3.9 Hydrology and Water Quality

The purpose of this section is to analyze the proposed project's potential impacts on surface water and groundwater resources, discuss regional water quality issues, and propose mitigation measures as needed. The following analysis is based on various resources including the Geotechnical Assessment and the Executive Summary of Percolation and Leach Field Potential for both phases (Terrestrial, 2014a), an Onsite Wastewater Treatment System Memorandum (PACE, 2014), and a Response to County Comments on Onsite Wastewater Treatment Systems Memorandum (Terrestrial, 2014b). These three documents are provided in Appendices D1 through D3 of this EIR, respectively. The Water Quality Management Plans (WQMPs) (Hunsaker, 2014a; Hunsaker 2014b) and preliminary hydrology analyses (Hunsaker, 2014c; Hunsaker, 2014d) prepared for both phases were also utilized, and are provided in Appendices H1 through H4 of this EIR.

3.9.1 Environmental Setting

Existing Conditions

Regional Setting

Watershed

The project site is located within the drainage of the San Juan Creek Hydrologic Unit or watershed, under the jurisdiction of the San Diego Regional Water Quality Control Board (RWQCB). The San Juan Creek watershed, located in the southern portion of Orange County and in the South Orange County Watershed Management Area, encompasses a drainage area of approximately 176 square miles and extends from the Cleveland National Forest in the Santa Ana Mountains to the Pacific Ocean at Doheny State Beach near Dana Point Harbor. Elevations in the watershed range from over 5,800 feet above mean sea level (amsl) at Santiago Peak to sea level at the mouth of San Juan Creek. The major streams in the watershed include San Juan Creek, Oso Creek and Trabuco Creek (Hunsaker, 2014a). The project site is located within the Mission Viejo subwatershed (DOC, 2007), sited within the upstream tributaries of the watershed with surface runoff that flows out of steep canyons and widen into several alluvial floodplains (Hunsaker, 2014a). See **Figure 3.9-1** for the project's location within the San Juan Creek watershed and Mission Viejo subwatershed.

The watersheds in Southern California have been subject to numerous large-scale fires during the past 100 years, mostly of human origin. The majority of ignitions have been associated with roadways, arson and person-related activities. The primary effects of these fires are a sharp increase in sediment yield and downstream channel aggradation (or increase in land elevation) for a period of time following the fire (Hunsaker, 2014a). Fire temporarily decreases live vegetation cover, thereby increasing erosion rates and causing an increased sediment yield to travel downstream and raise elevations (Robichaud, 2009).

SOURCE: ESRI, Cal Water

The Preserve at San Juan . 120826

Figure 3.9-1

Project Site Watershed and Subwatershed

Climate

Southern California's Mediterranean climate is characterized by brief, intense storms between November and March. It is not unusual for a majority of the annual precipitation to fall during a few storms in close time proximity to one another. The higher elevation portions of the watershed in which the project is located typically receive significantly greater precipitation due to the effect of the Santa Ana Mountains. In addition, rainfall patterns are subject to extreme variations from year to year and longer term wet and dry cycles. The combination of steep watershed, brief intense storms and extreme temporal variability in rainfall results in "flashy" systems where stream discharge can vary by several orders of magnitude over very short periods of time (Hunsaker, 2014a).

Local Setting

Flooding

The site is not located within a 100-year flood zone on the Federal Emergency Management Agency's Flood Insurance Rate Maps (FIRM 0602452050C and 06059C0375H), in addition, due to the varying topography and natural drainages throughout the project site, it is not subject to flooding.

