# 4.9 Hydrology and Water Quality

This section describes the hydrologic conditions on and adjacent to the Project site and evaluates potential impacts to surface and groundwater resources associated with the proposed Project. This section is based in part on the *Hydrology Analysis* prepared by Hunsaker & Associates Irvine, Inc. on August 16, 2021 and *Conceptual Water Quality Management Plan* prepared by Hunsaker & Associates Irvine, Inc. on August 24, 2021 included as Appendices I and J to this Draft EIR.

## 4.9.1 Setting

Surface water flows in the City drain into three major watersheds within the Orange County's South Watershed Management Area established by the San Diego Regional Water Quality Board (RWQCB). These are: Sulphur Creek in the north part of the City, a tributary to Aliso Creek, and part of the Aliso Watershed Management Area; Salt Creek in the south part of the City and within the Dana Point Coastal Streams Watershed Management Area; and Oso Creek in the east part of the City which is tributary to San Juan Creek and is part of the San Juan Watershed Management Area.

Water bodies nearest to the Project site are Sulphur Creek approximately 1.5 miles to the north and Laguna Niguel Lake approximately 2 miles to the north. No water bodies occur on the site.

## 4.9.2 Existing Site Conditions

The 4.2-acre Project site was part of a residential development built in 1975 that was destroyed in 1989 during the Via Estoril landslide. After the landslide, residential structures were removed as part of an extensive remediation, restoration and reconstruction effort that occurred in the late 1990s. The Project site is vacant and vegetated with ground cover and shrubs. The site has been partially improved with a storm drain system and paved streets. The site is located on a hillside that slopes to the east, with its highest point to the west approximately 453 feet above mean sea level (msl) and lowest point to the east approximately 362 feet above msl. Currently, the overall site encompasses 3.45 acres (82%) of pervious surfaces and 0.75 acres (18%) of impervious surfaces.

An existing onsite drainage system conveys runoff flows west to east toward Crown Valley Parkway along the southern border of the site. The storm drain varies from 36 inches to 48 inches. The 36-inch storm drain is located along Club House Drive and conveys upstream residential runoffs, and the 48-inch storm drain continues easterly and discharges into a concrete lined channel at El Niguel Country Club. An existing 30-inch to 36-inch storm drain that conveys runoffs north to south across the leveled Project area crosses the Project site where proposed Lot 1 will be located. The existing 30-inch storm drain conveys runoff from a portion of the upper-north end of the site with terrace drains and a headwall. The 36-inch existing storm drain joins the existing 48-inch storm drain crossing under Crown Valley Parkway.

Runoff from the flatter portion of the site sheet flows easterly to a V-ditch paralleling Crown Valley Parkway. The V-ditch ends at a 5-foot diameter riser structure and then runoff flows to the southerly 48-inch storm drain. Runoff at the remnant, paved driveway entrance at Playa Blanca Drive sheet flows easterly down the paved driveway, over the sidewalk, and into the Crown Valley Parkway street gutter. Runoff flows 370 feet southerly on the west side of Crown Valley Parkway in the street gutter to a street-side catch basin. The onsite storm drain system ultimately conveys onsite flows and off-site flows under Crown Valley Parkway, prior to discharging to an existing open channel within El Niguel Golf Course. Runoff is then conveyed northerly to County Facility No. J03P01 to J03D01 (Siphon Creek Reservoir), which is tributary to Aliso Creek (County Facility No. J01).

The Project site does not contain any environmentally sensitive areas (ESA), as defined in the Basin Plan and the County of Orange Drainage Area Management Plan (DAMP). Although the site does not discharge directly to areas defined as ESA or Areas of Special Biological Significance (ASBS), the site is tributary to impaired water bodies, which are designated as ESAs under DAMP guidelines. These impaired water bodies are San Juan Creek, Aliso Creek, and the Pacific Ocean.

## 4.9.3 Related Policies and Regulations

### Federal Regulations

Clean Water Act

The Clean Water Act (CWA) is the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The CWA prohibits any discharge of pollutants into the nation's waters unless specifically authorized by a permit. The applicable sections of the CWA are further discussed below.

