

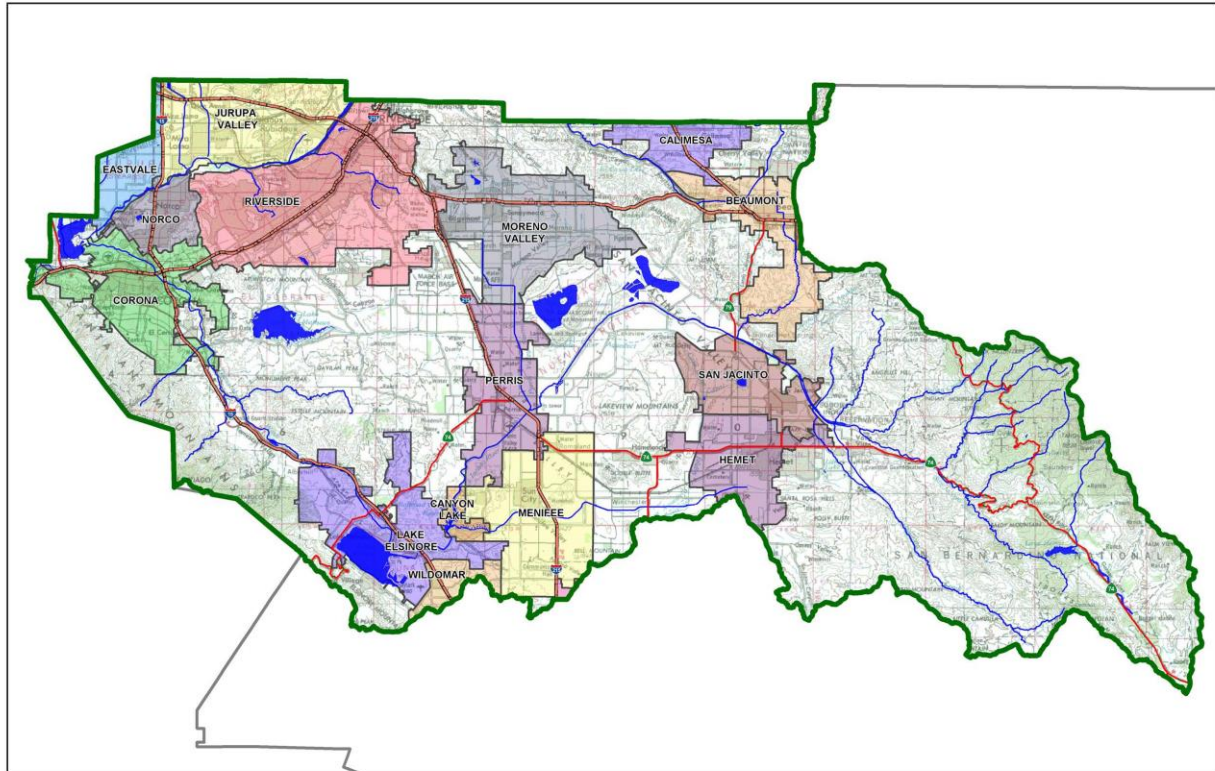
Project Specific Water Quality Management Plan

A Template for Projects located within the **Santa Ana Watershed** Region of Riverside County

Project Title: Quail Run Apartments

Public Works No: _____

Design Review/Case No: P14-_____



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- ☒ Preliminary
☐ Final

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Prepared for Compliance with

*Regional Board Order No. **R8-2010-0033***

OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for Alfa Investments by SDH & Associates, Inc. for the Quail Run Apartments Project.

This WQMP is intended to comply with the requirements of the City of Riverside for the design review of a 220 unit apartment project which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under City of Riverside Water Quality Ordinance (Municipal Code Section 14.12.315).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature

Date

Owner's Printed Name

Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. **R8-2010-0033** and any subsequent amendments thereto."

