Water Quality Management Plan (WQMP)

Project Name:

Vesting Tentative Tract Map No. 19477
APN: 623-481-49, 623-481-50, 623-481-51, 623-481-52, 623-481-53
1, 2, 3, 4, & 5 Polaris Way
Aliso Viejo, Ca

Prepared for:

Lennar Homes of California, Inc

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Prepared by:

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Engineer's Seal

Prepared on: February 2026

Revised: May 8, 2026
Revised: June, 2026

Project Owner's Certification			
Permit/Application No.	SDP-2026-0100	Grading Permit No.	TBD
Tract/Parcel Map No.	VTTM 19477	Building Permit No.	TBD
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract)			APN: 623-481-49, 623-481-50, 623-481-51, 623-481-52, 623-481-53

This Water Quality Management Plan (WQMP) has been prepared for Lennar Homes of California by C & V Consulting. The WQMP is intended to comply with the requirements of the local NPDES Stormwater Program requiring the preparation of the plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the San Diego Region (South Orange County). Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

Owner: Lennar Homes of California, Inc, Derek Kegley			
Title	Senior Project Manager		
Company	Lennar Homes of California, Inc.		
Address	2000 FivePoint, Suite 365		
Email			
Telephone #			
Signature		Date	

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Section 1 Discretionary Permit(s) and Water Quality Conditions

Project Infomation			
Permit/Application No.	SDP-2026-0100	Site Address or Tract/Parcel Map No.	1, 2, 3, 4, & 5 Polaris Way Aliso Viejo, Ca VTTM 19477
Additional Information/ Comments:			
Water Quality Conditions			
Water Quality Conditions from prior approvals or applicable watershed-based plans	*Pending, to be included in the Final WQMP*		

Section 2 Project Description

2.1 General Description

Description of Proposed Project		
Site Location	1, 2, 3, 4, & 5 Polaris Way Aliso Viejo, Ca VTTM 19477	
Project Area (ft^2): **980753.4 sft**	Number of Dwelling Units: **405**	SIC Code: NA
Narrative Project Description:	The proposed development consists of five (5) existing buildings over approximately 22.5 acres as measured to the existing right- of-way. The site is bounded by Aliso Viejo Parkway to the north, California Route 73 to the west, and a condominium complex to the south and east. In addition to the buildings, the site consists of onsite parking, landscaped medians, and common open space areas around the existing buildings. The site is situated below Aliso Viejo Parkway along the majority of the northern property line. The maximum grade differential between the site and the roadway is approximately 13 feet near the central driveway entrance. A 2:1 slope is present along the eastern property line, descending approximately 25 feet. Along the southern property line, a similar 2:1 slope descends approximately 33 feet to the south. The site is currently served by a 12-inch domestic water line originating from Aliso Viejo Parkway, an 8-inch sanitary sewer line entering from the southeast corner of the site, and an existing storm drain connection located at the southeast corner. The priority redevelopment will consist of 405 residential units within 101 buildings. The site will be accessible via one (1) proposed entrance/ exit off of Aliso Viejo Parkway. The development will have private drive aisles and parking areas consisting of asphalt concrete pavement, private garages, and common open space area. The open space areas will consist of Portland Concrete cement (PCC) sidewalks and landscaping including vegetation and trees. Open space areas and landscape areas will be maintained by an appointed property management company. Long-term maintenance will be managed by	

	Lennar Homes of California, Inc. until an appointed Homeowner's Association (HOA) is selected. According to the Federal Emergency Management Agency (FEMA), FIRM rate map Number 06059C0428J, revised December 3, 2009, the site is located within the flood zone as follows: "Zone X – Area of minimal flood Hazard." The project qualifies as a priority redevelopment due to the creation and replacement of more than 10,000 square feet of impervious surface.			
Project Area	Pervious		Impervious	
	Area (acres or sq ft)	Percentage	Area (acres or sq ft)	Percentage
Pre-Project Conditions	197989.41 sft	20.19%	782763.99 sft	79.81%
Post-Project Conditions*	98075.34 sft	10%	882678.06 sft	90%

*Post Project imperviousness is a conservative estimate. Imperviousness will be verified and recalculated during final engineering.

2.2 Post Development Drainage Characteristics

The proposed project is designed to maintain existing drainage patterns to the maximum extent practicable. Surface runoff will be conveyed via overland flow and intercepted by onsite catch basins and area drains. Collected runoff will discharge to adjacent Modular Wetland biofiltration vaults (MWS) for treatment of the 85th percentile, 24-hour storm event in compliance with applicable water quality requirements.

Flows exceeding the water quality design flow rate and treated runoff from the MWS units, will be routed to a subsurface detention system. The detention system will include a flow-control outlet orifice sized to satisfy hydromodification management criteria and peak stormwater flow mitigation requirements.

The site drains toward a low point at the southeast corner. An existing 30-inch storm drain conveys runoff from the site to Aliso Creek Road via Windsong. The proposed onsite storm drain system will connect to this existing facility, and post-development runoff will discharge consistent with historic drainage patterns to the Pacific Ocean.

The catch basins and area drain system will be sized and designed during final engineering.

2.3 Property Ownership/Management

The property is currently owned by LENNAR Homes of California, Inc. The Owner will be responsible for the long-term maintenance of the project's storm water facilities and conformance to this WQMP after construction is complete.