CWA Section 102 requires the planning agency of each state to prepare a Basin Plan to set forth regulatory requirements for protection of surface water quality, which include designated beneficial uses for surface water bodies, as well as specified water quality objectives to protect those uses. A project's impact on existing surface water quality is measured by the degree to which its discharges affect a receiving water body's designated beneficial use and attainment. Beneficial uses and water quality objectives have been established by the Regional Water Boards for their respective jurisdictions.

Section 303(d) requires each state to provide a list of impaired surface waters that do not meet or are not expected to meet state water quality standards as defined by that section. It also requires each state to develop total maximum daily loads (TMDL) of pollutants for impaired water bodies. The TMDL must account for the pollution sources causing the water to be listed. Impaired waters with potential to be affected by the project are described in the Water Quality section above.

CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES) permit program, which is the primary federal program that regulates point-source and non-point-source discharges to WoUS. NPDES permits are issued by the State Water Resources Control Board (SWRCB) and the nine geographically separated Regional Water Boards in California. There are both general and individual NPDES permits. General NPDES permits cover industrial, construction, and municipal stormwater discharges, and some point-source discharges for specific activities. Individual NPDES permits cover point-source discharges from wastewater facilities.

National Pollutant Discharge Elimination System Permits: Construction General Permit

Pursuant to CWA Section 402(p) and as related to the goals of the Porter-Cologne Water Quality Control Act, SWRCB has issued a statewide NPDES General Permit for Stormwater Discharges Associated with Construction Activity (Order No. 2009-0009-DWQ, NPDES No. CAS000002, as amended by Order 2010-0014-DWQ and 2012-006-DWQ) (Construction General Permit), adopted September 2, 2009 (SWRCB 2012). Every construction project that disturbs 1 or more acres of land surface or that is part of a common plan of development or sale that disturbs more than 1 acre of land surface would require coverage under this Construction General Permit. To obtain coverage under this Construction General Permit, the landowner or other applicable entity must file Permit Registration Documents prior to the commencement of construction activity, which include a Notice of Intent (NOI) and Stormwater Pollution Prevention Plan (SWPPP) prepared by a Qualified SWPPP Developer and mail the appropriate permit fee to SWRCB.

Construction activities subject to the Construction General Permit include clearing, grading, and disturbances to the ground, such as stockpiling or excavation, that result in soil disturbances of at least 1 acre of total land area. The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges; and (2) to describe and ensure the implementation of best management practices (BMPs) to reduce or eliminate sediment and other pollutants in stormwater and non-stormwater discharges. BMPs are intended to reduce impacts to the maximum extent practicable (MEP), which is a standard created by Congress to allow regulators the flexibility necessary to tailor programs to the site-specific nature of municipal stormwater discharges. The SWPPP is required to be implemented and monitored regularly by a Qualified SWPPP Practitioner. Reducing impacts to the MEP generally relies on BMPs that emphasize pollution prevention and source control, with additional structural controls as needed. The Construction General Permit requires that specific minimum BMPs are incorporated into the SWPPP, depending on the project's sediment risk to receiving waters based on the project's erosion potential and receiving water sensitivity to sediment.

**State Regulations**

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act requires the regulation of all pollutant discharges, including wastes in project runoff that could affect the quality of the state's water. The act also

provides for the development and periodic reviews of Basin Plans that designate beneficial uses of California's major rivers and groundwater basins and establish water quality objectives for those waters. Beneficial uses and water quality objectives are specified for the Project area in the Basin Plan for the San Diego Region and are regulated by the San Diego RWQCB.

Municipal Separate Storm Sewer System

CWA Section 402 mandates permits for municipal stormwater discharges, which are regulated under the NPDES General Permit for Municipal Separate Storm Sewer Systems (MS4 Permit). Phase I MS4 Permit regulations cover medium (serving between 100,000 and 250,000 people) and large (serving more than 250,000 people) municipalities. Phase II (Small MS4 Permit) regulations require that stormwater management plans/programs be developed by municipalities with populations smaller than 100,000, including non-traditional Small MS4s, which are facilities such as military bases, public campuses, and prison and hospital complexes.