Preparer's Signature

Date

Preparer's Printed Name

Preparer's Title/Position

Preparer's Licensure:

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Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Apartment
Planning/Zoning Area:	Existing: CR S-2-SP Proposed: CR S-2-SP
Community Name:	Canyon Crest/Quail Run
Development Name:	Quail Run Apartments
PROJECT LOCATION	
Latitude & Longitude (DMS): 33°57'21"N - 117°19'22"W	
Project Watershed: Santa Ana River	
Sub-Watershed: Tequesquite Arroyo / East Etiwanda Creek	
APN(s): 253-240-028-6, 253-240-028-8	
Map Book and Page No.: Page 686 Grid: E7 & F7	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Apartment
Proposed or Potential SIC Code(s)	N/A - Residential
Area of Impervious Project Footprint (SF)	263,345
Total Area of <u>proposed</u> Impervious Surfaces within the Project Limits (SF)/or Replacement	263,345
Does the project consist of offsite road improvements?	☐ Y ☒ N
Does the project propose to construct unpaved roads?	☐ Y ☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y ☒ N
EXISTING SITE CHARACTERISTICS	
Total area of <u>existing</u> Impervious Surfaces within the project limits (SF)	No existing imp. area
Is the project located within any MSHCP Criteria Cell?	☐ Y ☒ N
If so, identify the Cell number:	
Are there any natural hydrologic features on the project site?	☐ Y ☒ N
Is a Geotechnical Report attached?	☒ Y ☐ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	See Appendix 3
What is the Water Quality Design Storm Depth for the project?	0.59

A.1 Maps and Site Plans

Appendix 1 includes a map of the local vicinity and existing site as well as the WQMP Site Plan, which includes the following:

- Drainage Management Areas
- Proposed Structural BMPs
- Drainage Path
- Drainage Infrastructure, Inlets and Overflows
- Source Control BMPs
- Buildings, Rooflines and Downspouts
- Impervious Surfaces
- Standard Labeling

A.2 Identify Receiving Waters

In order of upstream to downstream, the receiving waters that this project is tributary to are as follows:

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
Santa Ana River	Pathogens	AGR, GWR, REC1, REC2, WARM, WILD, RARE	Approx. 11 mi.

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☒ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other (please list in the space below as required) City of Riverside Grading Permit City of Riverside Building Permit	☒ Y	☐ N

Section B: Optimize Site Utilization (LID Principles)

Site Optimization

Does the project identify and preserve existing drainage patterns? If so, how? If not, why?

There is an existing drainage course through the center of the site created by offsite runoff. This area, as well as any areas which have been deemed biologically sensitive have been completely avoided. See delineation of biologically sensitive areas on BMP Site Plan and Biology Report in Appendix 4.

Does the project identify and protect existing vegetation? If so, how? If not, why?

All vegetation which is potentially jurisdictional or may be considered "riparian" has been protected. See Biology Report in Appendix 4.

Does the project identify and preserve natural infiltration capacity? If so, how? If not, why?

The site has been designed with as little impervious area as possible and large landscape areas that will be used for infiltration. Runoff from this site will be treated solely by infiltration and other forms of natural drainage.

Does the project identify and minimize impervious area? If so, how? If not, why?

Impervious areas are only used where absolutely necessary (ie. Buildings, parking and walking areas). There is very little hardscape proposed in the landscape areas. For further detail please refer to the attached site map and calculations.

Does the project identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

All runoff is routed to a pervious landscaped area or infiltration basin where it will infiltrate into the ground. This site does not discharge any water into the storm drain.

Section C: Delineate Drainage Management Areas (DMAs)

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s) ¹	Area (Sq. Ft.)	DMA Type
DMA 1	Mixed	284,547	Type 'C'
DMA 2	Mixed	101,396	Type 'C'
DMA 3	Ornamental Landscaping	48,651	Type 'C'
DMA 4	Mixed	31,277	N/A
DMA 5	Mixed	112,510	N/A
DMA 6	Ornamental Landscaping	6,107	Type 'C'
Infiltration Basin No. 1	Natural (B Soil)	16,868	Type 'A'
Infiltration Basin No. 2	Natural (B Soil)	6,432	Type 'A'

¹Reference Table 2-1 in the WQMP Guidance Document to populate this column

Table C.2 Type 'A', Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
Infiltration Basin No. 1	16,868	Native Landscaping	None
Infiltration Basin No. 2	6,432	Native Landscaping	None