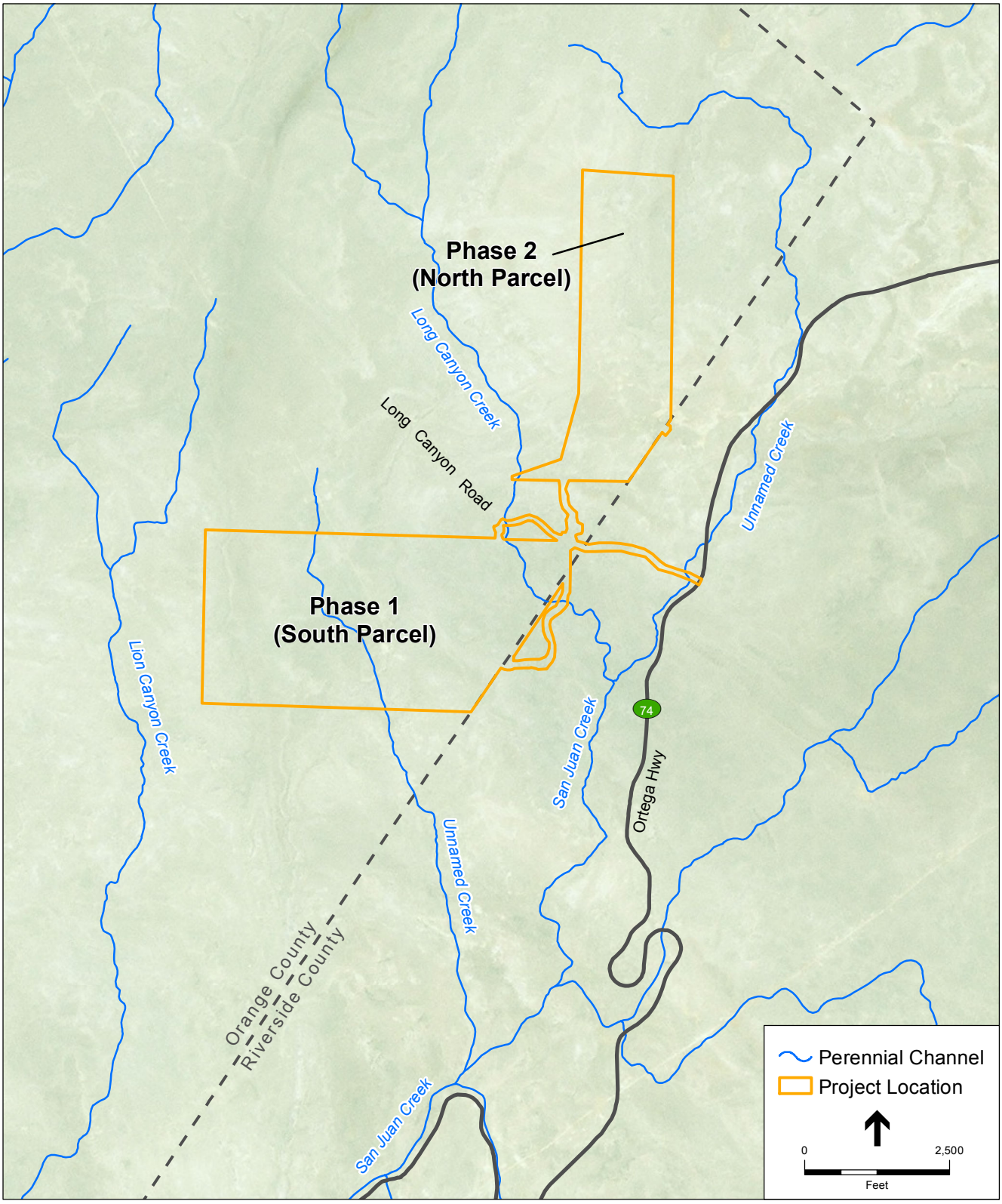
Drainage

The project site consists of rough and steep terrain sloping to the southeast. Currently, no stormwater drainage infrastructure exists on the project site. As shown in the Biological Resources Assessment, which is part of Appendix C1 of this EIR, three perennial streams occur within the study area. Long Canyon Creek flows through the southwest corner of Phase 2 (north parcel) and through the northeast corner of Phase 1 (south parcel), eventually joining with the southwest-flowing San Juan Creek a mile downstream of the Phase I (south parcel) southern boundary (PCR, 2014). Runoff from the western portion of the Phase I (south parcel) currently drains southerly via un-named tributary to San Juan Creek. Runoff from the eastern portion of the Phase I (south parcel) currently drains southeasterly to Long Canyon Creek. Phase II (north parcel) currently drains generally to the southeast, mostly discharging at several points at the south and east property boundary into Long Canyon Creek. All project flows eventually drain to San Juan Creek located downstream and off-site (Hunsaker, 2014a). See **Figure 3.9-2** for a layout of these water bodies in relation to the project site.

Water Quality

According to the 2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report), none of the on-site water bodies are listed as impaired by pollutants. However, pathogens (bacteria indicators), DDE (a breakdown product of DDT which was used as an insecticide), phosphorous, selenuim, toxicity and total nitrogen as N have been listed as impairing the beneficial uses in San Juan Creek—the downstream receiving water body of the project site. San Juan Creek currently has an established TMDL for pathogens (Hunsaker, 2014a).

The beneficial uses of San Juan Creek include agricultural water supply; industrial water supply; contact water recreation; non-contact water recreation; warm water ecosystems; cold water ecosystems and wildlife habitat. The mouth of San Juan Creek at the Pacific Ocean (estuary) has



SOURCE: ESRI, USGS NHD

The Preserve at San Juan . 120826

Figure 3.9-2

Water Bodies in the Project Vicinity

the following beneficial uses: contact water recreation; non-contact water recreation; wildlife habitat; rare, threatened and endangered species habitat; marine ecosystems; aquatic migration and shellfish collection (RWQCB, 2012a).

Groundwater

No significant groundwater resources have been mapped within the project site; however, minor seepage was observed from various bedrock locations during the spring of 2005 after periods of rain when PSE conducted a field investigation at the site. During 2013 spring and fall field investigations, no surface or subsurface water was observed on the project site. It is anticipated that the broad alluvial valleys of the project area may have locally perched pockets of ground water near the alluvium/bedrock contact (Terrestrial, 2014a).

Elsinore Groundwater Basin

The proposed project would receive water from the Elsinore Valley Municipal Water District (EVMWD). Groundwater production accounts for approximately 22 percent of EVMWD's total supplies (EVMWD, 2016), which includes supplies from the Elsinore basin. The basin is bounded on the southwest by the Santa Ana and Elsinore Mountains and adjoins the Temecula Valley groundwater basin on the southeast (EVMWD, 2016). EVMWD has groundwater rights to 5,500 acre-feet per year, plus carry-over rights for supplies not used, from the Elsinore Basin; and from 2011 to 2015, EVMWD pumped between 2,588 to 8,708 acre-feet per year, with an average of 5,143.8 acre-feet pumped annually (EVMWD, 2016). Thus, EVMWD had an additional average annual allocation of 356.2 acre-feet that was not utilized between 2011 and 2015.

Coldwater Groundwater Basin

EVMWD has two wells that draw groundwater from the Coldwater Basin, which is an unadjudicated basin located about 8 miles southeast of the City of Corona within the Temescal Valley southwest of Interstate 15. EVMWD has groundwater rights to 1,200 acre-feet per year from the Coldwater Basin, and from 2011 to 2015, EVMWD pumped between 424 to 705 acre-feet per year, with an average of 672.8 acre-feet pumped annually (EVMWD, 2016). Thus, EVMWD had an additional average annual allocation of 527.2 acre-feet that was not utilized between 2011 and 2015).

San Juan Groundwater Basin

Flows from the project area eventually drain into San Juan Creek, which is a principle recharge source of the San Juan groundwater basin. The San Juan groundwater basin underlies the San Juan Valley and several tributary valleys in southern Orange County, bounded by the Pacific Ocean on the west and semi-permeable marine deposits elsewhere. The basin is recharged by several creeks (including San Juan Creek, Oso Creek and Arroyo Trabuco) and precipitation to the valley floor. Groundwater flows southwest towards the Pacific Ocean (DWR, 2004). Water quality in the San Juan groundwater basin ranges from good to poor. Water from its coastal deep subbasins requires treatment as it is brackish (salty) as a result of contact with underlying marine sediments. Water quality in shallow upper subbasin is better, as it contains a lower concentration of total dissolved solids (SJBA, 2011).

Regulatory Setting

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. Section 1251 *et seq*.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the "waters of the United States." The CWA required states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water.

The CWA was enacted to prohibit the discharge of pollutants to "waters of the United States" from any point source, unless a National Pollutant Discharge Elimination System (NPDES) permit authorizes the discharge. Regulatory and permitting processes have been established to control the quality of water runoff from urban development. The CWA was amended in 1987, requiring the United States Environmental Protection Agency (USEPA) to create specific requirements for storm water discharges. In response to the 1987 amendments to the CWA, the USEPA established Phase I of the NPDES Stormwater Program, which required NPDES permits for: (1) municipal separate storm sewer systems generally serving or located in incorporated cities with 100,000 or more people (referred to as municipal permits); (2) 11 specific categories of industrial activity (including landfills); and (3) construction activity that disturbs more than five acres of land. In March 2003, Phase II of the NPDES Program extended the requirements for NPDES permits to numerous small municipal separate storm sewer systems, construction sites of one to five acres, and industrial facilities owned or operated by small municipal separate storm sewer systems, all of which were previously exempted from permitting requirements. Section 402(p) of the CWA mandates that these municipal storm water permits must: (1) effectively prohibit the discharge of non-storm water to the system except under certain provisions, and (2) require controls to reduce pollutants in discharges from the system to the maximum extent practicable, including Best Management Practices (BMPs); control techniques; and system, design, and engineering methods.

Construction General Permit

The State of California Construction General Permit (Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ) regulates discharges of pollutants in storm water associated with construction activity (storm water discharges) to "waters of the United States" from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

To obtain coverage under this permit, project operators must electronically file Permit Registration Documents, which include a Notice of Intent, a stormwater pollution prevention plan (SWPPP), and other compliance-related documents. An appropriate permit fee must also be mailed to State Water Resources Control Board (SWRCB). The SWPPP identifies BMPs that must be implemented to reduce construction effects on receiving water quality based on potential pollutants. Example BMPs include erosion control (e.g. limitation of vegetation removal), sediment control (e.g. secure soil stockpiling), non-stormwater control (e.g. proper equipment

fueling techniques) and waste and material management (litter control). The SWPPP also includes descriptions of the BMPs to reduce pollutants in storm water discharges after all construction phases have been completed at the site (post-construction BMPs).