A Notice of Transfer of Responsibility located in Attachment E of this report and should be executed as part of any ownership transfer after construction is complete.

Stormwater Quality infrastructure will not be transferred to any Public Agencies.

Section 3 Site & Watershed Characterization

3.1 Site Conditions

3.1.1 Existing Site Conditions

The existing site is fully developed with five (5) commercial buildings surrounded by parking areas and landscape planters. A drive aisle encircles the buildings and provides onsite circulation. The site slopes continuously from the northwest to the southeast, with elevations ranging from approximately 453 feet above mean sea level (MSL) at the northwest corner to approximately 425 feet MSL at the southeast corner.

The site is situated below Aliso Viejo Parkway along the majority of the northern property line. The maximum grade differential between the site and the roadway is approximately 13 feet near the central driveway entrance. A 2:1 slope is located along the eastern property line, descending approximately 25 feet. Along the southern property line, a similar 2:1 slope descends approximately 33 feet to the south.

Surface runoff flows southeasterly overland toward the southeast corner of the site. Runoff is collected by curb and gutter along the eastern property line and enters an existing catch basin. The catch basin connects to an existing 30-inch storm drain that conveys runoff to Windsong. In Windsong, flow enters a 36-inch storm drain that conveys runoff toward Aliso Creek Road, where the pipe increases to 42 inches in diameter. Runoff continues southerly along Cedarbrook in a 60-inch storm drain, which extends into Aliso Viejo Community Park and discharges into Aliso Creek.

This project is not covered by an existing WQMP and there are no existing stormwater BMPs in place onsite.

Existing Land Uses

Land Use Description	Total Area (acres)	Impervious Area (acres)	Pervious Area (acres)	Imperviousness (%)
Commercial	*22.515*	*17.970*	*4.545*	*79.81%*
Total	22.515	17.970	4.545	79.81%

3.1.2 Infiltration-Related Characteristics

The Geotechnical Subsurface Exploration and Preliminary Design Report date March 4, 2026 by SA Geotechnical summarizes the findings of the geotechnical engineer. The report has been included in Attachment D.

3.1.2.1 Hydrogeologic Conditions

Groundwater conditions of the site were summarized by SA Geotechnical as follows "Groundwater was encountered in one boring (Boring H-7) at a depth of 51.5 feet bgs. Historic high groundwater is not mapped by the State for this portion of the San Juan Capistrano Quadrangle (CDMG, 2001a); however, considering the site topography and prior mass grading, we anticipate groundwater to be relatively deep, and not a geotechnical constraint for design or construction."

"Groundwater levels may fluctuate on an annual and seasonal basis based on rainfall and variations in future residential irrigation and/or adjacent land use. Perched water within the artificial fill or along earth unit contacts (i.e., fill/bedrock contact) cannot be ruled out and may be encountered during grading or utility construction."

"In general, groundwater is anticipated to remain more than 30 feet below design grades upon the completion of grading. However, shallow, perched groundwater/seepage may occur on an annual and seasonal basis as a result of rainfall, irrigation and/or seepage from adjacent properties, and along earth unit contacts (i.e., artificial fill and bedrock). Groundwater is generally not expected to be encountered during grading or utility construction; however, the presence of locally saturated soils and/or perched water cannot be ruled out, especially during rainy seasons."

3.1.2.2 Soil and Geologic Infiltration Characteristics

In the geotechnical investigation of the site referenced above, the site's soil properties are as follows, "The subject site is underlain by compacted artificial fill materials and bedrock of the Monterey Formation as a result of mass grading in the late-1980s. The north/northwestern portion of the site is underlain by Monterey Formation bedrock at or near existing grades. The south/ southeastern portion of the site was brought to current grades with compacted fill (overlying bedrock), ranging in thickness from 2.5 to 47.5 feet thick. The Monterey Formation bedrock generally consisted of white, yellowish brown, gray, olive brown, and pale brown siltstone that was damp to wet, stiff to hard, and diatomaceous. Bedding was observed in the samples to be generally well bedded/ laminated and highly variable across the site. The artificial fill materials generally consisted of olive gray, olive brown, reddish brown, yellowish brown, and brown clayey silt, silty clay, clayey sand, and silty sand that was damp to wet and medium dense/stiff to hard. The fine-grained fill materials are generally derived from the Monterey Formation and were found to be diatomaceous."

"The southern portion of the site is underlain by variably thick artificial fill overlying fine-grained, expansive bedrock of the Monterey Formation. The remainder of the site is generally underlain by shallow or at-grade bedrock. County of Orange guidelines prohibit stormwater infiltration in compacted fill (OCPW, 2013). Additionally, infiltration of stormwater in bedrock can result in migration of subsurface water along bedding, faults, or lithologic contacts, resulting in seepage or

springs where previously none existed, potentially impacting offsite properties and slopes. Stormwater infiltration is not considered feasible from a geotechnical viewpoint."

"Considering that the site is underlain by fine-grained artificial fill material overlying expansive, fine-grained bedrock, and the presence of a relatively large perimeter slopes along the eastern and southern property boundaries, infiltration of stormwater is not considered feasible at the site from a geotechnical viewpoint and may contribute to unforeseen geotechnical hazards."