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

SWRCB is advancing Low-Impact Development (LID) in California as a means of complying with municipal stormwater permits. LID incorporates site design, including among other things the use of vegetated swales and retention basins and minimization of impermeable surfaces, to manage stormwater to maintain a site's predevelopment runoff rates and volumes.

**Local Regulations**

South Orange County Municipal Stormwater NPDES Permit (MS4 Permit)

On May 8, 2013, the San Diego RWQCB approved a regional MS4 Permit for San Diego, southern Orange, and southwestern Riverside counties (Order No. R9-2013-0001). San Diego RWQCB, adopted Order No. R9-2015-0001, an Order Amending Order No. R9-2013-0001, NPDES Permit and Waste Discharge Requirements For Discharges From The Municipal Separate Storm Sewer Systems (MS4s) Draining The Watersheds Within The San Diego Region at its February 11, 2015 Board Meeting. The region-wide NPDES Permit (commonly referred to as the Regional MS4 Permit) sets the framework for municipalities, such as the City of Laguna Niguel, to implement a collaborative watershed-based approach to restore and maintain the health of surface waters. The

Regional MS4 Permit requires development of Water Quality Improvement Plans (WQMP) that will allow permittees to prioritize and address pollutants through an appropriate suite of BMPs in each watershed.

To implement the requirements of the Regional MS4 Permit, the co-permittees developed a Drainage Area Master Plan (DAMP) that includes a Model New Development and Redevelopment Program. Per the requirements in the DAMP and the Regional MS4 Permit, the permittees are required to adopt a Local Implementation Plan (LIP) to implement the DAMP and Regional MS4 Permit in their jurisdictions. Using the LIP as a guide, the permittees will approve WQMPs for new development and redevelopment projects within their jurisdictions as part of the development plan and entitlement approval process. WQMPs for new development and significant redevelopment projects that fall under specific priority project categories must include Site Design, Routine Structural and Nonstructural, and Treatment Control BMPs; include an Operations and Maintenance Plan; and address LID retention/biofiltration and hydromodification criteria. The priority project categories are those determined by the San Diego RWQCB to have the greatest potential to affect receiving waters with polluted runoff.

A Priority Development Project is defined as a redevelopment project that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land. The proposed project is considered a Priority Redevelopment Project subject to permittee conditioning and approval for the design and implementation of post-construction controls to mitigate stormwater pollution.

A Project WQMP is a plan for minimizing the adverse effects of urbanization on site hydrology, runoff flow rates, and pollutant loads. Hunsaker & Associates Irvine, Inc. prepared the proposed Project's Conceptual Water Quality Management Plan dated August 2021 (Appendix J).

South Orange County Hydromodification Management Plan

The Orange County Stormwater Program developed a Hydromodification Management Plan (HMP) in response to MS4 Permit requirements from the San Diego RWQCB. The permit requires the incorporation of low impact development and hydromodification requirements in new development and significant redevelopment projects. Priority Development Projects are required to implement hydrologic control measures and on-site management controls so that post-project runoff flow rates and durations do not exceed pre-development, i.e. naturally occurring conditions, flow rates, and durations where they would result in an increased potential for erosion or significant impacts to beneficial uses. Priority Development Projects may be exempt from HMP criteria based on specific channel conditions, including those that discharge runoff into conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to ocean waters, enclosed bays, estuaries, or water storage reservoirs and lakes.

General Waste Discharge Requirements for Discharges from Groundwater Extraction and Similar Discharges to Surface Waters

On March 12, 2008, the San Diego RWQCB issued the General Waste Discharge Requirements (WDR) for Discharges from Groundwater Extraction and Similar Discharges to Surface Waters within the San Diego Region Except for San Diego Bay (Order No. R9-2008-0002, Permit No. CAG919002) (Groundwater Discharge Permit). This permit regulates discharges of treated and untreated groundwater from construction to surface waters. It specifies the discharge prohibitions, receiving water limitations, monitoring and reporting program requirements, and general compliance determination criteria for groundwater dewatering during construction activities and drilling, construction, and purging of wells. Dischargers are required to collect and analyze representative groundwater samples for all constituents listed in the Groundwater Discharge Permit. Based on the results, dischargers would be required to provide treatment for any toxic compounds detected above the applicable screening levels. To obtain coverage under the Groundwater Discharge Permit, each permittee must submit an NOI to begin the application process.