California Plumbing Code

"Nonpotable Reuse Systems" of the 2010 California Plumbing Code (Title 24, Part 5, Chapter 16A, Part 1) details definitions and specific design requirements for graywater systems (tanks, irrigation fields and disposal fields). Table 16A-1 describes the required distances of graywater systems from various land features, such as building structures, water supply wells, and streams and lakes. Specifically, a horizontal distance of 100 feet must be maintained between streams and graywater irrigation fields (IAPMO, 2014).

Water Quality Control Policy for Siting, Design, Operation and Maintenance of Wastewater Treatment Systems

On-site wastewater treatment systems are useful and necessary structures that allow habitation at locations that are removed from centralized wastewater treatment systems. On June 19, 2012, the SWRCB adopted Resolution No. 2012-0032—the Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems which establishes a Statewide, risk-based, tiered approach for the regulation and management of on-site wastewater treatment system installations and replacements and sets the level of performance and protection expected from on-site wastewater treatment systems in order to avoid water quality degradation and protect public health. The Policy lists standards for existing and replacement on-site wastewater treatment systems, as well as corrective action requirements for failing or potentially failing systems. The policy is divided into four tiers:

- **Tier 0** sets requirements for existing and properly functioning on-site wastewater treatment systems.
- **Tier 1** sets evaluation, siting, design and construction standards for on-site wastewater treatment systems that are considered low risk new or replacement on-site wastewater treatment systems.
- **Tier 2** describes the option given to local agencies of creating approved on-site wastewater treatment system Local Agency Management Programs under which local agencies supervise on-site wastewater treatment systems within their own jurisdiction.
- **Tier 3** requires an Advanced Protection Management Program for all on-site wastewater treatment systems located near a water body that has been listed as impaired due to nitrogen or pathogen indicators pursuant to Section 303(d) of the Clean Water Act. These are prepared in compliance with a Local Agency Management Program if one is in place, or in conjunction with Tier 1 of the policy. It also requires Regional Boards to approve TMDLs for selected water bodies by a certain date.
- **Tier 4** requires corrective action for on-site wastewater treatment systems that are presently failing or fail at any time.

The policy also includes minimum monitoring and reporting requirements; exemption criteria; requirements for determining when an existing on-site wastewater treatment system is subject to major repair, and a conditional waiver of waste discharge requirements (SWRCB, 2012a). The Policy also conditionally waives the requirement of wastewater treatment systems to have Waste Discharge Requirements to operate their systems when they meet the conditions set forth in the Policy. The San Diego RWQCB was required to incorporate these standards into its Water Quality Control Plan (Basin Plan) by May 13, 2014 (SWRCB, 2012b).

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Water Code Sections 13000 et seq.), passed in 1969, requires protection of water quality by appropriate design, sizing, and construction of erosion and sediment controls. The Porter-Cologne Act established the SWRCB and divided California into nine regions, each overseen by a RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies and has delegated primary implementation authority to the nine RWQCBs. The Porter-Cologne Act assigns responsibility for implementing CWA Sections 401 through 402 and 303(d) to the SWRCB and the nine RWQCBs.

The Porter-Cologne Act requires the development and periodic review of water quality control plans (Basin Plans) that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters, provide the technical basis for determining waste discharge requirements, identify enforcement actions, and evaluate clean water grant proposals. The basin plans are updated every three years. Compliance with basin plans is primarily achieved through implementation of the NPDES, which regulates waste discharges as discussed above.

The Porter-Cologne Water Quality Control Act requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, which could affect the quality of the "waters of the State," file a ROWD. This report requires a complete characterization of the discharge including design and actual flows, a list of constituents and the discharge concentration of each constituent, a list of other appropriate waste discharge characteristics, a description and schematic drawing of all treatment processes, a description of any BMPs used, and a description of disposal methods, and a site map.

Basin Plan—San Diego Region

The Basin Plan for the San Diego Region regulates water quality per the Porter-Cologne Act of the CWA. The Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters; it (1) designates beneficial uses for surface and ground waters; (2) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy; (3) describes implementation programs to protect the beneficial uses of all waters in the Region; and (4) describes surveillance and monitoring activities to evaluate the effectiveness of the Basin Plan. Additionally, the Basin Plan incorporates by reference all applicable State and Regional Board plans and policies. The goal of the RWQCB is to achieve a balance between the competing needs of mankind for water of varying quality. Accordingly, the Basin Plan establishes or designates beneficial uses and water quality objectives for all the ground and surface waters of the Region

(RWQCB, 2012b). New development such as that proposed by the project must maintain the water quality standards and objectives of the current Basin Plan in its receiving water bodies.

Guidelines for New Community and Individual Sewerage Facilities

The RWQCB adopted Guidelines for New Community and Individual Sewerage Facilities (Resolution No. 79-44) on June 25, 1979. An updated set of guidelines is included in the 2011 Basin Plan, which supersedes Resolution No. 79-44 and has the goal of improving the efficiency of the review process, eliminating unnecessary Regional Board regulation, and improving protection of ground water quality.

Authority deferral to a County health officer in regard to onsite wastewater treatment systems would occur if the project operator satisfies the following conditions: (1) the use of new individual subsurface disposal systems for any subdivision of land will be in the best public interest; (2) individual disposal systems will comply with all existing county design criteria; (3) the cumulative impact from proposed individual disposal system(s) or from new commercial and/or industrial development(s) will not cause adverse impacts to the beneficial uses of ground water; (4) individual disposal systems will meet the minimum unsaturated soil thickness between the bottom of leach lines or the bottom of seepage pits and the historic high ground water level. The minimum unsaturated soil thickness is nine feet for soils with good percolation rates, 12-feet for soils with moderate percolation rates, and 14-feet for soils with poor percolation rates. Exceptions to the unsaturated soil thickness criteria may be allowed by the appropriate County health officer, based upon knowledge of local site conditions.

Upon receipt of the report of waste discharge for the proposed onsite wastewater treatment systems, the San Diego RWQCB would determine whether the proposed project would meet these conditions and authority may defer to the County Department of Health for regulation and protection of groundwater quality.

South Orange County Municipal Separate Storm Sewer System Permit

The current Municipal Separate Storm Sewer System Permit for Orange County (R9-2009-0002) was adopted on December 16, 2009 and will expire on December 16, 2014. Order No. R9-2009-0002 is the fourth iteration of the storm water permit for the Municipal Separate Storm Sewer System Permit participants in the Orange County portion of the San Diego region. The Order contains requirements that are necessary to improve efforts to reduce the discharge of pollutants in storm water runoff to the maximum extent practicable and achieve water quality standards. This Order requires that runoff is addressed during the major phases of urban development (planning, construction, and operation) in order to reduce the discharge of pollutants from storm water to the maximum extent practicable, effectively prohibit non-storm water discharges and protect receiving waters. The Order identifies that discharges from each approved development project must be subject to specific management measures outlined in the Order.