In addition to the Geotechnical findings above, the NRCS Web Soil Survey and the Orange County Infiltration Study Figure XVI-2a determines the site has Type C and D Soils.

3.1.2.3 Geotechnical Conditions

"The site is not located within a mapped potential liquefaction hazard zone per the State's Seismic Hazard Mapping (CDMG, 2001b). The attached Site Location and Seismic Hazards Map (Figure 1) depicts the site relative to the mapped potential seismic hazard zones."

2:1 slopes along the southern and eastern property lines are existing and will remain untouched for the proposed development as they are not part of this site.

3.1.2.4 Summary of Infiltration Opportunities and Constraints of Existing Site

Due to the geotechnical constraints previously mentioned, infiltration is not recommended onsite.

3.2 Proposed Site Development Activities

3.2.1 Overview of Site Development Activities

The project proposes the redevelopment of five existing commercial office buildings and associated parking lots into 405 town home units in 101 buildings. In addition to the new residential buildings, improvements will include new landscaping and private streets. The overall drainage pattern will be very similar to the existing condition. Runoff will be conveyed overland to proposed catch basins and routed to the southeast corner of the site.

3.2.2 Project Attributes Influencing Stormwater Management

- Potential pollutant generating activities are those typical of residential developments. Possible sources include fertilizers from improperly managed landscape areas, pet waste, improper homeowner disposal of trash and debris, uncovered on-street parking and dry weather flows such as irrigation overspray and car washing activities.
- Proposed buildings attached townhomes for single family dwelling.
- There will be common open space areas consisting of landscaped areas that will be maintained by the owner/ HOA
- Existing drainage patterns will be largely unchanged with runoff flowing overland to the southeast.

Proposed Land Uses				
Land Use Description	Total Area (acres)	Impervious Area (acres)	Pervious Area (acres)	Imperviousness (%)
Residential Development	*22.515*	*20.234*	*2.281*	*90%*
Total	22.515	20.234	2.281	90%

3.2.3 Effects on Infiltration and Harvest and Use Feasibility

The Geotechnical Subsurface Exploration and Preliminary Design Report date March 4, 2026 by SA Geotechnical states, "Considering that the site is underlain by fine-grained artificial fill material overlying expansive, fine-grained bedrock, and the presence of a relatively large perimeter slopes along the eastern and southern property boundaries, infiltration of stormwater is not considered feasible at the site from a geotechnical viewpoint and may contribute to unforeseen geotechnical hazards."

The required design capture volume is substantially larger than the irrigation demand and per the South Orange County Technical Guidance Document, this determines that harvest and use is infeasible.

3.3 Receiving Waterbodies

The site runoff will be collected by a series of onsite inlets and private storm drain which eventually connects to an existing 30-inch storm drain pipe at the southeast corner of the site that conveys runoff to Windsong. In Windsong, flow enters a 36-inch storm drain that conveys runoff toward Aliso Creek Road, where the pipe increases to 42 inches in diameter. Runoff continues southerly along Cedarbrook in a 60-inch storm drain, which extends into Aliso Viejo Community Park and discharges into Aliso Creek.

The following are the 303(d) listings for the drainage:

- Aliso Creek
  - Benthic Community Effects (125926)
  - Indicator Bacteria (79858)
  - Malathion (81901)
  - Nitrogen (127601)
  - Phosphorus (111092)
  - Selenium (111093)
  - Toxicity (111095)
- Aliso Creek (mouth)
  - Indicator Bacteria (70046)
  - Toxicity (95760)
- Pacific Ocean Shoreline
  - Indicator Bacteria (132167)
  - Toxicity (84122)

3.4 Stormwater Pollutants or Conditions of Concern

Pollutants or Conditions of Concern		
Pollutant	Expected from Proposed Land Uses/Activities (Yes or No)	Additional Information and Comments
Bacteria and Viruses	Yes	Expected. Standard residential urban runoff (pet waste). Also a major 303(d) impairment for Aliso Creek and the Pacific Ocean Shoreline.
Metals	Yes	Aliso Creek is 303(d) listed for Selenium, which is a naturally occurring mineral metal in south OC soils.
Nutrients	Yes	Expected. Generated from residential lawn fertilizers and yard clippings. Aliso Creek is also 303(d) listed for nitrogen and phosphorus.
Pesticides	Yes	Expected. Resulting from residential landscaping pest control. Aliso Creek is 303(d) listed for malathion and toxicity.
Organic Compounds	No	Typically associated with industrial processes, solvent use, or commercial fueling stations rather than standard residential spaces.
Sediments	Yes	Expected. Soil erosion from residential lawns, open landscaped areas, and construction/grading footprints.
Trash and Debris	Yes	Expected. Generated from general domestic activities, litter, and residential foot traffic.
Oxygen-Demanding Substances	Yes	Expected. Caused by organic matter such as yard waste and pet waste washing into storm drains.
Oil and Grease	Yes	Expected. Standard runoff from residential driveways, parking spaces, and vehicle leaks.