Table C.3 Type 'B', Self-Retaining Areas

Self-Retaining Area				Type 'C' DMAs that are draining to the Self-Retaining Area		
DMA Name/ ID	Post-project surface type	Area (square feet)	Storm Depth (inches)	DMA Name / ID	[C] from Table C.4 =	Required Retention Depth (inches)
		[A]	[B]		[C]	[D] = B + B*(C/A)
Infiltration Basin No. 1	Natural (B Soil) – Native Landscaping	16,868	0.59	D.M.A. 1	150,810	5.9
				D.M.A. 3	5,352	0.6
Infiltration Basin No. 2	Natural (B Soil) – Native Landscaping	6,432	0.59	D.M.A. 2	50,418	5.2
				D.M.A. 6	672	0.7

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet)	Post-project surface type	Runoff factor	Product	DMA name /ID	Area (square feet)	Ratio
	[A]		[B]	[C] = [A] x [B]		[D]	[C]/[D]
D.M.A. 1	284,547	Mixed	0.53	150,810	Infiltration Basin No. 1	16,868	9
D.M.A. 3	48,651	Ornamental Landscaping	0.11	5,352	Infiltration Basin No. 1	16,868	9
D.M.A. 2	100,836	Mixed	0.50	50,418	Infiltration Basin No. 2	6,432	8
D.M.A. 6	6,106	Ornamental Landscaping	0.11	672	Infiltration Basin No. 2	6,432	0.1

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
N/A	

Note: More than one drainage management area can drain to a single LID BMP, however, one drainage management area may not drain to more than one BMP.

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (ref: Chapter 2.4.4 of the WQMP Guidance Document)? ☒ Y ☐ N

Geotechnical Report

A Geotechnical Report is required by the City of Riverside to confirm present and past site characteristics that may affect the use of Infiltration BMPs, see Appendix 3.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

Infiltration Feasibility

Table D.1 Infiltration Feasibility

Does the project site...	YES	NO
...have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
...have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
...have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
...have measured in-situ infiltration rates of less than 1.6 inches / hour?		X
If Yes, list affected DMAs:		
...have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
...geotechnical report identify other site-specific factors that would preclude effective and safe infiltration?		X
Describe here:		

Note: All infiltration rates were taken at the proposed infiltration basin elevations, not the existing ground.

D.2 Harvest and Use Assessment

The following condition applies:

- ☐ Reclaimed water will be used for the non-potable water demands for the project.
- ☐ Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the City of Riverside).
- ☒ The Design Capture Volume will be addressed using Infiltration Only BMPs. (Harvest and Use BMPs are still encouraged, but are not be required as the Design Capture Volume will be infiltrated or evapotranspired.)

Harvest and Use BMPs need not be assessed for the site.

Irrigation Use Feasibility

Step 1: *Total Area of Irrigated Landscape:* N/A

Type of Landscaping (Conservation Design or Active Turf): N/A

Step 2: *Total Area of Impervious Surfaces:* N/A

Step 3: *The Project EIATIA factor:* N/A

Step 4: *Minimum required irrigated area:* N/A

Step 5:

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
N/A	N/A

Toilet Use Feasibility

Step 1: *Projected Number of Daily Toilet Users:* N/A

Project Type: N/A

Step 2: *Total Area of Impervious Surfaces:* N/A

Step 3: *The Project TUTIA factor:* N/A

Step 4: *Minimum number of toilet users:* N/A

Step 5:

Minimum required Toilet Users (Step 4)	Projected number of toilet users (Step 1)
N/A	N/A

Other Non-Potable Use Feasibility

N/A

Step 1: *Average Daily Demand:* N/A

Step 2: *Total Area of Impervious Surfaces:* N/A

Step 3: *The Project factor:* N/A

Step 4: *Minimum required use:* N/A

Step 5:

Minimum required non-potable use (Step 4)	Projected average daily use (Step 1)
N/A	N/A

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

For this project, the following applies:

☒ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4.

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5.

D.4 Feasibility Assessment Summaries

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
D.M.A. 1	☒	☐	☐	☐	☐
D.M.A. 2	☒	☐	☐	☐	☐
D.M.A. 3	☒	☐	☐	☐	☐
D.M.A. 6	☒	☐	☐	☐	☐

Based on the favorable infiltration rates of the Type B soil on this site, infiltration BMPs are feasible for the treatment of stormwater on this site. To reduce urban runoff, hardscape has been minimized and is only used where absolutely necessary. Typical design will include a vegetated swale around the perimeter of each apartment building to intercept any runoff from the roof and surrounding impervious walkways. These swales will lead to a nearby catch basin, which will route runoff to one of the two infiltration basins at the base of the 2:1 slope.