Order No. (R9-2013-0001) was adopted by the San Diego RWQCB on May 8, 2013. Order No. R9-2013-0001 is the fifth iteration of the storm water permit for the Municipal Separate Storm Sewer System Permit participants in the Orange County portion of the San Diego region. This

order will take effect in Orange County following the expiration of Order No. R9-2009-0002 on December 16, 2014.

Orange County Drainage Area Management Plan

The Orange County Orange County Drainage Area Management Plan (DAMP) documents specific water pollutant control elements and is the primary policy, planning and implementation document for Municipal Separate Storm Sewer System Permit compliance within the County. The main objectives of the DAMP are to present a plan that satisfies NPDES permit requirements and to evaluate the impacts of urban stormwater discharges on receiving waters. Instead of being viewed as single document, the DAMP serves as the foundation for a series of model programs, local implementation plans (LIPs) and watershed implementation plans. LIPs serve as a baseline program with detailed DAMP implementation information and are watershed-specific. The DAMP requires the effectiveness of each LIP element to be assessed, and through water quality testing and public input, for BMPs to be enhanced. As the proposed project is located in unincorporated Orange County, it would be subject to the Orange County 2010-2011 LIP.

Orange County Local Implementation Plan

While the DAMP provides a foundation for the Orange County Stormwater Permittees to implement model programs designed to prevent pollutants from entering receiving waters to the maximum extent practicable, the description and detail of how this is being accomplished on a local level is contained in the Local Implementation Plan (LIP). The LIP is designed to work in conjunction with the DAMP and each city and the County have developed a comprehensive LIP that is specific to its jurisdiction (Orange County, 2016).

The 2010-2011 Orange County LIP was prepared as a compliance program for the San Diego RWQCB Municipal Separate Storm Sewer System Permit. The main objectives of this LIP are to fulfill the County's commitment to present a plan that satisfies the requirements of its Municipal Separate Storm Sewer System Permits and to evaluate and reduce the impacts of urban stormwater runoff on the beneficial uses of receiving waters. The LIP, in conjunction with the countywide programmatic DAMP, are the principal policy and guidance documents for the County's NPDES stormwater program (Orange County, 2016).

The LIP characterizes priority projects based on various characteristics as specified by the San Diego Regional Board Area Municipal Separate Storm Sewer System Permit, which requires specific low impact development (LID) BMPs to be implemented for all priority projects when feasible (including maintaining natural drainage corridors, drainage of run-off into pervious areas, and use of permeable surfaces. Sizing criteria are also applied to the LID BMPs to ensure functionality. Per Municipal Separate Storm Sewer System Permit requirements, the LIP requires the preparation of specific WQMP for priority projects. The WQMP is based on targeted watershed pollutants and site-specific potential pollutants called pollutants of concern or primary pollutants of concern based on the type of development being proposed. These pollutant findings then guide which BMPs are incorporated on the project site. Required BMPs include site design LID BMPs (e.g., permeability maximization, vegetated swales, infiltration basins), source control BMPs (e.g., street sweeping), and site design non-LID BMPs (e.g., catch basin filters).

Hydromodification controls as specified in the South Orange County Hydromodification Management Plan (HMP) must also be incorporated. Specific information must also be provided on plan sheets of priority projects prior to the County issuing grading or building permits. The LIP also requires post-construction BMP inspection and maintenance in compliance with Municipal Separate Storm Sewer System Permit requirements. Follow-ups by the County are required by the LIP should certain water quality exceedances be reported (Orange County, 2016).

Hydromodification Management Plan for South Orange County

The HMP was prepared to comply with the San Diego RWQCB Municipal Separate Storm Sewer System Permit (Order R9-2009-0002), which requires an HMP be developed and implemented to manage increases in runoff discharge rates and durations from all priority development projects. Hydromodification refers to changes in the magnitude and frequency of stream flows and its associated sediment load due to urbanization or other changes in the watershed land use and hydrology. It also encompasses the resulting impacts on receiving channels, such as erosion, sedimentation, and potentially degradation of in-stream habitat. The HMP seeks ways to mitigate erosion impacts by establishing requirements for controlling runoff from new development. The HMP has been submitted to the San Diego RWQCB and is currently awaiting a finding of adequacy and is anticipated to be finalized for implementation by December 20, 2013 (Orange County, 2012). Although HMPs are not required to be implemented until 90 days following a finding of adequacy, early implementation is encouraged by each co-permittee. To date, all South Orange County permittees require HMPs.

The HMP requirements state that priority development projects must use continuous simulation to ensure that post-project runoff flow rates and durations for the PDP shall not exceed pre-development, naturally occurring, runoff flow rates and durations by more than 10 percent of the time, from 10 percent of the two-year runoff event up to the 10-year runoff event. This can be achieved through mitigating flow and duration through on-site control measures and addressing sediment loss through on-site management controls (Orange County, 2012).

Orange County Regulations for Wastewater Treatment and Disposal Systems

Effective August 28, 2013, County Regulations for Wastewater Treatment and Disposal Systems include minimum horizontal setback requirements from various and features for onsite wastewater treatment systems. The purpose of these setbacks is to avoid damage to existing utilities, ground instability and water quality degradation. These setbacks are shown in **Table 3.9-1** (Orange County, 2013).

TABLE 3.9-1
MINIMUM HORIZONTAL SETBACKS FOR GROUND ABSORPTION SYSTEMS WHERE TS-I PRETREATMENT SYSTEMS ARE USED FOR ≤ 1000 GALLONS PER DAY

Land Feature or Component	TS-I (feet)
Any public water supply	100
Streams classified as WS-I, except for saprolite	70
Waters classified as S-A, from mean high water mark	70
Other coastal waters, from mean high water mark	35

Land Feature or Component	TS-I (feet)
Any other stream, canal, marsh or other surface waters, from normal pool elevation	35
Any Class I or Class II reservoir, from normal pool elevation	70
Any permanent storm water retention pond, from flood pool elevation	35
Any other lake or pond, from normal pool or mean high water elevation	35
Any building foundation	5
Any basement	15
Any property line	10
Top of slope of embankments or cuts of 2 feet or more vertical height	15
Any water line	10
Upslope interceptor/foundation drains/diversions	7
Sideslope interceptor/foundation drains/diversions	10
Downslope interceptor/foundation drains/diversions	20
Groundwater lowering ditches or devices	20
Any swimming pool	15
Any other nitrification field (except the system repair area)	10

Orange County On-Site Sewage Absorption System Guidelines

Required as part the Orange County Building Plan Check, the Orange County On-Site Sewage Absorption System Guidelines are intended to provide a uniform approach to percolation testing requirements and design criteria of an on-site sewage absorption system. The Orange County Public Works Department's approval of proposed on-site sewage systems may be either a requirement for recordation of a parcel/tract map or a requirement before building/structural permits are issued. There are two main conditions for approval of an on-site sewage system: 1) percolation tests must be performed in accordance with County procedures for leach fields and/or seepage pits; and 2) the system must be designed in accordance with County standards.

