Sewers
	Alameda Creek	Diazinon	Urban Runoff/Sewers
Source: State Water Resources Control Board, 2012.			

Groundwater

Groundwater Basin

The Specific Plan boundaries overlie the San Ramon Valley Groundwater Basin. The California Department of Water Resources indicates that the groundwater basin encompasses 11 square miles and is bounded by Las Trampas Ridge (west), Stone Valley (north), the Mt. Diablo foothills (east), and the Livermore Valley Groundwater basin (south). The groundwater basin is not a domestic water supply source for the East Bay Municipal Utility District (EBMUD), the water supplier to the Specific Plan area.

Groundwater Depth

Groundwater is reported to occur at relatively shallow depths in the San Ramon area. Borings drilled within the San Ramon City Center project site, less than 1 mile from the Specific Plan boundaries, indicated that groundwater occurred at depths of 7 to 20 feet below ground surface.

Groundwater Quality

Leaking underground storage tanks (USTs) are the principle source of groundwater contamination within the City of San Ramon. The following discusses leaking UST sites within the Specific Plan Area.

Leaking Underground Storage Tanks

The State Water Resources Control Board indicates that there are five recorded leaking UST sites within the Specific Plan boundaries. The sites are summarized in Table 3.7-3. As indicated in the table, four of the cases are closed and the remaining one is the subject of ongoing remediation.

Table 3.7-3: Leaking Underground Storage Tank Summary

Source	Address	Contaminant	Year Discovered	Status
San Ramon Valley Unified School District Maintenance Facility	3280 Crow Canyon Road	Gasoline	1999	Case Closed (2008)
Shell Station (a.k.a. BP No. 11136)	3048 Crow Canyon Road	Gasoline	1992	Open – Remediation

Table 3.7-3 (cont.): Leaking Underground Storage Tank Summary

Source	Address	Contaminant	Year Discovered	Status
Thornally Property	3333 Crow Canyon Road	Gasoline	1991	Case Closed (1993)
Electro Test	3470 Fostoria Way	Gasoline	1986	Case Closed (1997)
Rhodes & Jamieson (former cement plant)	4700 Norris Canyon Road	Diesel	1987	Case Closed (1997)

Note:
Information obtained from GeoTracker website: http://geotracker.swrcb.ca.gov
Source: State Water Resources Control Board, 2009.

Flood Mapping

Flood Insurance Rate Map Community Panel Numbers 060710 0001 – 0004 indicate that the Specific Plan area is designated as Zone X, which consists of areas outside of both the 100-year and 500-year flood hazard areas.

3.7.3 - Regulatory Framework

Federal

Clean Water Act

Section 303 of the 1972 Federal Clean Water Act (CWA) requires states to adopt water quality standards for all surface waters of the United States. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards. (See a description of State Porter-Cologne Water Quality Control Act, below.) Standards are based on the designated beneficial use(s) of the water body. Where multiple uses exist, water quality standards must protect the most sensitive use.

Section 402 of the CWA mandates that certain types of construction activity comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) stormwater program. The Phase II Rule, issued in 1999, states that construction activities that disturb land equal to or greater than 1 acre require permitting under the National Pollutant Discharge Elimination System (NPDES) program. Currently, more stringent requirements apply, as outlined in the Stormwater Municipal Regional Permit issued by the Regional Water Quality Control Board. In California, permitting occurs under the General Permit for Stormwater Discharges Associated with Construction Activity, issued to the SWRCB and implemented and enforced by the nine RWQCBs. The Planning Area is within the boundaries of the San Francisco Bay RWQCB.

This General Permit requires all dischargers, where construction activity disturbs one (1) or more acres, or as amended by the RWQCB, to take the following measures:

1. Develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving off site into receiving waters.
2. Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation.
3. Perform inspections of all BMPs.

To obtain coverage, the landowner must file a Notice of Intent (NOI) with the SWRCB. The NOI is required to include the requirements listed above. When project construction is completed, the landowner must file a notice of termination.