3.5 Hydrologic Conditions of Concern

☐ No – An HCOC does not exist for this receiving water because:

☐ Project discharges directly to a protected conveyance (bed and bank are concrete lined the entire way from the point(s) of discharge to a receiving lake, reservoir, embayment, or the Ocean

☐ Project discharges directly to storm drains which discharge directly to a reservoir, lake, embayment, ocean or protected conveyance (as described above)

☐ The project discharges to an area identified in the WMAA as exempt from hydromodification concerns

☒ Yes – An HCOC does exist for this receiving water because none of the above are applicable.

3.6 Critical Course Sediment Yield Areas

Critical coarse sediment provisions do not apply to redevelopment of an existing developed site.

Section 4 Site Plan and Drainage Plan

4.1 Drainage Management Area Delineation

The WQMP Exhibit contained in this report shows the breakup of the project site into 20 DMAs. The site was divided up based on the layout of the inlets onsite. The number of inlets connected to a BMP is optimized based on utility layout.

4.2 Overall Site Design BMPs

Minimize Impervious Area – Common area HOA maintained landscape will be incorporated where feasible on site

Maximize Natural Infiltration Capacity – Landscape areas have been provided for incidental infiltration and evapotranspiration.

Preserve Existing Drainage Patterns and Time of Concentration **–** the project follows the existing drainage pattern and Time of Concentration as much as possible.

Disconnect Impervious Areas - Landscaping will be provided throughout the project to minimize the amount of directly connected impervious areas.

Protect Existing Vegetation and Sensitive Areas – Existing slope along the southern property line will be maintained and protected. There are no environmentally sensitive areas onsite.

Revegetate Disturbed Areas – slopes and landscaping that is impacted due to construction will be replanted.

Soil Stockpiling and Site Generated Organics - The site earthwork is expected to balance. If stockpiling is necessary, then proper stockpiling, storage, and reapplication of disturbed topsoil is recommended. Proper stockpiling generally includes protecting the stockpile to prevent excessive compaction and covering the stockpile to prevent significant erosion and leaching of nutrients.

Firescaping - Correct zone plant selection and spacing will be integrated

Water Efficient Landscaping - Efficient irrigation and drought tolerant plants will be integrated

Slopes and Channel Buffers – Existing 2:1 slopes will be protected and maintained.

4.3 DMA Characteristics and Site Design BMPs

The site is divided into 20 different DMAs. See summary table below for the individual areas.

4.3.1 DMA Summary

Drainage Management Areas				
DMA (Number/Description)	Total Area (acres)	Imperviousness (%)	Infiltration Feasibility Category (Full, Partial, or No Infiltration)	Hydrologic Source Controls Used
DMA 1	1.522	90%	No Infiltration	Impervious area Dispersion
DMA 2	1.606	90%	No Infiltration	Impervious area Dispersion
DMA 3	1.510	90%	No Infiltration	Impervious area Dispersion
DMA 4	0.904	90%	No Infiltration	Impervious area Dispersion
DMA 5	2.065	90%	No Infiltration	Impervious area Dispersion
DMA 6	0.656	90%	No Infiltration	Impervious area Dispersion
DMA 7	1.991	90%	No Infiltration	Impervious area Dispersion
DMA 8	1.114	90%	No Infiltration	Impervious area Dispersion
DMA 9	1.260	90%	No Infiltration	Impervious area Dispersion
DMA 10	2.090	90%	No Infiltration	Impervious area Dispersion
DMA 11	0.436	90%	No Infiltration	Impervious area Dispersion
DMA 12	0.784	90%	No Infiltration	Impervious area Dispersion
DMA 13	0.681	90%	No Infiltration	Impervious area Dispersion
DMA 14	0.575	90%	No Infiltration	Impervious area Dispersion
DMA 15	0.620	90%	No Infiltration	Impervious area Dispersion
DMA 16	0.277	90%	No Infiltration	Impervious area Dispersion
DMA 17	1.761	90%	No Infiltration	Impervious area

				Dispersion
DMA 18	0.270	90%	No Infiltration	Impervious area Dispersion
DMA 19	0.442	90%	No Infiltration	Impervious area Dispersion
DMA 20	1.992	90%	No Infiltration	Impervious area dispersion

4.4 Source Control BMPs

Non-Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**Reason Source Control is Not Applicable**
		Included	**Not Applicable**	
N1	Education for Property Owners, Tenants and Occupants	☒	☐	
N2	Activity Restrictions	☒	☐	
N3	Common Area Landscape Management	☒	☐	
N4	BMP Maintenance	☒	☐	
N5	Title 22 CCR Compliance (How development will comply)	☐	☒	No hazardous waste will be kept onsite
N6	Local Industrial Permit Compliance	☐	☒	Not an industrial development
N7	Spill Contingency Plan	☐	☒	No hazardous waste will be kept onsite
N8	Underground Storage Tank Compliance	☐	☒	No underground storage tanks onsite
N9	Hazardous Materials Disclosure Compliance	☐	☒	No hazardous waste will be kept onsite
N10	Uniform Fire Code Implementation	☐	☒	No toxic gases will be kept onsite
N11	Common Area Litter Control	☒	☐	
N12	Employee Training	☒	☐	HOA will appoint property management company to maintain onsite BMPs
N13	Housekeeping of Loading Docks	☐	☒	No loading docks onsite
N14	Common Area Catch Basin Inspection	☒	☐	
N15	Street Sweeping Private Streets and Parking Lots	☒	☐	
N16	Retail Gasoline Outlets	☐	☒	No retail gasoline onsite

N1 – Education for Property Owners
Educational materials will be provided to homeowners at close of escrow by owner/developer and periodically thereafter by the HOA to inform them of their actions and the potential impacts to downstream water quality. Materials include those described in Section 7 of this WQMP and any updates to educational materials.