BMP NAME	Contributing DMAs	Avg. Area (ft ²)	Depth (in)	V _{BMP} (ft ³)	V _{PROPOSED} (ft ³)
Infiltration Basin 1	D.M.A. 1 & 3	11,398	2.8	7,843	31,913
Infiltration Basin 2	D.M.A. 2 & 6	3,788	2.5	2,564	9,469
* Note: Avg. Area = (top of basin slope + bottom of basin slope) / 2					

D.5 LID BMP Sizing

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Enter BMP Name / Identifier Here		
	[A]		[B]	[C]	[A] x [C]			
D.M.A. 1	284,547	Mixed	0.74	0.53	151,753	Infiltration Basin No. 1		
D.M.A. 3	48,651	Ornamental Landscaping	0.1	0.11	5,374	Infiltration Basin No. 1		
Infiltration Basin No. 1	14,017	Natural (Type B Soil)	0.15	0.14	1,983	Infiltration Basin No. 1		
						Design Storm Depth (in)	Design Capture Volume (cubic feet)	Proposed Volume (cubic feet)
	$A_T = \Sigma[A] =$ 347,215				$\Sigma = [D] =$ 159,110	[E] = 0.59	[F]=[DxE]/12 = 7,823	[G] = 31,913

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Enter BMP Name / Identifier Here		
	[A]		[B]	[C]	[A] x [C]			
D.M.A. 2	100,836	Mixed	0.708	0.50	50,570	Infiltration Basin No. 2		
D.M.A. 6	6,106	Ornamental Landscaping	0.1	0.11	675	Infiltration Basin No. 2		
Infiltration Basin No. 2	6,432	Natural (Type B Soil)	0.15	0.14	910	Infiltration Basin No. 2		
						Design Storm Depth (in)	Design Capture Volume (cubic feet)	Proposed Volume (cubic feet)
	$A_T = \Sigma[A] =$ 113,374				$\Sigma = [D] =$ 52,154	[E] = 0.59	[F]=[DxE]/12 = 2,564	[G] = 9,469

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Regional Board). For this project, the following applies:

☒ LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- Or -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Regional Board and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

This Project has been broken up into 6 Drainage Management Areas based on the proposed grades and surface types. D.M.A. 1&2 contain all of the proposed hardscape. D.M.A. 1 is approximately 31% pervious (87,400 s.f.) and 69% impervious (197,147 s.f.). Runoff from D.M.A 1 will be routed around the proposed apartment buildings via various swales and will eventually be intercepted by a catch basin where it will be piped down the proposed 2:1 slope (to avoid erosion of the slope) and into Infiltration Basin 1. D.M.A. 3, a 48,650 s.f. portion of the 2:1 slope will also flow to Infiltration Basin 1. All of the proposed slopes onsite will be heavily landscaped in order to reduce the coefficient of runoff. The site also incorporates native, drought tolerant landscaping, which requires very little irrigation (drip lines recommended) and will not contribute any landscape irrigation runoff.

D.M.A. 2 is approximately 34% pervious (34,638 s.f.) and 66% impervious (66,198 s.f.). Runoff from D.M.A 2 will also be routed around the proposed apartment buildings via various swales and will eventually be intercepted by a catch basin where it will be piped down the proposed 2:1 slope into Infiltration Basin 2. D.M.A. 6, a 6,106 s.f. portion of the 2:1 slope will also flow to Infiltration Basin 2.

The remaining two Drainage management areas, DMA 5 & 4, will flow overland to the flat impervious area below the pad area to infiltrate naturally. DMA 5 is 100% pervious and DMA 4 is 84% pervious.

The two basins have been placed at a high enough elevation that they will have an adequate amount of time to treat the “first flush” of an 85th percentile storm event before the water level of the RCFC reaches them.

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The City of Riverside has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

HCOC EXEMPTION 2: The volume and time of concentration¹ of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the City of Riverside

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (Prado Dam and Santa Ana River) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Sensitivity Maps.