The law requires that a permit (Section 404) be obtained from the United States Army Corps of Engineers (USACE) for any dredge or fill materials into wetlands or waters of the United States.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 authorized the SWRCB to provide comprehensive protection for California's waters through water allocation and water quality protection. The SWRCB implements the requirement of the Clean Water Act Section 303, indicating that water quality standards have to be set for certain waters by adopting water quality control plans under the Porter-Cologne Act. The Porter-Cologne Act established the responsibilities and authorities of the nine RWQCBs, which include preparing water quality plans for areas in the region, identifying water quality objectives, and issuing NPDES permits and Waste Discharge Requirements (WDRs). Water quality objectives are defined as limits or levels of water quality constituents and characteristics established for reasonable protection of beneficial uses or prevention of nuisance. The Porter-Cologne Act was later amended to provide the authority delegated from the Environmental Protection Agency (EPA) to issue NPDES permits.

Section 303(d) of the CWA requires that the SWRCB identify surface water bodies within California that do not meet established water quality standards. Once identified, the affected water body is included in the SWRCB's "303(d) Listing of Impaired Water Bodies," and a comprehensive program must then be developed to limit the amount of pollutant discharges into that water body. This program includes the establishment of "total maximum daily loads" (TMDL) for pollutant discharges into the designated water body. The most recent 303(d) listing for California was approved by the EPA in 2010.

Local

City of San Ramon

General Plan 2030

General Plan 2030 sets forth the following guiding and implementing policies that are relevant to hydrology and water quality:

- **Implementing Policy 8.3-I-11:** Continue participation in the Contra Costa Clean Water Program to control stormwater pollution and protect the quality of the City's waterways.
- **Implementing Policy 8.3-I-12:** Monitor the condition of waterways within the city limits and take proactive measures to prevent degradation.
- **Guiding Policy 8.6-G-1:** Promote the implementation of water quality and conservation programs and measures by San Ramon employers, residents, and public agencies.
- **Implementing Policy 8.6-I-1:** Require new development projects to implement indoor water conservation and demand management measures.
- **Implementing Policy 8.6-I-2:** Require new development projects to implement outdoor water conservation and demand management measures.
- **Implementing Policy 8.6-I-3:** New development in areas where recycled water service exists or is planned shall be plumbed with "purple pipe" and other measures necessary to accommodate non-potable water service.
- **Implementing Policy 8.6-I-4:** Require new development to meet the State Model Water Efficient Landscape Ordinance (MWELO).
- **Implementing Policy 8.6-I-5:** Collaborate with DERWA (Dublin San Ramon Services District and East Bay Municipal Utilities District Recycled Water Authorities) to expand the recycled water distribution system in an efficient and timely manner.
- **Implementing Policy 8.6-I-6:** Continue implementation of the City of San Ramon Stormwater Management Program to reduce storm water pollution, provide public education, and to protect the water quality of the City's local creeks and streams.
- **Implementing Policy 8.6-I-7:** Promote the protection of groundwater resources by collaborating with agencies that monitor and oversee clean-up efforts at existing sources of pollution.
- **Guiding Policy 9.4-G-1:** Protect the community from risks to lives and property posed by flooding and stormwater runoff.
- **Implementing Policy 9.4-I-1:** Reduce hazards caused by local flooding through improvements and ongoing maintenance to the storm drain system and/or creek corridors.
- **Implementing Policy 9.4-I-2:** Require new development to prepare hydrologic studies to assess storm runoff impacts on the local and subregional storm drainage systems and/or creek corridors. New development shall implement all applicable and feasible recommendations from the studies.

- **Implementing Policy 9.4-I-3:** Require new development to provide a funding mechanism for ongoing maintenance of drainage facilities and other stormwater control measures. Maintenance may be by the City under contract, or by a private entity.
- **Implementing Policy 9.4-I-7:** All new developments shall not increase runoff to the 100-year peak flow in the City's flood control channels or to local creeks and shall be substantially equal to pre-development conditions. All new storm water systems shall be in compliance with the requirements of the City's Stormwater Municipal Regional Permit issued by the San Francisco Regional Water Quality Control Board.
- **Implementing Policy 9.4-I-8:** New development shall be required to locate buildings above the 100-year floodplain and outside the special flood hazard area to minimize potential flood damages.

3.7.4 - Methodology

Michael Brandman Associates evaluated potential impacts on hydrology and water quality through review of the City of San Ramon General Plan 2030, aerial photographs, the State Water Resources Control Board 303(d) list, the California Department of Water Resources Bulletin 118, and flood hazard area mapping.

3.7.5 - Thresholds of Significance

According to Appendix G, Environmental Checklist, of the CEQA Guidelines, hydrology and water quality impacts resulting from the implementation of the proposed project would be considered significant if the project would:

a) Violate any water quality standards or waste discharge requirements?

