



Thienes Engineering, Inc.

CIVIL ENGINEERING • LAND SURVEYING

**PROJECT SPECIFIC PRELIMINARY
WATER QUALITY MANAGEMENT PLAN
(P-WQMP)**

FOR:

Sycamore V

6275 Lance Drive, Riverside, CA

APN: 263-020-003 through -006, 263-300-001 through -006 and 263-300-025, -029, -030,
-033, -034, -035, -036

PREPARED FOR:

Hillwood Investments

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December 14, 2015 r1

March 1, 2016 r2

June 7, 2016 r3

Job No. 3261b

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WATER QUALITY MANAGEMENT PLAN
(P-WQMP)**

FOR

“Sycamore V”

PREPARED BY VICKY LI
UNDER THE SUPERVISION OF




REINHARD STENZEL DATE 6/7/16
R.C.E. 56155
EXP. 12/31/16

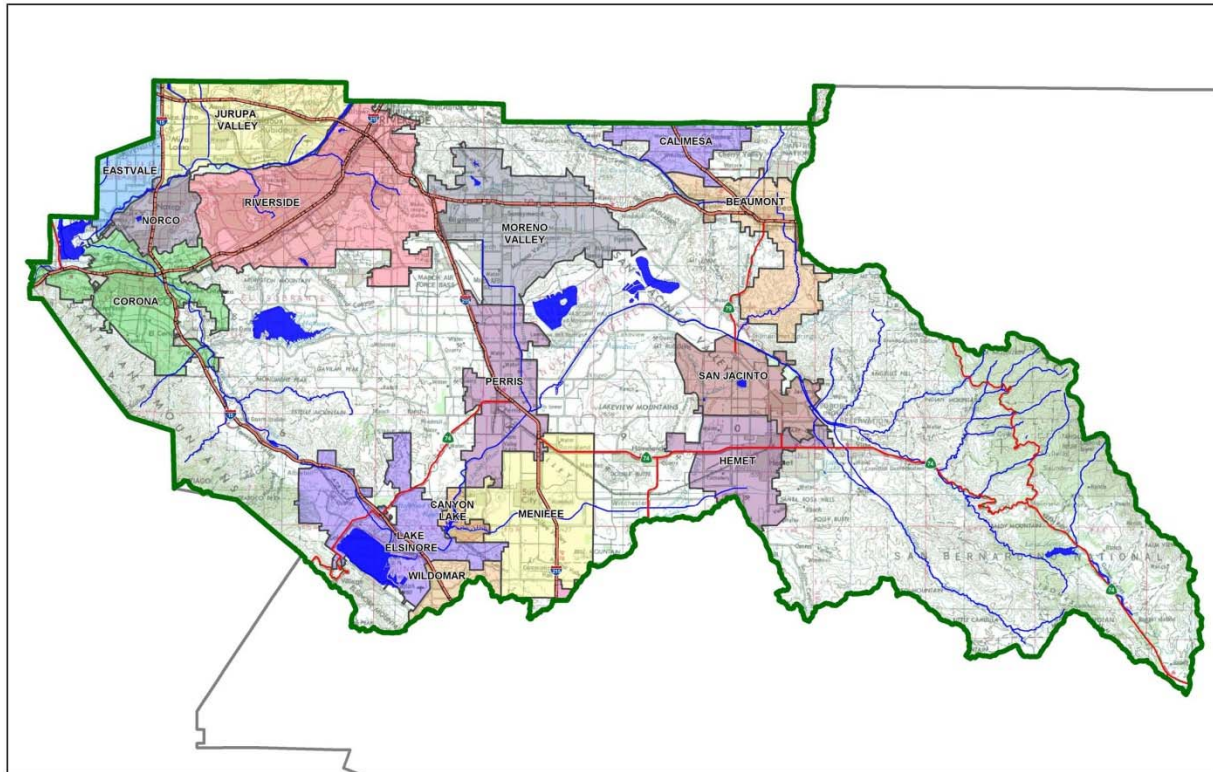
Project Specific Water Quality Management Plan

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

Project Title: Sycamore V

Development No: APN: 263-020-003 through -006, 263-300-001 through -006 and 263-300-025, -029, -030, -033, -034, -035, -036

Design Review/Case No: P14-1081, -1082



- ☒ Preliminary
☐ Final

Original Date Prepared: December 14, 2015 r1

Revision Date(s): March 1, 2016 r2

June 7, 2016 r3

Prepared for Compliance with

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

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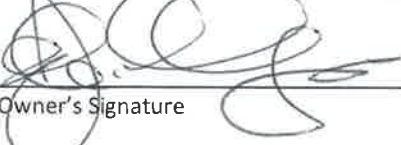
OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for **Hillwood Investments** by **Thienes Engineering, Inc.** for the **Sycamore V (P14-1081)** project.