Laguna Niguel Local Implementation Plan/Jurisdictional Runoff Management Program

The Local Implementation Plan/Jurisdictional Runoff Management Program (LIP/JRMP) is the City's specific document that details how the stormwater programs are implemented within their local jurisdiction. The LIP/JRMP describes the programs and activities that the City is implementing to meet MS4 Permit requirements, with the goal of making meaningful improvement in water quality.

## 4.9.4 Thresholds of Significance

Criteria for determining the significance of impacts related to hydrology and water quality are based on criteria contained in Appendix G of the State CEQA Guidelines and the City's CEQA Manual. The proposed Project could have a significant impact on the environment if it would result in any of the following.

***Threshold HYD-1*** *Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?*

***Threshold HYD-2*** *Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

***Threshold HYD-3.i*** *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site?*

***Threshold HYD-.3ii*** *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?*

***Threshold HYD-3.iii*** *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?*

***Threshold HYD-3.iv*** *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?*

***Threshold HYD-4*** *In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?*

***Threshold HYD-5*** *Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

**Methodology**

A water quality management plan and hydrology study were prepared in conformance with procedure and criteria outlined in the Orange County Hydrology Manual dated 1986, using Advance Engineering Software's (AES's) Version 23.0. The Project, under Tract Map No. 17721, received conditional WQMP approval by the City on June 17, 2021. The WQMP is prepared pursuant to the requirements of the County of Orange MS4 Permit, the Laguna Niguel Municipal Code and the LIP/JRMP.

## 4.9.5 Project Design Features and Standard Conditions of Approval

**PDF HYD-1** Existing storm drains installed on the site as part of prior remediation activities will be re-routed and connected to the proposed Project's storm drains and connected to the existing 36-inch storm drain in Crown Valley Parkway for off -site discharge. Specific locations are indicated in Figure 4.9.A of the Utility Plan.

**PDF HYD-2** The Project will install a 200 foot long and 48-inch diameter upsized storm drainpipe along Private Drive A to detain and slow water flow to meet

Hydromodification Low Impact Development (LID) requirements as seen below in Figure 4.9.A.

**PDF HYD-3** The Project will install two Modular Wetland Systems (MWS) to capture on-site storm water pollutants. As seen below in Figure 4.9.A, the two MWS locations are at the north end of Project under near the site entrance at Playa Blanca and under parking stall 2, at the southeast end of Private Drive "B". These systems are designed to filter, treat, and release. The system is required and therefore will be required to treat 1.5 times the BMP design flow for the Project.