Four copies of the engineer's soil percolation reports must be submitted to the Plumbing Plan Check Section at the Orange County Public Works Department. All reports must include a log of all soil borings and percolation tests as well as plans showing a designated system. Reports and plans submitted to obtain Building Permits must include (Orange County, 2014):

- Depth to groundwater
- Depth to any impervious layers
- Acceptable result of six percolation tests distributed throughout an area set aside for trench leach fields and/or at least one passing percolation for seepage pits for the proposed dwelling
- Distance between trenches or seepage pits
- Location of property lines
- Drainage courses

- Soils characteristics
- Trench width or pit diameter
- Pit depth or depth of gravel below pipe
- Topographic lines, if steep slopes exist
- Footprint of house
- Outline of septic tank and distribution box
- The plan must reflect all conditions after precise grading.

In order to test the feasibility of onsite wastewater systems at the project site, preliminary percolation information was completed. In addition to these tests, the project operator would still be required to perform soil percolation tests at each proposed on-site wastewater treatment system location in accordance with the Orange County On-Site Sewage Absorption System Guidelines.

County of Orange General Plan

Resources Element

Goal 1 Ensure an adequate dependable supply of water of acceptable quality for all reasonable uses.

Policy 5 Water Quality – To protect water quality through management and enforcement efforts.

Land Use Element

Policy 14 To guide physical development within the County while protecting water quality through required compliance with urban and stormwater runoff regulations.

3.9.2 Thresholds of Significance

The *CEQA Guidelines* Appendix G provides guidance for assessing the significance of potential environmental impacts. Relative to hydrology and water quality, a project could have a significant effect on the environment if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or lowering of the local groundwater table level (e.g., the production rate of the 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);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;

- 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;
- 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;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures, which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Be subject to inundation by seiche, tsunami, or mudflow.

It was determined in the NOPs/Initial Studies (see Appendices A1 and A2 of this EIR) that implementation of the proposed project would have no impact related to the placement of housing or structures in a 100-year flood hazard area, and that no impacts related to flooding from the failure of a dam or inundation by seiche, tsunami or mudflow would occur. Additionally, no public comments were received during the public scoping period for the NOPs/Initial Studies that indicated new evidence to analyze these thresholds in this EIR. Therefore, no further analysis of the aforementioned significance criterion is included in the EIR. However, a comment related to the potential for creek flooding to occur during from implementation of the project was received. Potential impacts related to flooding is described below, with the rest of the significance thresholds.

3.9.3 Methodology

The following analysis considers the existing regulatory environment that the proposed project would be subject to which includes both construction and operational phases. In accordance with County requirements, a preliminary hydrology analysis was prepared for the proposed project to determine the flow rates produced the project site and served as the basis for analyzing and designing the on-site storm drainage system. WQMPs were reviewed for consistency with the County of Orange Municipal Separate Storm Sewer System Permit and the ability of project design to minimize potential impacts related to hydrology and water quality. The Onsite Wastewater Treatment System Technical Memorandum (PACE, 2014) is located in Appendix D2 of this EIR. Considering the project characteristics and existing conditions the following potential impacts were evaluated and mitigation measures provided, where applicable.

3.9.4 Project Impacts

Impact 3.9-1: Would implementation of the proposed project violate water quality standards or waste discharge requirements?

Construction

Less than Significant Impact with Mitigation Incorporated. The project site has moderate to high topographic relief and gentle to steep slopes. Soil on slopes tends to be less stable. As a result, the project area could be at risk for soil erosion and the loss of topsoil. Construction activities such as grading and excavation associated with the proposed project have the potential to result in top soil loss and soil erosion by exposing bare soil to wind and rain. Vegetation removal would loosen soil structure and expose bare soil making it more easily eroded by wind and rain, especially on slopes. Total excavation over both phases is estimated at 535,500 cubic yards, with 10,000 cubic yards to be excavated on a maximum day.

The project includes several project design features that would minimize vegetation disturbance by conserving natural areas and not disturbing natural drainages, thereby minimizing erosion potential and sedimentation during construction. These include:

- Clustered development and preservation of open space (Project Design Features PDF-1 and PDF-2);
- Use of similar slope gradients to existing conditions (Project Design Feature PDF-3);
- Conservation of natural areas, including existing trees, other vegetation and soils (Project Design Feature PDF-4);
- Construction of streets to minimum widths and eliminating paved sidewalks in parkways (Project Design Feature PDF-6); and
- Minimization of disturbances to natural drainages (Project Design Feature PDF-14).

In addition, construction of the proposed structures within the project area would require the use of heavy equipment and construction-related chemicals, such as fuels, oils, grease, solvents and paints that would be stored in limited quantities on-site. In the absence of proper controls, these construction activities could result in accidental spills or disposal of potentially harmful materials used during construction that could wash into and pollute surface waters on-site and/or worsen water quality in San Juan Creek downstream. Materials that could potentially contaminate the construction area from a spill or leak include diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, concrete, and other fluids.

However, because project construction would disturb more than one acre of soil, the project operator would be required to comply with the NPDES Construction General Permit, as identified in Mitigation Measure MM 3.9-1. In compliance with this permit, a SWPPP would be prepared and implemented, which would require erosion control, sediment control, non-stormwater and waste and material management BMPs, such as routine inspection and maintenance of equipment, that would prevent construction chemicals used on-site from washing into local water bodies. Construction-related water quality impacts would be less than significant with implementation of the Project Design Features described above and Mitigation Measure MM 3.9-1.

Operation

Less than Significant Impact with Mitigation Incorporated. Development of residential land uses on the project site would generate new sources of pollutants in the project area. Residential landscaping and vineyard areas are a potential source of pesticides, sediment, and nutrients. Vineyards may utilize pesticides and fertilizer (a source of nutrients) that are existing impairments of San Juan Creek, which is downstream of the project site (pathogens, pesticides [DDE] and nutrients [phosphorus, nitrogen and selenium]).

However, the project includes several Project Design Features that would maintain a large portion of the site's existing vegetated (pervious) areas (as provided by Project Design Features PDF-1, PDF-2, PDF-3, PDF-4, PDF-6, and PDF-14 listed previously in the construction discussion), and would be designed to mimic the existing hydrological characteristics (Project Design Features PDF-13 and PDF-16), which would reduce runoff velocities that could transport pollutants and cause erosion and sedimentation.

In addition, compliance with the DAMP requirements (which is Orange County's form of compliance with the NPDES San Diego Region Municipal Separate Storm Sewer System Permit requirements), the project has developed WQMPs for both phases that address hydrologic conditions of concern (Project Design Feature PDF-17). As the project would develop residential uses, the project WQMPs identified nutrients, pathogens (bacteria and viruses) and pesticides as primary pollutants of concern; suspended sediments/solids, oil and grease and trash and debris as pollutants of concern.