This WQMP is intended to comply with the requirements of **City of Riverside** for **P14-1081** 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 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
John Magness

Owner's Printed Name

6/7/16

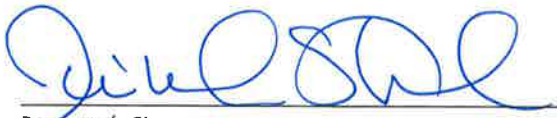
Date
Senior Vice President

Owner's Title/Position

HL

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
Reinhard Stenzel

Preparer's Printed Name

6/7/16

Date
Director of Engineering

Preparer's Title/Position

Preparer's Licensure:



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Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Light Industrial
Planning Area:	Ward 2
Community Name:	Sycamore Canyon/Canyon Springs
Development Name:	Sycamore V
PROJECT LOCATION	
Latitude & Longitude (DMS): 33.938828, - 117.308522	
Project Watershed and Sub-Watershed: Santa Ana River	
APN(s): 263-020-003 through -006, 263-300-001 through -006 and 263-300-025, -029, -030, -033, -034, -035, -036	
Map Book and Page No.: BK.263 PG.02 and PG.30	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Light Industrial
Proposed or Potential SIC Code(s)	1541
Area of Existing Impervious Project Footprint (SF)	0
Total Area of <u>proposed</u> Impervious Surfaces within the Project Limits (SF)/or Replacement	3,136,320 (72.0 acres)
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)	0
Is the project located within any MSHCP Criteria Cell?	☐ Y ☒ N
If so, identify the Cell number:	N/A
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)	Geotechnical Report available in Appendix 3
What is the Water Quality Design Storm Depth for the project?	0.60
PROJECT DESCRIPTION	
The project site is located on the west side of Lance Drive, north of Sierra Ridge Drive, south of Dan Kipper Drive in the City of Riverside, California. The project site encompasses approximately 72 acres. Proposed improvements to the site consist of two commercial buildings of approximately 1,012,995 square feet for Building 1 and 362,174 square feet for Building 2. There will be truck yards and vehicle parking lots adjacent to each building. The remainder of the site will be reserved for landscaping. A public storm drain in Lance Drive will be constructed to convey runoff from the project site and the north-westerly offsite residential development to an existing storm drain southeast of the site. Per the Sycamore Canyon Business Park Onsite Hydrology Map and as-built storm drain plans by Albert A. Webb Associates, the project site and its vicinity are tabled to a 120-inch public storm drain in Eastridge Avenue approximately 1,250 feet south of the site. An existing public storm drain in Lance Drive, tributary to the 120-inch Eastridge Avenue storm drain, is not adequately sized to carry discharge from the project site. Therefore, another public storm drain traversing from the site to the 120-inch storm drain will be built to convey runoff from the project site and the offsite residential development. Runoff from the site will enter an existing "marsh" which was designed under the previous permit to treat runoff from the proposed project. Under the updated NPDES MS4 Permit and Riverside County LID Handbook for Santa Ana River Watershed, the existing "marsh" is not a Low Impact Development (LID) BMP. The "marsh" will still meet the requirements of treating the DCV and mitigating the HCOC, but the site will also be required to provide 10% of the developed area for implementation of LID BMP principles. In addition, site design BMPs (self-treating landscape) will be	

provided throughout the site to the Maximum Extent Practicable (MEP).

A.1 Maps and Site Plans

Appendix 1 includes a map of the local vicinity and existing site. In addition, the WQMP Site Plan, located in Appendix 1, includes the following:

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

A.2 Identify Receiving Waters

A map of the receiving waters is included in Appendix 1.

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, Reach 3	Nitrate, Pathogens, Copper, and Lead	AGR, GWR, REC1, REC2, WARM, WILD, RARE	4 miles

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	☒ Y	☐ N
Other (please list in the space below as required) City of Riverside Building Permit	☒ Y	☐ N

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Section B: Optimize Site Utilization (LID Principles)

Site Optimization

Identify and preserve existing drainage patterns. If so, how? If not, why?