## 4.9.6 Environmental Impact Evaluation

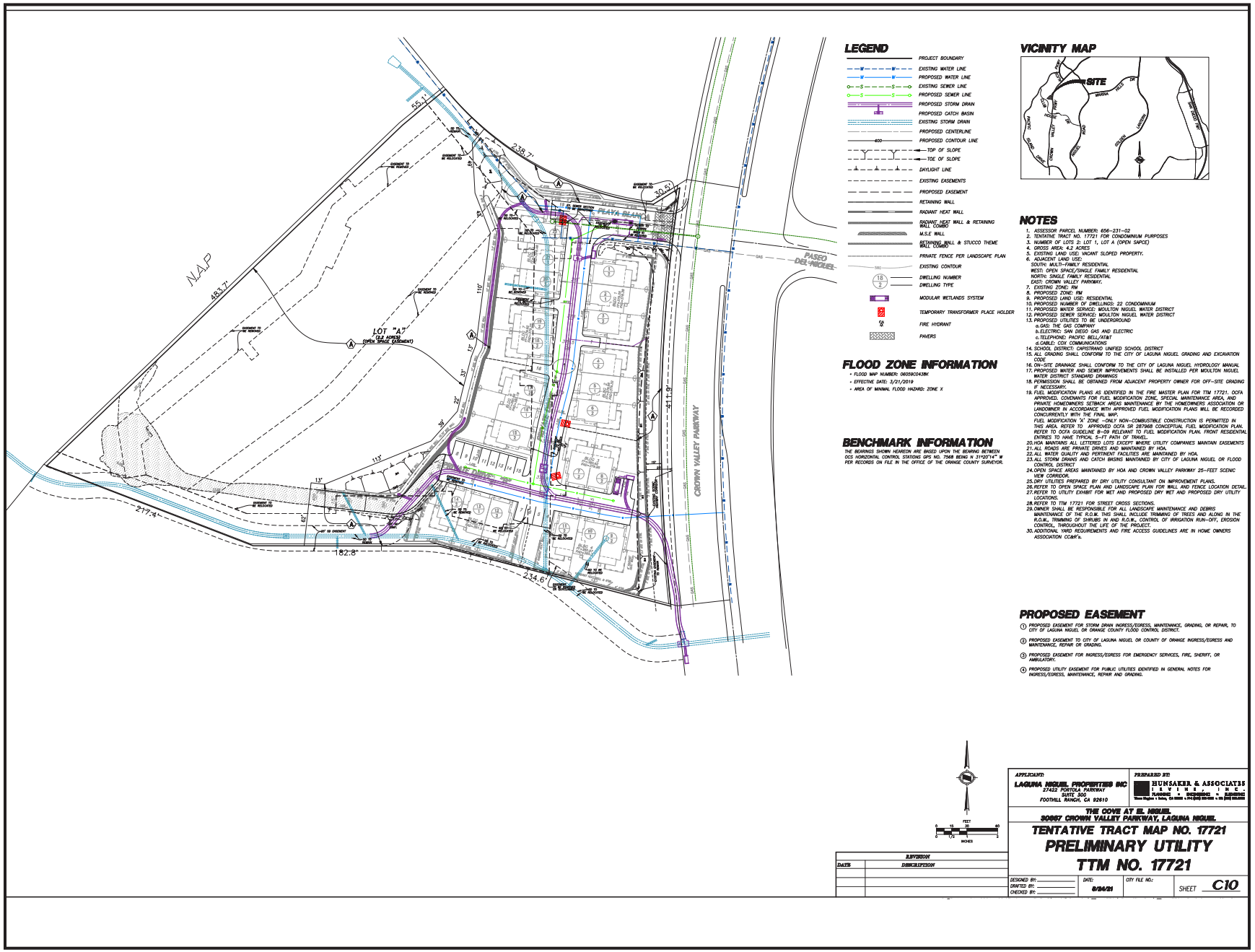
***Threshold HYD-1*** *Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?*

**Less Than Significant Impact.**

**Construction Impacts**

The Project could result in an increase in surface water pollutants such as sediment, oil and grease, and miscellaneous wastes during construction activities. Concrete used for structures, footings, and other paving materials could be potential sources of water quality pollution if any of these materials were spilled or deposited on unprotected surfaces. The delivery, handling, and storage of construction materials and wastes, as well as use of construction equipment, could also introduce the risk of stormwater contamination if not properly handled and contained. Staging areas or building sites can be sources of pollution because of the use and storage of equipment and materials during construction. Impacts associated with metals in stormwater include toxicity to aquatic organisms, such as bioaccumulation. Vegetation removal associated with site preparation work can result in erosion and surface water contamination from runoff. Construction impacts on water quality are potentially significant and could lead to exceedance of water quality objectives or criteria specified in the San Diego RWQCB's Basin Plan.

However, compliance with the NPDES Construction General Permit would require implementation of the BMPs included in a project-specific SWPPP to address these types of concerns and provide preventive measures that reduce the risk of having potential significant water quality impacts. Therefore, with implementation of the required erosion and sediment control BMPs identified in the SWPPP that would be regularly monitored and re-enforced to reduce water quality impacts, impacts during construction would be reduced to less-than-significant levels and no mitigation is required.