N2 – Activity Restrictions
Activity restrictions to minimize potential impacts to water quality and with the purpose of protecting water quality will be prescribed by the project's Covenant, Conditions and Restrictions (CC&Rs), or other equally effective measure.

N3 – Common Area Landscape Management
Maintenance activities for landscape areas shall be consistent with City and manufacturer guidelines for fertilizer and pesticide use (OC DAMP Section 5.5). Maintenance includes trimming, weeding and debris removal and vegetation planting and replacement and shall be consistent with the City's Landscape Ordinance. Stockpiled materials during maintenance activities shall be placed away from drain inlets and runoff conveyance devices. Wastes shall be properly disposed of or recycled.

N4 – BMP Maintenance
The Owner shall be responsible for implementation of each applicable non-structural, structural and LID BMPs as well as scheduling inspection and maintenance cleaning of all applicable structural BMP facilities. The Owner shall be responsible for inspection and maintenance activities in landscape areas.

N11 – Common Area Litter Control
Litter control onsite will include the use of litter patrols, violation reporting and clean up during landscaping maintenance activities and as needed to ensure good housekeeping of the project's common areas.

N12 – Employee Training
Developer either prepares manual(s) for initial purchasers of business site or for development that is constructed for an unspecified use makes commitment on behalf of POA or future business owner to prepare. An example would be training on the proper storage and use of fertilizers and pesticides, or training on the implementation of hazardous spill contingency plans.

N14 – Common Area Catch Basin Inspection
As required by the TGD, at least 80% of all drainage facilities shall be inspected each year and, if necessary, cleaned and maintained prior to the storm season, no later than October 15th each year; with 100% of all drainage facilities inspected, cleaned and maintained within a two-year period. Drainage facilities include catch basins and inlets, detention vaults and the project's LID BMPs.

N15 – Street Sweeping Private Streets and Parking Lots
Private streets shall be vacuum swept on a regular basis consistent with the HOA's schedule.

Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**Reason Source Control is Not Applicable**
		Included	**Not Applicable**	
S1	Provide storm drain system stenciling and signage	☒	☐	
S2	Design and construct outdoor material storage areas to reduce pollution introduction	☐	☒	No Outdoor Storage Areas Proposed
S3	Design and construct trash and waste storage areas to reduce pollution introduction	☐	☒	No Trash Enclosures Proposed
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	☒	☐	
S5	Protect slopes and channels and provide energy dissipation	☒	☐	
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	☐	☐	
S6	Dock areas	☐	☒	No Dock Areas Proposed
S7	Maintenance bays	☐	☒	No Maintenance Bays Proposed
S8	Vehicle wash areas	☐	☒	No Vehicle Wash Areas Proposed
S9	Outdoor processing areas	☐	☒	No Outdoor Processing Areas Proposed
S10	Equipment wash areas	☐	☒	No Equipment Wash Areas Proposed
S11	Fueling areas	☐	☒	No Fueling Areas Proposed
S12	Hillside landscaping	☒	☐	
S13	Wash water control for food preparation areas	☐	☒	No food preparation areas proposed
S14	Community car wash racks	☐	☒	No Community car wash racks proposed

S1 – Provide Storm Drain System Stenciling and Signage (CASQA SD-13)
Storm drain stenciling with a brief message or graphical icons with symbols, prohibiting the dumping of improper materials into the storm drain system shall be placed in highly visible areas adjacent to all storm drain inlets. The BMP is designed to alert and educate homeowners and guests of the destination of pollutants discharged into storm drain systems. Legibility of stencils and signs shall be maintained.

S4 – Efficient Irrigation System & Landscape Design (CASQA SD-10 & SD-12)
Landscaping will be designed to consist of native species or drought tolerant, water conserving landscaping. Irrigation system will be designed, constructed and adjusted to eliminate overspray to hardscape areas, with timing and cycle lengths adjusted in accordance with water demands, given time of year, weather, day or night time temperatures based on system specifications and local climate patterns.

S5 – Protect Slopes & Channels
Existing v-ditches on the western edge slopes will be protected and maintained. Existing landscaping will be maintained and any areas of construction will be replanted to reduce erosion susceptibility.

S12 – Hillside Landscaping (CASQA SD-10)
Hillside areas that are disturbed by project development shall be landscaped with deep-rooted, drought tolerant plant species selected for erosion control, satisfactory to the local permitting authority.

Section 5 Low Impact Development BMPs

The site is divided into 20 different DMAs. Each DMA consists of the same type of BMP. A Summary of the DMAs and their respective BMP is provided below.