- *There are no creeks, wetlands, or riparian habitats to preserve.*
- *Existing drainage patterns flow southerly towards a neighboring property and easterly towards Lance Drive. Proposed condition drainage patterns mimic pre-development conditions.*

Identify and protect existing vegetation. If so, how? If not, why?

- *Not applicable, existing vegetation will be removed. Drought tolerant landscaping will be provided in designated areas.*
- *Not applicable, there are no sensitive areas.*

Identify and preserve natural infiltration capacity. If so, how? If not, why?

- *Infiltration is not recommended due to the existing underlying bedrock.*

Identify and minimize impervious area. If so, how? If not, why?

- *Impervious area on the site has been minimized to City standards.*
- *Due to the nature of the project site (large trucks), substitution of pavement for landscaping is not feasible. The project does not propose overflow parking where substitution of pavement for landscaping would be optimal. Landscaping has been provided wherever applicable and to the maximum extent practicable.*
- *The entire Design Capture Volume (DCV) is handled by the existing “marsh” that the project, and the neighboring businesses, has been paying into.*

Identify and disperse runoff to adjacent pervious areas. If so, how? If not, why?

- *Roof runoff is directed to the existing “marsh” for treatment.*
- *The site is not on a hillside.*
- *All stormwater runoff will be piped to the existing “marsh” for treatment. However, self-treating landscape areas will be utilized as site design BMPs to the maximum extent possible. Where applicable, runoff will enter the self-treating landscape areas for infiltration.*

Section C: Delineate Drainage Management Areas (DMAs)

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s) ¹	Area (Sq. Ft.)	Area (Acres)	DMA Type
DMA A	Roofs	1,375,169	31.57	Type D
DMA B	Concrete or Asphalt	987,506	22.67	Type D
DMA C	Ornamental Landscaping	307,937	7.07	Type D

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

The entire Design Capture Volume is handled by the existing “marsh” that the project, and the neighboring businesses, has been paying into. In addition, on-site self-treating landscaping will be provided where feasible.

Table C.2 Type ‘A’, Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
DMA D	465,708 (10.69 ac)	California Native Plants	Timed Sprinklers
n/a	n/a	n/a	n/a

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) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C.4 [C]	Required Retention Depth (inches) [D]
n/a	n/a	n/a	n/a	n/a	n/a	n/a

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

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] × [B]		[D]	[C]/[D]
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

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

DMA Name or ID	BMP Name or ID
DMA A	Marsh
DMA B	Marsh
DMA C	Marsh

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 (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? ☐ 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: Entire site is sitting on bedrock.		
...have measured in-situ infiltration rates of less than 1.6 inches / hour?	X	
If Yes, list affected DMAs: Entire site is sitting on bedrock.		
...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: Entire site is sitting on bedrock.		
...geotechnical report identify other site-specific factors that would preclude effective and safe infiltration?	X	
Describe here: Entire site is sitting on bedrock.		

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

D.2 Harvest and Use Assessment

Please check what 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 Copermittee).
- ☐ The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.
- ☒ Not Applicable (project is part of a larger common plan of development that has an existing "marsh" used as treatment)

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

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: 11.40 acres

Type of Landscaping (Conservation Design or Active Turf): Conservation design

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 56.55 acres

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: 0.79

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: 44.10 acres

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
44.67 (acres)	11.40 (acres)

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

- Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users: 975 (approximate # of parking stalls)

Project Type: Light Industrial

- Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 56.55 acres

- Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-2 in Chapter 2 to determine the minimum number of toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: 172

- Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: 9,726

- Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	Projected number of toilet users (Step 1)
9,726	975

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

N/A

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand: N/A

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: N/A

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-3 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-3: N/A

Step 4: Multiply the unit value obtained from Step 4 by the total of impervious areas from Step 3 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use: N/A

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

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

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment, unless a site-specific analysis has been completed that demonstrates technical infeasibility as noted in D.3 below.

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.

Select one of the following:

- ☐ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).
- ☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.
- ☒ Not Applicable (project is part of a larger common plan of development that has an existing “marsh” used as treatment). In addition, site design BMPs (self-treating landscape) will be implemented throughout the site to the Maximum Extent Practicable (MEP).