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted?

c) Substantially alter the existing drainage pattern of area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

f) Otherwise substantially degrade water quality?

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? (Refer to Section 7, Effects Found Not To Be Significant.)

h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows? (Refer to Section 7, Effects Found Not To Be Significant.)

i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? (Refer to Section 7, Effects Found Not To Be Significant.)

j) Inundation by seiche, tsunami, or mudflow? (Refer to Section 7, Effects Found Not To Be Significant.)

3.7.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

Water Quality

Impact HYD-1:	**Development and land use activities contemplated by the Specific Plan may violate water quality standards or waste discharge requirements.**

Impact Analysis

The City of San Ramon implemented a Stormwater Program to reduce pollution of stormwater as it enters the local creeks and the San Francisco Bay. The City of San Ramon also participates in the Contra Costa Clean Water program as a means of protecting water quality in local streams and the San Francisco Bay. New development contemplated by the implementation of the proposed Specific Plan may result in construction activities that could have the potential to create polluted runoff. These pollutants could be conveyed offsite and potentially affect the water quality within the local streams and the San Francisco Bay. Generally, construction activities and possibly an increase in impervious surfaces could generate pollutants such as increased silts, ground rubber, oils from automobiles, debris, litter, chemicals, dust, and dissolved solids related to grading, excavating, dredging, building construction, and painting.

Any development resulting from the implementation of the Specific Plan would be required to abide by General Plan policies 8.3-I-11, 8.3-I-12, and 8.6-I-6, which require participation in clean water programs, monitoring waterways to prevent degradation, and the continued implementation of the City of San Ramon Stormwater Management Program.

The State Construction General Permit regulates stormwater quality from construction sites. Under the State Construction General Permit, the preparation and implementation of SWPPPs are required for construction activities more than 1 acre in size. The SWPPP must identify potential sources of

pollution that may be reasonably expected to affect the quality of stormwater discharges as well as identify and implement BMPs that ensure the reduction of these pollutants during construction.

Prior to the commencement of construction grading for any development within the Specific Plan area, the applicant must file an Notice of Intent to comply with the General NPDES Construction Permit issued to the RWQCB and prepare the SWPPP, which addresses the measures that would be included in the project to minimize and control construction and post-construction runoff to the "maximum extent practicable." However, without these documents available for review as part of the DEIR, the City is unable to determine their adequacy in achieving applicable water quality standards. For this reason, the implementation of the prescribed mitigation would be required to ensure that each project SWPPP and Grading Plan within the Specific Plan area include measures necessary to minimize water quality impacts as a result of construction.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM HYD-1a Prior to the issuance of grading permits for areas larger than 1 acre within the Specific Plan area, the project applicant shall prepare and submit a Stormwater Pollution Prevention Plan (SWPPP) and Grading Plan to the City of San Ramon that identify specific actions and Best Management Practices (BMPs) to prevent stormwater pollution from construction sources. The plans shall identify a practical sequence for site restoration, BMP implementation, contingency measures, responsible parties, and agency contacts. The applicant shall include conditions in construction contracts requiring the plans to be implemented and shall have the ability to enforce the requirement through fines and other penalties. The plans shall incorporate control measures in the following categories:

- Soil stabilization practices
- Dewatering practices (if necessary)
- Sediment and runoff control practices
- Monitoring protocols
- Waste management and disposal control practices

Once approved by the City, the applicant's contractor shall be responsible throughout the duration of the project for installing, constructing, inspecting, and maintaining the control measures included in the SWPPP and Grading Plan.

MM HYD-1b The City shall ensure that SWPPPs for projects within the Specific Plan area identify pollutant sources that could affect the quality of stormwater discharges from the construction site. Control practices shall include those that effectively treat target pollutants in stormwater discharges anticipated from project construction sites. To

protect receiving water quality, the SWPPP shall include but not be limited to the following elements:

- Temporary erosion control measures (such as fiber rolls, staked straw bales, detention basins, temporary inlet protection, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) shall be employed for disturbed areas.
- No disturbed surfaces will be left without erosion control measures in place during the winter and spring months.
- Sediment shall be retained onsite by a system of sediment basins, traps, or other appropriate measures. Of critical importance is the protection of existing catch basins that drain to San Ramon Creek.
- The construction contractor shall prepare Standard Operating Procedures for the handling of hazardous materials on the construction site to eliminate or reduce discharge of materials to storm drains.
- BMP performance and effectiveness shall be determined either by visual means where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination (inadvertent petroleum release), is required by the RWQCB to determine adequacy of the measure.
- In the event of significant construction delays or delays in final landscape installation, native grasses or other appropriate vegetative cover shall be established on the construction site as soon as possible after disturbance, as an interim erosion control measure throughout the wet season.