Runoff from the improved areas of the site would be conveyed as sheet flow to vegetated swales for conveyance to one of the project's infiltration basins that would treat runoff prior to discharge (Hunsaker, 2014a; Hunsaker, 2014b). Pre-treatment of runoff entering the drywells would include a combination of vegetated swales, pervious pavement, and Maxwell Plus pre-treatment (manhole) units. Roof downspouts and runoff from walkways and patios would be directed towards landscaped areas (Hunsaker, 2014a; 2014b). The use of vegetated swales and vegetated culverts for runoff conveyance would allow for water to be slowed and naturally filtered as it flows toward the infiltration basin (Project Design Feature PDF-17). Infiltration basins would allow pollutants within the design capture volume to further settle out.

In addition, per WQMP requirements, the project site would include the following non-structural source control BMPs that would help protect water quality during its operation:

- Education for residents at close of escrow and periodically after to inform them about their potential impacts to downstream water quality;
- Activity restrictions to minimize potential impacts to water quality;
- Common area landscape management consistent with County Water Conservation Resolution and County Management Guidelines for Use of Fertilizers;
- Routine inspection and maintenance of BMPs;
- Common area litter control including reports of trash disposal violations to the HOA;
- Routine common area catch basin inspection, cleaning and maintenance; and

- Street sweeping of private streets and parking lots prior to the storm season.

Water quality impacts related to the operation of the residential and agricultural uses of the project would be less than significant with implementation of Project Design Feature PDF-13 that would design the project mimic the hydrological characteristics of the site in its natural, undeveloped state, PDF-14 that would implement low impact development techniques, PDF-15 that would implement BMPs to promote infiltration, and PDF-17 that provides for a WQMP that would implement structural and non-structural BMPs.

Pathogens are currently listed as one of the impairments of San Juan Creek. Should onsite wastewater treatment system be improperly sited or malfunction, untreated effluent has the potential to percolate into stream channels on-site, which could drain into San Juan Creek and potentially exacerbate its existing impairment for pathogens. In order to prevent onsite wastewater treatment system failure and potential water quality contamination during operation, the septic tanks would be required to be emptied of sludge regularly and transported off-site by a County-registered liquid waste hauler. Prior to an overflow event, high water level alarms would notify the homeowner and the HOA of a potential overflow condition, which would allow time for potential corrective action. If an overflow still occurs and the soil becomes saturated, the subsurface irrigation system would shut down. In this event, the 1500-gallon emergency storage tank would be used for up to five days of storage until the soil condition improves and treatment can commence.

Per Mitigation Measure MM 3.6-2, in Section 3.6, *Geology and Soils*, the project operator would design the onsite wastewater treatment systems in accordance with the Orange County On-site Sewage Absorption System Guidelines and SWRCB On-Site Wastewater Treatment System Policy, which details siting, design and construction standards for their installation, as well as expected performance and maintenance requirements. Mitigation Measure MM 3.6-2 also requires compliance with the Orange County Wastewater Treatment and Disposal Systems Regulations that provides minimum horizontal setbacks for onsite wastewater treatment systems from various areas, such as streams and riparian areas. This ensures that effluent being treated by the onsite wastewater treatment systems does not have contact with existing water features, thus preventing water quality degradation. Also, per Mitigation Measure MM 3.6-3, residents would be informed about the proper use and maintenance of onsite wastewater treatment systems to prevent damage and failure; and would be provided with the County and HOA approved septic service company contact information to provide as needed maintenance. Overall, water quality impacts from the proposed onsite wastewater treatment systems would be less than significant with implementation of the existing requirements that would be verified during the County and RWQCB permitting process, and Mitigation Measures MM 3.6-2 and MM 3.6-3 that are provided in Section 3.6, *Geology and Soils*.

Mitigation Measures

MM 3.9-1 Prior to the issuance of any grading or building permits, the project operator shall demonstrate compliance under California's General Permit for Stormwater Discharges Associated with Construction Activity by providing a copy of the Notice of Intent (NOI) submitted to the State Water Resources Control Board and

a copy of the subsequent notification of the issuance of a Waste Discharge Identification (WDID) Number; or other proof of filing in a manner meeting the satisfaction of the Manager, Permit Services. Projects subject to this requirement shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). A copy of the current SWPPP shall be kept at the project site and be available for County review upon request.

MM 3.6-2 *(Provided in Section 3.6, Geology and Soils under Impact 3.6-5)*

MM 3.6-3 *(Provided in Section 3.6, Geology and Soils under Impact 3.6-5)*

Impact 3.9-2: Would implementation of the proposed project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or lowering of the local groundwater table level (e.g., the production rate of the 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)?

Construction

Less than Significant Impact. As shown in Table 2-4 in Chapter 2, *Project Description*, construction water usage would total 18.9 AF. Phase 1 would require approximately 3,608,700 gallons (11.1 AF) of water. Phase 2 would require approximately 2,549,550 gallons (7.8 AF) of water. The Phase 1 (south parcel) currently contains a water well and cistern; and Phase 2 (north parcel) contains two active water wells and water storage tanks (one of them 8,000 gallons). These existing facilities currently provide water supply to the project site, and would provide construction water supply throughout construction activities. As described above, the site does not overly any substantial groundwater resources, and groundwater under the site is not used for potable water by EVMWD. Overall, the use of the well water for construction would be temporary, and would not result in other lands not having available water supply. Thus, impacts related to groundwater used during construction activities would be less than significant.

Operation

Operational water supply would be provided by the EVMWD, whose water resources include groundwater from the Elsinore and Coldwater basins. Groundwater production accounts for approximately 22 percent of EVMWD's total supplies (EVMWD, 2016). As described above, EVMWD has groundwater rights to 5,500 acre-feet per year, plus carry-over rights for supplies not used, from the Elsinore Basin; and from 2011 to 2015, EVMWD averaged 5,143.8 acre-feet pumped annually (EVMWD, 2016). Thus, EVMWD had an additional average annual allocation of 356.2 acre-feet that was not utilized between 2011 and 2015. Likewise, EVMWD has groundwater rights to 1,200 acre-feet per year from the Coldwater Basin, and from 2011 to 2015, EVMWD averaged 672.8 acre-feet pumped annually (EVMWD, 2016). Thus, EVMWD had an additional average annual allocation of 527.2 acre-feet that was not utilized between 2011 and 2015).

In addition to groundwater, EVMWD obtains its potable water supplies from Metropolitan (68 percent) and local surface water from Canyon Lake (9 percent). Based on the average generation

unit of 600 gallons per day (gpd) per dwelling unit, the proposed 72 single family residences would generate a total water demand of approximately 43,200 gpd (25,800 gpd for Phase 1 (south parcel) and 17,400 for Phase 2 (north parcel), as shown in **Table 2-5**, Operational Water Demand). As shown on **Table 2-5** in Chapter 2, *Project Description*, total operational demand including vineyard and landscaping uses is 336,128 gpd.

As described in the EVMWD Water Master Plan, the water demand in 2040 would result in an average annual demand of 75.0 mgd, and a maximum day demand of 80.9 mgd. EVMWD's Water Master Plan and UWMP describe that EVMWD will be able to meet the maximum day demand with future supplies of 88.89 mgd (EVMWD, 2016). These water demand projections are based on existing land use/zoning and regional growth projections for the service area.