D.4 Feasibility Assessment Summaries

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				Alternative Compliance
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
DMA A	☐	☐	☐	☐	☒
DMA B	☐	☐	☐	☐	☒
DMA C	☐	☐	☐	☐	☒
DMA D	☒	☐	☐	☐	☐

The project is part of a larger common plan of development that has an existing “marsh” used as treatment. In addition, site design BMPs (self-treating landscape) will be implemented throughout the site to the MEP.

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	Design Storm Depth (in)	Design Capture Volume, V_{BMP} (cubic feet)	Proposed Volume on Plans (cubic feet)
	[A]		[B]	[C]	[A] x [C]			
DMA A	1,375,169	Roofs	1.00	0.89	1,226,650.7	0.6	61332.5	*See narrative below
DMA B	987,506	Concrete or Asphalt	1.00	0.89	880,855.4	0.6	44042.8	
DMA C	307,937	Ornamental Landscaping	0.10	0.11	34,014.1	0.6	1700.7	
	2,670,612				2,141,520	0.6	107,076.0	

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

* Runoff from the site will enter an existing “marsh” which was designed under the previous permit to treat runoff from the proposed project. Under the updated NPDES MS4 Permit and Riverside County LID Handbook for Santa Ana River Watershed, the existing “marsh” is not a LID BMP. The “marsh” will still meet the requirements of treating the DCV and mitigating the HCOC, but the site will also be required to provide 10% of the developed area for implementation of LID BMP principles. In addition, site design BMPs (self-treating landscape) will be provided throughout the site to the MEP.

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 Copermittee). Check one of the following Boxes:

☐ 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 Co-Permittee 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.

- Or -

☒ An existing downstream sub-regional LID BMP exists and is available for use by the project.

E.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☐ Detached Residential Development	P	N	P	P	N	P	P	P
☐ Attached Residential Development	P	N	P	P	N	P	P	P ⁽²⁾
☒ Commercial/Industrial Development	P ⁽³⁾	P	P ⁽¹⁾	P ⁽¹⁾	P ⁽⁵⁾	P ⁽¹⁾	P	P
☐ Automotive Repair Shops	N	P	N	N	P ^(4, 5)	N	P	P
☐ Restaurants (>5,000 ft ²)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft ²)	P	N	P	P	N	P	P	P
☒ Parking Lots (>5,000 ft ²)	P ⁽⁶⁾	P	P ⁽¹⁾	P ⁽¹⁾	P ⁽⁴⁾	P ⁽¹⁾	P	P
☐ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☒	☒	☐	☐	☒	☐	☐	☐

P = Potential

N = Not Potential

⁽¹⁾ A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

⁽²⁾ A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

⁽³⁾ A potential Pollutant is land use involving animal waste

⁽⁴⁾ Specifically petroleum hydrocarbons

⁽⁵⁾ Specifically solvents

⁽⁶⁾ Bacterial indicators are routinely detected in pavement runoff

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

Once you have determined that the LID design is adequate to address water quality requirements, you will need to assess if the proposed LID Design may still create a HCOC. Review Chapters 2 and 3 (including Figure 3-7) of the WQMP Guidance Document to determine if your project must mitigate for Hydromodification impacts. If your project meets one of the following criteria which will be indicated by the check boxes below, you do not need to address Hydromodification at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria. This is discussed in further detail below in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Copermittee 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

If Yes, HCOC criteria do not apply.

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 Co-Permittee

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

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	Post-condition	% Difference
Time of Concentration	TBD	TBD	TBD
Volume (ac-ft)	1.84	6.2	337%

¹ Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) 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.

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

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier: See Appendix 7 for HCOC map (adequate sump is Prado Dam).

F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

- ☐ 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

The existing "marsh" fully mitigates HCOC requirements.

Section G: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and “housekeeping”, that must be implemented by the site’s occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
A. On-site storm drain inlets	Mark all inlets with the words “Only Rain Down the Storm Drain” or similar.	- Maintain and periodically repaint or replace inlet markings annually. - Provide stormwater pollution prevention information to new site owners, lessees, or operators upon occupancy and annually thereafter. - See CASQA fact sheet SC-44 for “Drainage System Maintenance,” included in Appendix of this document. - Include the following lease agreements: “Tenant shall not allow anyone to discharge anything to storm drain or to store or deposit materials so as to create a potential discharge to storm drains.”
B. Interior floor drains and elevator shaft sump pumps	Interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	Inspect and maintain drains semi-annually to prevent blockages and overflow.
D2. Landscape / Outdoor Pesticide Use	- Landscape plans will 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. - Pest-resistant plans will be used adjacent to hardscape. - The landscape plans will consider plants appropriate to the site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	- Maintain landscaping only using minimum pesticides, when needed. - See Appendix 10 for “Landscape and Gardening” brochure by RCFlood. - Provide Integrated Pest Management (IPM) information to new owners, lessees and operators upon occupancy and annually thereafter. IPM is an effective and environmentally sensitive approach to pest management.