Table F.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	Post-condition	% Difference
Time of Concentration	19.5	10	51% Reduction
Volume (Cubic Feet)	159,054	461,371	290% Increase

Pre vs. Post Calculation

$$I_{2\text{yr}-24\text{hr}} = 1.5 \text{ in/hr}$$

	Pre-Condition	Post-Condition
Coefficient of Runoff, C	0.2	0.58
Rainfall Intensity, in/hr	1.5	1.5
Precipitation, in	1.74	1.74
Project Area, A (ac)	11	11
Peak Flow, Q (CFS)	3	10
Volume, V (ac-ft)	0.33	0.94
Volume, V (ft³)	159094	461371

Obtained from RCFC Hydrology Manual
Obtained from NOAA rain gauge

Does the project qualify for this HCOC Exemption? ☒ Y ☐ N

All downstream conveyance channels to the Santa Ana River. This site is unique in that it is located adjacent to a large Riverside county Flood Control Detention Basin. This basin is regularly maintained and the level of the basin is controlled by an outlet structure which is operated by Flood control during large storm events. The proposed infiltration basins are designed to treat the “first flush” of runoff. Larger, long duration storm events, which generate a quantity of runoff which exceeds the capacity of the basins, will simply flow overland beyond the project boundary and into the RCFC detention basin. While there is a significant fill on this site, the storage capacity of the basin will actually be increased when the borrow area is factored in. This basin capacity, access and navigation through flood controls “inundation easement” is being coordinated with Flood Control.

F.2 HCOC Mitigation

As an alternative to the HCOC Exemption Criteria above, HCOC criteria is considered mitigated if the project meets one of the following conditions, as indicated:

- ☐ Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.
- ☐ The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.
- ☐ Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.
- ☒ None of the above

Section G: Source Control BMPs

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
Landscape/ Outdoor Pesticide Use	Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained. Show self-retaining landscape areas, if any. Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. (See Landscape plan) Consider using pest-resistant plants, especially adjacent to hardscape. To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions	Maintain and periodically repaint or replace inlet markings. Provide stormwater pollution prevention information to new site owners, lessees, or operators. See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
Plazas, Sidewalks, and Parking Lots		Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain
Pools, spas, ponds, decorative fountains, and other water features.	Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)	See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
Fire Sprinkler Test Water	Provide a means to drain fire sprinkler test water to the sanitary sewer.	See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

Section H: Construction Plan Checklist

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan	Approximate Coordinates
Infiltration Basin No. 1	Means of treatment for D.M.A.s 1 & 3 Proposed Volume 31,913 ft ³	WQMP Site Plan	33°57'22"N -117°49'27"W
Infiltration Basin No. 1	Means of treatment for D.M.A.s 2 & 6 Proposed Volume 9,469 ft ³	WQMP Site Plan	33°57'44"N -117°19'30"W

Section I: Operation, Maintenance and Funding

As required by the City of Riverside, the following are Operation, Maintenance and Funding details are provided as summarized:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance.

See Appendix 9 for a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on site, and an agreement assigning responsibility for maintenance and providing for inspections and certification.

Maintenance Mechanism: See Appendix 9

Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

☒ Y ☐ N

An Operation and Maintenance Plan and Maintenance Mechanism is included in Appendix 9. Educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP are included in Appendix 10.

Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map

Appendix 2: Construction Plans

Grading and Drainage Plans

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

Pre vs. Post Calculation

$$I_{2\text{yr-}24\text{hr}} = 1.5 \text{ in/hr}$$

	Pre-Condition	Post-Condition
Coefficient of Runoff, C	0.2	0.58
Rainfall Intensity, in/hr	1.5	1.5
Precipitation, in	1.74	1.74
Project Area, A (ac)	11	11
Peak Flow, Q (CFS)	3	10
Volume, V (ac-ft)	0.33	0.94
Volume, V (ft ³)	159094	461371

Obtained from RCFC Hydrology Manual

Obtained from NOAA rain gauge

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

Appendix 10: Educational Materials

Appendix of Included Materials

- *RCFC Homeowner Education Material*
- *SD-10 – Site Design and Landscape Planning*
- *SD-11 – Roof Runoff Controls*
- *SD-12 – Efficient Irrigation*
- *SD-13 – Storm Drain Signage*
- *TC-11 – Infiltration Basin*
- *TC-30 – Vegetated Swale*
- *TC-31 – Vegetated Buffer Strip*