Level of Significance After Mitigation

Less than significant impact.

Groundwater

Impact HYD-2:	**Development and land use activities contemplated by the Specific Plan would not substantially deplete groundwater supplies, interfere substantially with groundwater recharge, or result in groundwater contamination.**

Impact Analysis

Groundwater Supplies

Water service for the uses contemplated by the Specific Plan would be provided by EBMUD. As discussed in Section 3.13, Utility Systems, EBMUD obtains the majority of its water from surface water sources; the agency does not rely on groundwater from the San Ramon Valley Groundwater Basin. This condition precludes the possibility of the proposed project depleting local groundwater supplies.

Groundwater Recharge

The Specific Plan area consists of mostly urban, built-up land uses that is served by the City of San Ramon's municipal storm drainage system. As such, limited groundwater recharge occurs within the Specific Plan area. The Specific Plan emphasizes Low Impact Development principles, which include stormwater management practices that employ infiltration and percolation. Such practices would contribute to groundwater recharge. Accordingly, impacts related to groundwater recharge would be less than significant.

Groundwater Contamination

Leaking USTs are the primary source of groundwater contamination within the City of San Ramon. As shown in Table 3.7-3, five leaking UST sites exist within the Specific Plan area. Of the five sites, four are listed as "Closed," signifying that remediation has occurred to the satisfaction of the Regional Water Quality Control Board.

The remaining site (Shell Service station) is listed as "Active" and remediation efforts are ongoing. The San Francisco Bay Regional Water Quality Control Board (RWQCB) is overseeing the remediation efforts with this property. The most recent action that occurred with this property involved RWQCB approval of a Soil Vapor Investigation Work Plan in June 2011. The property owner is legally responsible for completing the remediation efforts to the satisfaction of the RWQCB. The remediation of contamination associated with this site is independent of the proposed Specific Plan and will continue to occur whether the plan is adopted or not. Therefore, there is certainty that the proposed project would not interfere with remediation of this site. As such, impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.

Alterations to Existing Drainage Pattern

Impact HYD-3:	**Development and land use activities contemplated by the Specific Plan would not create the potential for downstream flooding or substantial erosion or siltation on- or offsite as a result of alteration of drainage patterns.**

Impact Analysis

The existing Specific Plan area is highly developed with a significant footprint of impervious surfaces (buildings, parking lots, and roadways). The Specific Plan would alter development types in the area, but it is not anticipated to increase the quantity of impervious surfaces. Accordingly, while existing

drainage patterns may be altered, stormwater would continue to be directed towards the City's networks of storm drains.

As required by General Plan Policy 9.4-I-7, development within the Specific Plan boundaries would be required to comply with the City's Stormwater Municipal Regional Permit issued by the San Francisco Regional Water Quality Control Board. A key element of the permit would require new development to employ "Low Impact Development" techniques to minimize and treat stormwater runoff. According to the Regional Water Quality Control Board, the goal of Low Impact Development is to "reduce runoff and mimic a site's predevelopment hydrology . . . by infiltrating, storing, detaining, evapotranspiring, and/or biotreating stormwater runoff close to its source." As such, each development within the plan boundaries would be required to demonstrate that it adequately treats any site runoff to insure the proper quality of the runoff leaving the site; does not increase the quantity, duration, or peak flow of runoff from a site; and employs proper construction management techniques through the construction process to insure sediment and erosion control (addressed through the required state NPDES requirements).

New drainage infrastructure required by the Specific Plan would be limited to that required for new roadways and would be appropriately sized and modeled through the existing drainage system to insure proper sizing to handle stormwater flows. With the implementation of the NPDES permit, new development within the Specific Plan boundaries would not create the potential for downstream flooding or substantial erosion or siltation on- or offsite as a result of alteration of drainage patterns and resulting impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation is necessary.

Level of Significance After Mitigation

Less than significant impact.