5.1 LID BMPs

Infiltration Feasibility

The project site consists of Type C and D Soils as shown in the NRCS Web Soil Survey and Orange County Infiltration Study Figure XVI-2a. In addition, the geotechnical report by SA Geotechnical dated September 29, 2025 states "Considering that the site is underlain by fine-grained artificial fill material overlying expansive, fine-grained bedrock, and the presence of a relatively large perimeter slopes along the eastern and southern property boundaries, infiltration of stormwater is not considered feasible at the site from a geotechnical viewpoint and may contribute to unforeseen geotechnical hazards." Worksheet 1 is provided in Attachment C. Infiltration is infeasible for this site.

Harvest and Use Feasibility

Design Capture Volume = 22.556 ac x [(0.75x0.9)+.15]x 0.8 inches x 43,560 sf/ac x 1/12 in/ft
= 54,039.66 cft

Modified Estimated Applied Water Use (EAWU) Daily Average Irrigation Demand (TGD Table F-5) for Laguna

$$Modified\ EAWU = \frac{ET_{o,wet} \times K_L \times LA \times 0.015}{6 \times IE}$$

$Et_{o,wet}$ = 17.6 inches

Reference Evapotranspiration (ET_O) Table from the *Landscape Irrigation Code (Water Efficient Landscape Ordinance)* The sum of the evapotranspiration averages for the wet season months (November to April)

Conservative Landscape Design (Non-active turf) K_L=0.35
LA(Landscaped Area) = 90% impervious = 22.556 ac x 0.1 = 2.256 acres = 98253.94 sft
IE (Irrigation Efficiency) = 0.81 (assuming efficient drip irrigation system)
Dividing by 6 converts the 6 month wet season irrigation depth into a monthly average

$$\text{Modified EAWU} = \frac{17.6 \text{ inches} \times 0.35 \times 98253.94\ sft \times 0.015}{6 \times 0.81} = 1868.0\ gallons\ per\ day$$

Irrigation Demand over 2 days (48 Hours) = 3736 gallons = 499.43 cft
499.43 cft < 54,039.66 cft (DCV) Harvest and Use is infeasible at this site.

Bioretention BMP (Partial Infiltration) Feasibility

The Geotechnical Due Diligence Exploration and Preliminary Design Recommendations dated September 29, 2025 by SA Geotechnical states: "Considering that the site is underlain by fine-grained artificial fill material overlying expansive, fine-grained bedrock, and the presence of a relatively large perimeter slopes along the eastern and southern property boundaries, infiltration of stormwater is not considered feasible at the site from a geotechnical viewpoint and may contribute to unforeseen geotechnical hazards."

In addition to the Geotechnical findings above, the NRCS Web Soil Survey and the Orange County Infiltration Study Figure XIV-2a determines the site has Type C and D Soils making infiltration infeasible.

Biotreatment BMP (Bioretention with Underdrain and Impervious Liner) Feasibility

In order to use a traditional bioretention system without infiltration a basin would need to be constructed at the downstream end of the storm drain system. Due to the sloping nature of the site, the downstream end of the site is significantly lower than the upstream portion of the site. The point of connection to existing storm drain does not allow for an at grade basin.

5.1.1 Hydrologic Source Controls

Hydrologic source controls (HSCs) will be used to the maximum extent feasible. Volume reduction is not being calculated for the implementation of HSCs as the reduction would be minimal and the site's soil characteristics are not suitable for stormwater retention to achieve volume reduction. Water quality requirements will be fully fulfilled by the proprietary biofiltration vaults and detention system.

HSC-1 Localized On-Lot Infiltration
Infeasible because discharging concentrated sheet flow directly onto the ground surface causes localized water pooling and saturation. On clayey soils, this triggers severe soil swelling and foundation destabilization.

HSC-2 Impervious Area Dispersion
Impervious Area Dispersion (HSC-2) is considered technically infeasible for this site due to the presence of clayey silt, silty clay, clayey sand, over bedrock. These soils are soils are characterized by low infiltration capacities and very low water transmission rates.

HSC-3 Street Trees
Trees will be planted in the common spaces, including the garden courts, paseos between townhomes and along parking areas.

HSC-4 Residential Rain Barrels
There is not sufficient irrigation demand to make rain barrels feasible.

HSC-5 Green Roof/Brown Roof
Green/brown roofs are not part of the structural and architectural design at this time.

HSC-6 Self Retaining Areas
None of the DMA's are self retaining, they all create more runoff than the natural condition.

5.1.2 Structural LID BMP

The project site in its existing condition is made up of five (5) large office buildings and surface parking lots. The soil on site is Type C and D soils and not suitable for infiltration. Therefore, BMPs designed for full or partial infiltration are not applicable or appropriate.

The project LID selection and sizing criteria is the following, "Third Priority – Biotreatment with Negligible Retention".

LID BMPs must be implemented that are designed to meet the following criteria:
1) Maximize volume retention through the incorporation of all applicable HSCs.

Note: Due to their more distributed nature, some HSCs may allow incidental volume reduction in marginal conditions where no volume reduction is permissible within LID BMPs.

AND
2) Size biotreatment BMPs to meet one of the following equivalent criteria:

d) Treat 1.5 times the DCV.

OR

e) Treat 80 percent of average annual runoff volume, and apply a multiplier of 1.5 to the resultant required volume and footprint.

OR

f) Design a biofiltration BMP that has a static biofiltration volume (bowl volume plus media pore spaces) of at least 0.75 times the DCV.