Currently, the project site has a zoning designation of General Agricultural (A1), which allows residential development at a maximum density of four acres per dwelling unit), which would result in 146 dwelling units on the project site at build out. Conversely, the proposed project would only develop 72 residential units, and the remainder of the project site would consist of preserved open space, landscaping, and fuel modification areas that would be developed. Therefore, the proposed project would result in fewer residential units than the build out allowable by the existing zoning criteria; and development of 72 single-family units on the project site would be within EVMWD's existing water demand projections. EVMWD would not need additional groundwater allocations to serve the proposed project. EVMWD has already provided will-serve letters in 2013, 2015, and 2016, and has planned to provide water services to the project area since at least 2006, when a Water System Plan of Service was prepared by EVMWD (June 2006) that described the ability of the District to provide water services to the project area at a greater density than is currently proposed. Overall, the project is not anticipated to substantially deplete groundwater supplies, and impacts would be less than significant.

The proposed project would increase the amount of impervious on-site by development of structures and groundcover, such as residential building pads, streets, sidewalks, driveways and parking areas on the site. However, the project includes several Project Design Features that would mitigate the increase in impervious surfaces and provide for infiltration stormwater and runoff on-site that include:

- Preservation of 71 percent of the project site in open space and clustering development (Project Design Features PDF-1 and PDF-2);
- The conceptual landscape plan minimizes surface water runoff, incorporate the use of native/drought tolerant plant materials (Project Design Feature PDF-4);
- Construction of streets to minimum widths and eliminating paved sidewalks in parkways (Project Design Feature PDF-6);
- Mimic hydrological characteristics of the site in its natural, undeveloped state, controlling development flows runoff with; vegetated swales and infiltration basins (Project Design Feature PDF-13);
- Low impact development (LID) techniques to minimize the impervious footprint of the project and provide vegetated swales (Project Design Feature PDF-14);

- Minimization of disturbances to natural drainages (Project Design Feature PDF-14);
- The project has been designed to include the following Best Management Practices to promote infiltration (Project Design Feature PDF-15).

In addition, as described above, the groundwater onsite was determined to be isolated and perched within bedrock units and not part of a regional groundwater table; thus, impacts to groundwater recharge are considered less than significant.

Impact 3.9-3: Would implementation of the proposed project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation or flooding on- or off-site?

Construction

Less than Significant Impact with Mitigation Incorporated. The project would not alter the course of a stream or river. The project site has moderate to high topographic relief and gentle to steep slopes that could exacerbate the potential for substantial erosion and siltation. Construction activities such as grading and excavation associated with the proposed project would temporarily alter the ground surface, thus changing the existing drainage pattern of the site. Total excavation over both phases is estimated at 535,500 cubic yards, with 10,000 cubic yards to be excavated on a maximum day. This construction activity would both alter the ground surface topography and expose a large amount of bare soil to be potentially transported off-site. However, the project includes several Project Design Features that would minimize vegetation disturbance, thereby limiting the erosion potential during construction; which include PDF-1, PDF-2, PDF-3, PDF-14, that are listed above in the Impact 9.3-2 discussion. These Project Design Features would prevent the drainage pattern from being substantially altered during excavation and grading.

Additionally, project construction would also be required to comply with Mitigation Measure MM 3.9-1, which requires compliance with the NPDES Construction General Permit (including the development of a SWPPP). The SWPPP would include erosion control BMPs, such as scheduling and preservation of existing vegetation, which would prevent the exposure of soil to water and reduce the threat of erosion. The SWPPP would also implement sediment control BMPs, such as sandbags and fiber rolls, to trap any sediment that mobilizes on-site. Thus, with implementation of the Project Design Features (listed above) and Mitigation Measure MM 3.9-1, impacts related to alteration of drainage patterns and resulting in erosion, siltation and flooding during project construction would be less than significant.

Operation

Less than Significant Impact. Operation of the proposed project would permanently introduce impervious surfaces and structures, including roads, houses, and sidewalks, to the previously undeveloped pervious area. This would generate increased amounts of runoff, potentially resulting in erosion, siltation and flooding.

As described previously, the project includes several Project Design Features that would minimize alterations to existing ground conditions, reducing potential runoff increases and thereby minimizing erosion, sedimentation and flooding potential during operation. These include: PDF-1, PDF-2, PDF-3, PDF-4, PDF-6, and PDF-14, which are listed previously in the Impact 9.3-2 discussion. The project also includes Project Design Features that would promote infiltration and slow down surface flows to control any excess runoff generated on-site, thereby minimizing sedimentation, erosion and flooding potential. These include: PDF-13, PDF-14, and PDF-15, also listed previously in the Impact 9.3-2 discussion.

The project has been designed so that runoff would be conveyed to vegetated swales, vegetated culverts, and detention/drywell systems, which have been designed to accommodate the stormwater runoff from the project (as described in the Hydrology Study included as Appendices H3 and H4) and would eliminate the potential for flooding. These systems would also prevent any sediment-laden water from discharging off-site by allowing the sediment to settle out, either in the vegetated swales or infiltration basins. These measures would also control the velocity and amount of discharge offsite. A rip rap splash pad has been designed as part of vegetated swales and culverts to dissipate energy and prevent erosion to slopes or channels. In addition, the proposed project would utilize high efficiency / low precipitation irrigation heads and "drip" irrigation, and "smart controllers," including rain shutoff devices, moisture sensors, and downloading of evapotranporation rates to irrigation system programming, for water conservation and reduced runoff. In addition, as recommended by the project WQMPs, the project site would include the following non-structural source control BMPs that would prevent the generation of excess runoff on-site:

- Common area landscape management consistent with County Water Conservation Resolution and County Management Guidelines for Use of Fertilizers;
- Routine inspection and maintenance of BMPs; and
- Routine common area catch basin inspection, cleaning and maintenance.

With implementation of the project's design features and non-structural BMPs, post-development runoff flow rates and durations would not exceed the site's natural conditions by more than 10 percent of the time, from 10 percent of the two-year runoff event up to the 10-year runoff event, as demonstrated by the preparation of the hydrology analysis (Hunsaker, 2014a; Hunsaker, 2014b). These structures would capture and retain the difference in runoff flow rates/volume between the project site's natural and proposed conditions. Thus, impacts relating to alteration of drainage patterns and causation of erosion, siltation and flooding during project operation would be less than significant.

Mitigation Measure

MM 3.9-1 *(Listed previously under Impact 3.9-1)*

Impact 3.9-4: Would implementation of the proposed project 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?