*Source: Hunsaker&Associates (8/24/2021).*

**Figure 4.9.A Utility Plan**

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**Operation Impacts**

The Project would include the relocation and installation of a permanent storm drain system (**PDF HYD-1**) consisting of an oversized 200-foot-long storm drainpipe (to detain storm flows seen in **PDF HYD-2**), 2 catch basins, a v-ditch atop the MSE wall, and 2 modular wetland systems (MWS)(**PDF HYD-3**). The stormwater would feed into the onsite storm drain system, then flow into the MWS for first flush filtration, prior to discharge into the City storm drain connection near the southeast corner of the Project site on Crown Valley Parkway as seen above in Figure 4.8.A Utility Plan. Additionally, implementation of the project design features would effectively reduce non-storm water discharges from leaving the site and reduce the discharge of untreated pollutants in storm waters from reaching the offsite storm water conveyance systems. Therefore, with regulatory compliance and implementation of **PDF HYD-1** through 3, operation-related impacts to water quality and waste discharge requirements would be reduced to less than significant, and no mitigation is required.

***Threshold HYD-2*** *Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

**Less Than Significant Impact.** Implementation of the proposed Project would not directly deplete groundwater supplies or interfere substantially with groundwater recharge that would result in a net deficit in aquifer volume or a lowering of the local groundwater table level. Pervious surface area pre-project is 3.50 acres, or 83.3%, and post-project pervious surface area would be 3.12 acres, or 74%. Based on information found in the Conceptual WQMP, onsite soils consist primarily of Cropley clay, Bosanko clay and Botella clay loam, which are classified as a Hydrologic Soil Group D soil. These soils are characterized as having slow infiltration rates when thoroughly wet. Therefore, the Project site does not substantially contribute to groundwater recharge due to the poor infiltration rates associated with the clayey soils onsite. No substantial change would occur in the post developed condition. Furthermore, the Project site is not located within an area known for hydrogeologic groundwater. As a result, impacts would be less than significant, and no mitigation measures are required.

***Threshold HYD-3.i*** *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or off site?*

**Less Than Significant Impact.** The proposed Project drainage system has 2 drainage management areas (DMA) to capture and slow down runoff. Captured flows are first routed under Private Drive "A" through an oversized 200-foot long 48-inch detention storm drainpipe (**PDF HYD-2**) and filtered through two MWSs (**PDF HYD-3**) before draining toward the Crown Valley Parkway storm drain connection point in the southeast corner of the Project site.

Runoff for the majority of the slope on proposed Lot A will flow to the east toward the v-ditch that runs along the top of the proposed MSE wall before connecting into the storm drain system at three points. Two drainage locations will flow to the lowest northern part of the storm drain and one will connect flowing to the south. The remaining runoff from the slope on Lot A will flow down the recreation trail to the east and will tie in the storm drain system under Private Drive "B". Runoff within proposed Lot 1 from residential units, parking areas, and private drives would be conveyed as sheet flow, gutter flow, and area drain flow to the Project's proposed 2 MWSs.

Runoff is then conveyed to the Project's discharge point at the southeastern corner of the site, prior to discharging into to the existing 48-inch storm drain line located approximately 50 feet to the south. All runoff then continues easterly under Crown Valley Parkway and down to a headwall and discharged into an open concrete channel within El Niguel Golf Course.

Although the proposed Project would result in alteration of the existing onsite drainage, the Project maintains existing drainage patterns and accounts for the increased impervious surface by detaining flows to prevent downstream erosion. As a result, the Project would not create a substantial erosion or siltation on or off site, and impacts would be less than significant and would not require mitigation measures.

| | |
|---|---|
| ***Threshold HYD-3.ii*** | *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?* |

**Less Than Significant Impact.** The existing 36-inch storm drain main conveying runoff north to south and 48-inch storm drain main conveying runoff west to east will be re-routed within the Project drive aisles. A proposed 48-inch storm drain will continue along Private Drive "B" and follow the Crown Valley Parkway sidewalk before connecting into the existing 48-inch storm drain.