NOTE: Option (d) and (e) do not have a specific static storage volume requirement and allow routing to be considered; Option (f) specifies a minimum static storage volume and does not require or allow routing to be considered

The following BMP was selected based on site constraints and infiltration feasibility:
BIO-7: Proprietary Biotreatment, see Attachment G for fact sheet.

The BMP sizing methodology used was based on the "Biotreatment with No Infiltration" category for a proprietary compact biofiltration system. See Worksheet 9: Flow-Based Compact Biofiltration with Supplemental Retention Method for sizing calculations of the biofiltration system.

Biofiltration BMPs are a class of structural BMPs that treat suspended solids and dissolved pollutants in storm water using mechanisms characteristic of biologically active systems. These BMPs are considered treat and release facilities and include treatment mechanisms that employ soil microbes and plants. To address the project's pollutants of concern, a proprietary biotreatment BMP, Modular Wetland Systems (MWS) will be utilized with a nutrient sensitive media, which will allow the units to provide a medium to high level of effectiveness at removing the project's storm water pollutants. The MWS units are Washinton State Technology Acceptance Protocol Ecology (WA TAPE) approved proprietary biofiltration (BIO-5) devices that provide biofiltration through horizontal flow. The Modular Wetland System (MWS) Biofiltration vaults are designed to provide a 3-phase treatment train.

Initially, when the stormwater enters the system, a trash rack, filter media and settling chamber will capture large trash/ debris and sediment in the stormwater before entering the planting media. This system is designed to treat stormwater flow horizontally. Before the stormwater enters the planting or "wetland" chamber, the runoff flows through the 2nd phase, a pre-filter cartridge which captures fines TSS, metals, nutrients, and bacteria. The pre-filter chamber eliminates additional maintenance of the planting area. The wetland chamber is the 3rd phase of the system which provides final treatment through a combination of physical, chemical, and biological processes.

The biofiltration system will include 20 MWS Linear units (one in each DMA). The units will provide decentralized treatment to collected street, common area, and roof drain flows. Treated flows will then be conveyed to the main storm drain system for detention prior to controlled discharge into the existing storm at the southeast corner of the site.

5.2 Summary of LID BMPs

Water quality requirements for the project are met by the use of Modular Wetland Units (MWS). The following table summarizes the total water quality flow by the drainage area. See Attachment C, Worksheet 9 for detailed calculations.

LID BMP Design Parameters

Drainage Area Name	Area (ac)	Imperviousness	$I_{design,80\%}$ (in/hr)	$Q_{80\%}$ (cfs)	Q_{design} (cfs)	MWS Model	$Q_{provided}$ (cfs)
1	1.522	90%	0.26	0.3265	0.4898	L-8-16-3.65	0.496
2	1.606	90%	0.26	0.3444	0.5167	L-8-16-3.85	0.523
3	1.510	90%	0.26	0.3239	0.486	L-8-16-3.65	0.496
4	0.904	90%	0.26	0.1938	0.2907	L-8-12-3.4	0.346
5	2.065	90%	0.26	0.4429	0.6644	L-8-20-3.95	0.671
6	0.656	90%	0.26	0.1406	0.2110	L-8-8-3.4	0.231
7	1.991	90%	0.26	0.4270	0.6405	L-8-20-3.85	0.654
8	1.114	90%	0.26	0.2389	0.3583	L-8-12-3.6	0.367
9	1.260	90%	0.26	0.2703	0.4055	L-8-16-3.4	0.462
10	2.090	90%	0.26	0.4484	0.6825	L-8-24-3.4	0.693
11	0.436	90%	0.26	0.0936	0.1404	L-6-8-3.4	0.147
12	0.784	90%	0.26	0.1682	0.2524	L-8-8-3.75	0.255
13	0.681	90%	0.26	0.1460	0.2191	L-8-8-3.4	0.231
14	0.575	90%	0.26	0.1234	0.1851	L-8-8-3.4	0.231
15	0.620	90%	0.26	0.1929	0.1994	L-8-8-3.4	0.231
16	0.277	90%	0.26	0.0595	0.0892	L-4-8-3.4	0.115

17	1.761	90%	0.26	0.3777	0.5665	L-8-20-3.4	0.577
18	0.270	90%	0.26	0.0580	0.0870	L-4-8-3.4	0.115
19	0.442	90%	0.26	0.0947	0.1421	L-6-8-3.4	0.147
20	1.992	90%	0.26	0.4271	0.6408	L-8-20-3.85	0.654

Section 6 Hydromodification BMPs

6.1 Points of Compliance

The entire project site drains to an existing 30-inch storm drain pipe on the southeastern corner of the property. The 30-inch storm drain conveys runoff to Windsong where it connects into a 36-inch storm drain. Runoff is conveyed towards Aliso Creek Road where it enters a 42-inch pipe and continues south along Cedarbrook into a 60-inch pipe which extends into Aliso Viejo Community Park and discharges into Aliso Creek. The drainage flows along Aliso Creek Channel, through Aliso Creek (mouth) to the Pacific Ocean Shoreline at Aliso Creek Mouth. Aliso Creek Channel, Aliso Creek (mouth) and the Pacific Ocean Shoreline at Aliso Creek Mouth are all considered natural drainage conveyance systems to some extent and therefore causes a hydraulic condition of concern.