Construction

Less than Significant Impact with Mitigation Incorporated. The proposed project would construct a residential development in a presently undeveloped area, and thus would require the construction of onsite new storm water drainage facilities. Construction of the drainage facilities would include excavation, grading, backfilling and pile-driving activities. These activities would expose bare soil to wind and rain, potentially resulting in top soil loss, soil erosion and sedimentation of surrounding water bodies. The project operator would be required to obtain building and grading permits from the County for the proposed project, which requires the review of storm drain plans by the County prior to the issuance of these permits. The onsite drainage plan would be required to comply with the County Master Plan and Local Storm Drain notes, which pertain to design specifics that ensure efficiency, longevity and water quality protection. In addition, the project would include several Project Design Features that would minimize runoff generated during construction to prevent exceedance of storm drain systems, which include PDF-1, PDF-2, PDF-3, PDF-14, that are listed previously in the Impact 9.3-2 discussion.

In addition, construction activity would be required to comply with the NPDES Construction General Permit per Mitigation Measure MM 3.9-1 (listed previously). In compliance with this permit, a SWPPP would be prepared and implemented; identifying BMPs that would minimize polluted stormwater runoff during construction of the project. With implementation of the Project Design Features described above, and Mitigation Measure MM 3.9-1, potential impacts related to stormwater drainage systems or substantial additional sources of polluted runoff during construction would be less than significant.

Operation

Less than Significant Impact. The project includes development of an onsite stormwater drainage system that would be designed pursuant to County requirements and to meet the needs of the proposed project. The project design features that are part of the project conserve natural pervious areas, disperse impervious area to reduce runoff, promote infiltration, and slow down surface flows. Runoff would be conveyed to vegetated swales, vegetated culverts, and detention/drywell systems, which have been designed to accommodate the stormwater runoff from the project and would control the velocity and amount of discharge offsite that would eliminate the potential for substantial increases in stormwater runoff. In addition, the proposed project would utilize high efficiency / low precipitation irrigation heads and “drip” irrigation, and “smart controllers,” including rain shutoff devices, moisture sensors, and downloading of evapotranporation rates to irrigation system programming, to reduce runoff. Related Project Design Features include: PDF-1, PDF-2, PDF-3, PDF-4, PDF-6, PDF-13, PDF-14, PDF-15, and PDF-17, which are listed previously under Impact 3.9-1 and 3.9-2.

As demonstrated by the hydrology analysis prepared for the project, with implementation of the project’s design features and non-structural BMPs, post-project runoff flow rates and durations for the project would not exceed pre-development, naturally occurring, runoff flow rates and

durations by more than 10 percent of the time, from 10 percent of the two-year runoff event up to the 10-year runoff event (Hunsaker, 2014a; Hunsaker, 2014b). Thus, impacts related to substantial increases in stormwater runoff would be less than significant.

Mitigation Measure

MM 3.9-1 *(Listed previously under Impact 3.9-1)*

Impact 3.9-5: Would implementation of the proposed project otherwise substantially degrade water quality?

Less than Significant Impact with Mitigation Incorporated. San Juan Creek, the project's downstream receiving water body, is listed as impaired for pathogens (bacteria indicators), DDE (a breakdown product of DDT that was used as an insecticide), phosphorous, selenium, toxicity and total nitrogen. Flows from the project site eventually drain into San Juan Creek, which is a primary source of recharge to the San Juan groundwater basin. Should pollutants enter the creek, they could eventually migrate into the San Juan groundwater basin and contaminate groundwater quality. However, the project would include structural and non-structural BMPs as specified in the WQMP and project design features that would help retain and infiltrate the design capture volume. In addition, the natural process of filtration that occurs as surface water percolates into groundwater would likely remove all remaining potential pollutants introduced into the creek by the proposed project.

As described previously, the project proposes onsite wastewater treatment systems on each lot. Pathogens are currently listed as one of the impairments of San Juan Creek. Should onsite wastewater treatment systems be improperly sited or malfunction, liquid effluent has the potential to percolate from the onsite wastewater treatment systems into stream channels onsite, which would drain into San Juan Creek and potentially exacerbate its existing impairment for pathogens and water quality impacts resulting from onsite wastewater treatment system failure could occur. However, prior to a potential overflow event, high water level alarms would occur, which would allow time for potential corrective action by the homeowner or HOA. If an overflow still occurs, the soil becomes saturated and the subsurface irrigation system shuts down, the 1500-gallon emergency storage tank could be used for up to five days of storage until the soil condition improves and treatment can commence.

Mitigation Measure MM 3.6-2, in Section 3.6, *Geology and Soils,* requires the project operator to install the onsite wastewater treatment systems in accordance with the Orange County On-site Sewage Absorption System Guidelines and SWRCB On-Site Wastewater Treatment System Policy (Policy), which details siting, design and construction standards for installation, as well as performance and maintenance requirements for onsite wastewater treatment systems. The design and approval of onsite wastewater treatment systems would be overseen by the Orange County Department of Public Works. Further, the project operator would locate the onsite wastewater treatment systems the required distances away from water features present onsite, as specified in the County Wastewater Treatment and Disposal System Regulations. Through compliance with the Orange County Guidelines and Regulations and the SWRCB Policy (Mitigation Measure MM

3.6-2), onsite wastewater treatment systems would be properly installed and maintained. Per Mitigation Measure MM 3.6-3, residents would be informed about the proper use and maintenance of onsite wastewater treatment systems and would receive information about County and HOA approved service companies to prevent damage and failure. Water quality impacts related to waste discharge requirements would be less than significant with implementation of Mitigation Measures MM 3.6-2 and MM 3.6-3.

Mitigation Measures

MM 3.6-2 *(Provided in Section 3.6, Geology and Soils under Impact 3.6-5)*

MM 3.6-3 *(Provided in Section 3.6, Geology and Soils under Impact 3.6-5)*

3.9.5 Cumulative Impacts

The geographic scope for cumulative impacts to hydrology and water quality includes all related projects located within the San Juan Hydrologic Unit as well as those within the EVMWD service area, which include The Ranch Plan Planning Area 2, Robinson Ridge, Chiquita Ridge, Hampton Inn & Suites Hotel, and Green Street Shopping. Descriptions and statuses of these projects are provided in **Table 3-1** in Chapter 3.0.

The proposed project would have the potential to violate water quality standards. San Juan Creek, the project site's downstream receiving water body is currently listed as impaired for several pollutants. There are several development projects occurring downstream. Therefore, although small amounts of pollutants introduced by the proposed project into San Juan Creek may not exceed impairment thresholds on its own, the project, in combination with other projects downstream, may contribute to a cumulative increase in pollutants in San Juan Creek, thereby exacerbating impairments and/or exceeding water quality thresholds. However, the project would comply with the various federal, state and County/local regulations regarding water quality, drainage, sedimentation, and erosion control that are described previously. Specifically, the proposed project would comply with the NPDES requirements for construction and operation activities, and SWPPPs and WQMPs would implement identified BMPs to protect water quality. In addition, several project design features are included in the project to help reduce threats to water quality, including overflow alarms to allow for corrective action and an emergency storage tank to hold untreated water until treatment can commence. All of these features along with Mitigation Measures MM 3.9-1, MM 3.6-2, and MM 3.6-3 would reduce the project's cumulative effects related to hydrology and water quality. With implementation of these features and requirements, cumulatively considerable impacts associated with hydrology and water quality would not occur and cumulative impacts would be less than significant.