Inlet structures will be installed to collect off-site runoffs, runoff on the top of the proposed MSE walls, and Project site runoffs (roads, buildings, and level landscaped areas on the Project site). The captured runoff will be connected to the re-routed storm drain systems (**PDF HYD-1**). The storm drain system includes a 200-foot long 48-inch diameter upsized pipe (**PDF HYD-2**) within Private Drive "A" to slow and detain storm water flows in accordance with Hydromodification LID requirements and two MWS units (**PDF HYD-3**) for water quality treatment that to a limited extent will slow and infiltrate captured water.

The proposed Project would increase impervious surfaces on the site, resulting in a decrease in total pervious cover from 3.45 acres to 3.12 acres (82% to 74%) and an increase in impervious cover from 0.75 acres to 1.08 acres (18% to 26%). This would increase the amount of runoff generated on the Project site.

The hydrology study prepared for the proposed Project was prepared based on the methodology contained in the *Orange County Hydrology Manual*. The hydrology study area includes the tributary area to the existing storm drain along Club House Drive. The storm events analyzed were a 10-year and 100-year storm. Table 4.9-1 summarizes the results of the hydrology analysis, providing a comparison of drainage for the hydrology study area and stormflow estimates in both the existing and developed conditions.

**Table 4.9-1. Hydrology Analysis Summary Construction Duration**

| | **Existing Condition** | | | **Proposed Condition** | | | **Difference (Proposed-Existing** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Area** | Acre | 10-yr (cfs) | 100-yr (cfs) | Acre | 10-yr (cfs) | 100-yr (cfs) | Acre | 10-yr (cfs) | 100-yr (cfs) |
| **Overall Project** | 109.7 | 191.1 | 302.3 | 109.7 | 190.2 | 300.9 | **0.00** | **-0.90** | **-1.40** |

As shown in Table 4.9-1, during the 10- year and 100-year event, the overall Project shows a decrease in storm runoff for both events. The estimated decrease in runoff is attributable to the proposed Project design features including the re-routing of existing storm drain system (**PDF HYD-1**), the upsized 200-footr detention storm drainpipe (**PDF HYD-2**), and the two MWS units (**PDF HYD-3**). Flows during storm events are captured in this proposed system and released over time. As a result, the peak storm flow during the 100-year event would be reduced from 302.3 cubic feet per second (cfs) to 300.9 cfs, which is 1.40 cfs less than the existing condition. Therefore, the proposed Project would not include the alteration of the course of a stream or river and would not cause the rate or amount of surface runoff to result in flooding on or off site. Impacts would be less than significant, and no mitigation measures are required.

***Threshold HYD-3.iii*** *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?*

**Less Than Significant Impact.** As described in Threshold HYD-3.i and Threshold HYD-3.ii above, implementation of the proposed Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide

substantial additional sources of polluted runoff. The runoff from the proposed Project during the 10-year and 100-year storm events would be less in the developed condition than in the existing condition primarily through the capture of storm flows in an underground upsized storm drainpipe (**PDF HYD-2**) with a storage capacity of 0.06 acre-feet of volume. Furthermore, the planned two MWS units (**PDF HYD-3**) would treat stormwater before discharge and prevent additional sources of polluted runoff from entering the stormwater drainage system. Therefore, the proposed Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Impacts would be less than significant, and no mitigation measures are required.

***Threshold HYD-3.iv*** *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?*

**Less Than Significant Impact.** As described in Threshold HYD-3.ii above, implementation of the proposed Project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite. As described in Threshold HYD-3.i and Threshold HYD-3.iii, implementation of the proposed Project would not create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. With implementation of **PDFs HYD-1, HYD-2, and HYD-3**, the proposed Project would be in compliance with existing stormwater regulations and would not otherwise substantially degrade water quality or create drainage or flooding impacts. Impacts would be less than significant, and no mitigation measures are required.