6.2 Pre-Development (Natural) Conditions

The site is currently developed with 5 office buildings and surface parking. In the natural (pre-development) condition the site was barren, covered with open brush. The site was naturally composed of steep slopes.

6.3 Post-Development Conditions and Hydromodification BMPs

In the post-development condition the site is estimated to be 90% impervious with flatter slopes. The detention vaults serve as hydromodification BMPs. The stormwater leaving the site at the proposed point of connection will be controlled by an orifice plate.

6.4 Measures for Avoidance of Critical Coarse Sediment Yield Areas

The project is a redevelopment project and thus not subject to critical coarse sediment provision. Additionally, the project does not lie in a critical coarse sediment region (Attachment D2)

6.5 Hydrologic Modeling and Hydromodification Compliance

The South Orange County Hydromodification Management Plan (SOCHM) establishes criteria to ensure that new development and redevelopment projects do not increase downstream erosion, sedimentation, or habitat degradation due to altered stormwater flow. Projects that create or replace one acre or more of impervious surface must evaluate post-project runoff against pre-project (natural) conditions. Projects that discharge into unstabilized/ earthen channels are subject to hydromodification requirements which require mitigation of the 2-through 10-year storm event. Where feasible, reducing stormwater flows to natural conditions is achieved through on-site retention/detention facilities or other low-impact development (LID) practices. The Orange County Hydrology Model (SOHM) was utilized to design and size the proposed hydromodification facilities. SOHM is an Hydrological Simulation Program FORTRAN (HSPF) watershed model that

has been calibrated to natural and developed condition subwatersheds in south Orange County. The Laguna Beah meteorological station is the station that was utilized for the analysis of the proposed site. SOHM defines the pre-developed (natural) condition as pre-development and defines the post – developed condition as mitigated.

The site drains out to one point of connection and was modeled as one basin in the program. The natural conditions of the site were input into the SOHM software as "Open Brush, Steep" and 100% pervious. The proposed condition was input as 90% impervious (5%-10% slopes) and 10% "Urban Flat" (0%-5% slopes). A vault was modeled through an iterative process to determine the required detention volume for a reduction of stormwater flows to the natural condition. Compliance is defined as not exceeding the natural runoff flow rates and durations by more than 10% of the time, for flow rates from 10% of the 2 year flowrate up to the 10 year flow rate. The flows will be detained in an underground vault and released through an orifice opening which was also sized through the SOHM model. The vault will be approximately 8-feet deep, 8-feet wide, and 1500-feet long. The orifice will be approximately 4 inches. The full SOCHM model results can be found in Attachment C.

Section 7 Educational Materials Index

For applicable educational materials refer to https://h2oc.org

Educational Materials			
Residential Material (https://h2oc.org)	**Check If Applicable**	**Business Material (https://h2oc.org)**	**Check If Applicable**
The Ocean Begins at Your Front Door	☒	Tips for the Automotive Industry	☐
Tips for Car Wash Fund-raisers	☒	Tips for Using Concrete and Mortar	☐
Tips for the Home Mechanic	☒	Tips for the Food Service Industry	☐
Homeowners Guide for Sustainable Water Use	☒	Proper Maintenance Practices for Your Business	☐
Household Tips	☒	Compliance BMPs for Mobile Businesses	☐
Proper Disposal of Household Hazardous Waste	☒	**Other Material**	**Check If Attached**
Recycle at Your Local Used Oil Collection Center (North County)	☐		
Recycle at Your Local Used Oil Collection Center (Central County)	☐		☐
Recycle at Your Local Used Oil Collection Center (South County)	☒		☐
Tips for Maintaining a Septic Tank System	☐		☐
Responsible Pest Control	☒		☐
Sewer Spill	☐		☐
Tips for the Home Improvement Projects	☒		☐
Tips for Horse Care	☐		☐
Tips for Landscaping and Gardening	☒		☐
Tips for Pet Care	☒		☐
Tips for Projects Using Paint	☒		☐

Attachment A: Educational Materials

Educational materials are available at https://h2oc.org/

Attachment B: Operations and Maintenance Plan

To be included during final engineering

Attachment C: Calculations and Worksheets

Attachment C1: Orange County Technical Guidance Document Worksheet 01 Infiltration Feasibility Categorization

Attachment C2: Orange County Technical Guidance Document Worksheet 09 Flow-Based Compact Biofiltration Method

Attachment C3: South Orange County Hydrologic Model Hydromodification Sizing Calculations

Attachment D: Supporting Exhibits

Attachment D1: Conceptual Detail

Attachment D2: SA Geotechnical *Due Diligence Exploration and Preliminary Design Recommendations*

Attachment D3: USDA NRCS Custom Soil Resource Report and Site Specific Geotechnical Investigation

Attachment D4: Southern Orange County TGD Critical Coarse Sediment Map

Attachment D5: OCTGD Figure XVI-1 Rainfall Zones Design Capture Storm Depth Map

Attachment D6: OCTGD Worksheet D Capture Efficiency Method for Flow Based BMPs

Attachment D7: OCTGD BIO-5/BIO-7 Proprietary Biotreatment BMP Checklist

Attachment D8: Modular Wetland System Linear Details

Attachment D9: Urban Pond Vault Details