***Threshold HYD-4*** *In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?*

**No Impact.** The Project site is not in a flood hazard zone and not within the vicinity of a large reservoir and thus is not subject to seiche. This Project is located approximately 2 miles inland from the Pacific Ocean, but is considered to be outside of the tsunami inundation area mapped by the California Geological Survey. Therefore, the proposed Project would not contribute to the release of pollutants from inundation by flooding, seiche, tsunami. No impacts would occur, and no mitigation measures are required.

***Threshold HYD-5*** *Conflict with or obstruct implementation of water quality control plan or sustainable groundwater management plan?*

**Less Than Significant Impact.** As described in Threshold HYD-1 through Threshold HYD-3.iii above, the proposed Project would result in less than significant impacts on water quality. In addition, the Project would adhere to the Construction General Permit, City's LID and municipal

code requirements and comply with its implementation of the SWPPP to ensure that surface and groundwater quality are not adversely affected during construction. Furthermore, the Project's implementation of the LID and BMP measures at the site, installed as project design features **PDF HYD-1** through **PDF HYD-3** would ensure that water quality is not impacted during operation of the project. As a result, the Project will not obstruct or conflict with the implementation of the South Orange County Water Quality Improvement Plan (WQIP) and the Water Quality Control Plan (WQCP) for the San Diego Basin (Basin Plan).

Furthermore, as discussed in Section 3.2.6, *Utilities and Service Systems*, the City relies on imported water and local recycled water, and no groundwater management plan exists for the region. The Project site is not located on any regulated groundwater basins.

Therefore, implementation of the proposed Project would be in compliance with WQIP and WQCP regulations and would not otherwise substantially degrade water quality or groundwater. Impacts would be less than significant, and no mitigation measures are required.

### 4.9.7 Cumulative Impacts

**Less than Significant Impact.** The geographic scope for cumulative impacts on hydrology and water quality includes the Aliso Creek Watershed. Implementation of the proposed Project would include compliance with all required laws, permits, ordinances, and plans, such as the MS4 Permit, South Orange County Hydromodification Plan, and Construction General Permit requirements, that would reduce incremental effects to hydrology and water quality. The proposed Project would result in an increase of impervious surfaces within the watershed and is required to include pervious surfaces to retain storm water drainage on site. This increase in impervious surfaces with implementation of the proposed BMPs (two MWS units, **PDF HYD-3**) as required by the MS4 Permit and Hydromodification Plan would not lead to an increase in surface runoff or significant pollutant loadings.

Other future developments within the urban and developed subwatershed would have similar effects as the proposed Project. The areas surrounding the proposed Project area are of similar urban nature, and any future development would also include compliance with all required laws, permits, ordinances, and plans, such as the MS4 Permit, South Orange County Hydromodification Plan, and Construction General Permit requirements, in order to meet runoff requirements. This would help reduce impacts to water quality and retain runoff and ensure that the incremental effects of individual projects do not cause a substantial cumulative impact related to water quality. For example, each related project would be required to develop a SWPPP (for construction), a WQMP (for operation), and a hydrology report, and would be evaluated individually to determine appropriate BMPs and treatment measures to reduce impacts to surface water quality and hydrology. In addition, cities review all development projects on a case-by-case basis to ensure that sufficient local and regional drainage capacity is available. Furthermore, the analysis in a

Project's hydrology report is cumulative in nature due to the project and existing developments impact on storm drainage within the watershed area.

Combined impacts to water quality, to the storm drain system, and from the creation of flooding hazards from past, present, and future projects would be less than significant cumulatively. Therefore, because water quality, drainage, and flooding would not be adversely affected by the proposed Project, the proposed Project's contribution to cumulative hydrology and water quality impacts would not be cumulatively considerable.

### 4.9.8 Summary of Mitigation Measures

As no impacts related to hydrology and water quality have been found to be significant, no mitigation measures are required.

### 4.9.9 Significant Environmental Impacts

The analysis above indicates that the Project will not exceed significance criteria for hydrology and water quality impacts. Therefore, all hydrology and water quality impacts are **less than significant**, and no mitigation measures are required.

### 4.9.10 References

14 CCR 15000–15387 and Appendix A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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