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
G. Refuse Areas	• Site refuse will be handled by contractor on a weekly basis. • Signs will be posted on or near dumpsters with the words “Do not dump hazardous materials here” or similar.	• A minimum of two receptacles will be provided and located indoors. Receptacles are to be inspected daily and repairs or replacements to leaky receptacles will be completed immediately. Receptacles are to remain covered when not in use. Dumping of liquid or hazardous wastes is prohibited. A “no hazardous materials” sign will be posted. Spills will be cleaned immediately upon discovery. Spill control materials will be available onsite. See Appendix 10 for CASQA fact sheet SC-34 for “Waste Handling and Disposal.”
H. Industrial processes	• All process activities to be performed indoors. No processes to drain to exterior or to storm drain system.	• See Appendix 10 for CASQA fact sheet SC-10 for “Non-Stormwater Discharges”
M. Loading Docks	• Spills will be cleaned up immediately and disposed of properly.	• Move loaded and unloaded items indoors as soon as possible. • See Appendix 10 for CASQA fact sheet SC-30 for “Outdoor Loading and Unloading”
P. Plazas, sidewalks, and parking lots		• Sweep plazas, sidewalks, and parking lots monthly 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.

Section H: Construction Plan Checklist

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)	Latitude	Longitude
A	On-site storm drain inlets	WQMP Site Map	---	---
B	Interior floor drains and elevator shaft sump pumps	N/A	---	---
D2	Landscape / Outdoor Pesticide Use	On-site Landscape Improvement Plans	---	---
G	Refuse Areas	WQMP Site Map	---	---
H	Industrial processes	WQMP Site Map (indoors, if any)	---	---
M	Loading Docks	WQMP Site Map	---	---
P	Plazas, sidewalks, and parking lots	N/A	---	---
Marsh	Existing Marsh	N/A	33.931866	-117.310589
Site Design BMP	Self-Treating Landscape (throughout the site)	WQMP Site Map		

Section I: Operation, Maintenance and Funding

The Copermittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

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. A warranty covering a period following construction may also be required.
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. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
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. Include a brief description of typical landscape maintenance for these areas.

Your local Co-Permittee will also require that you prepare and submit a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism:

City of Riverside:

Covenant Agreement

Establishing Notification Process And Responsibility For

Water Quality Management Plan Implementation And Maintenance

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

☒ Y

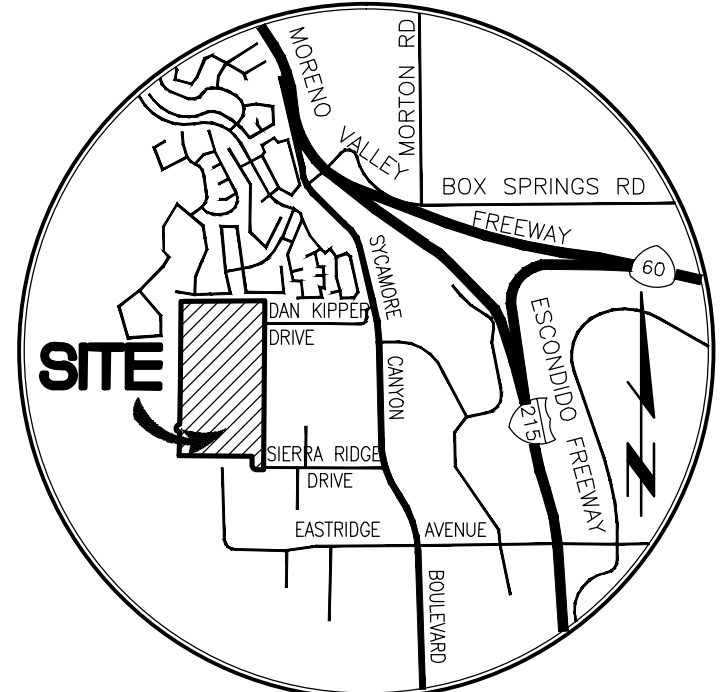
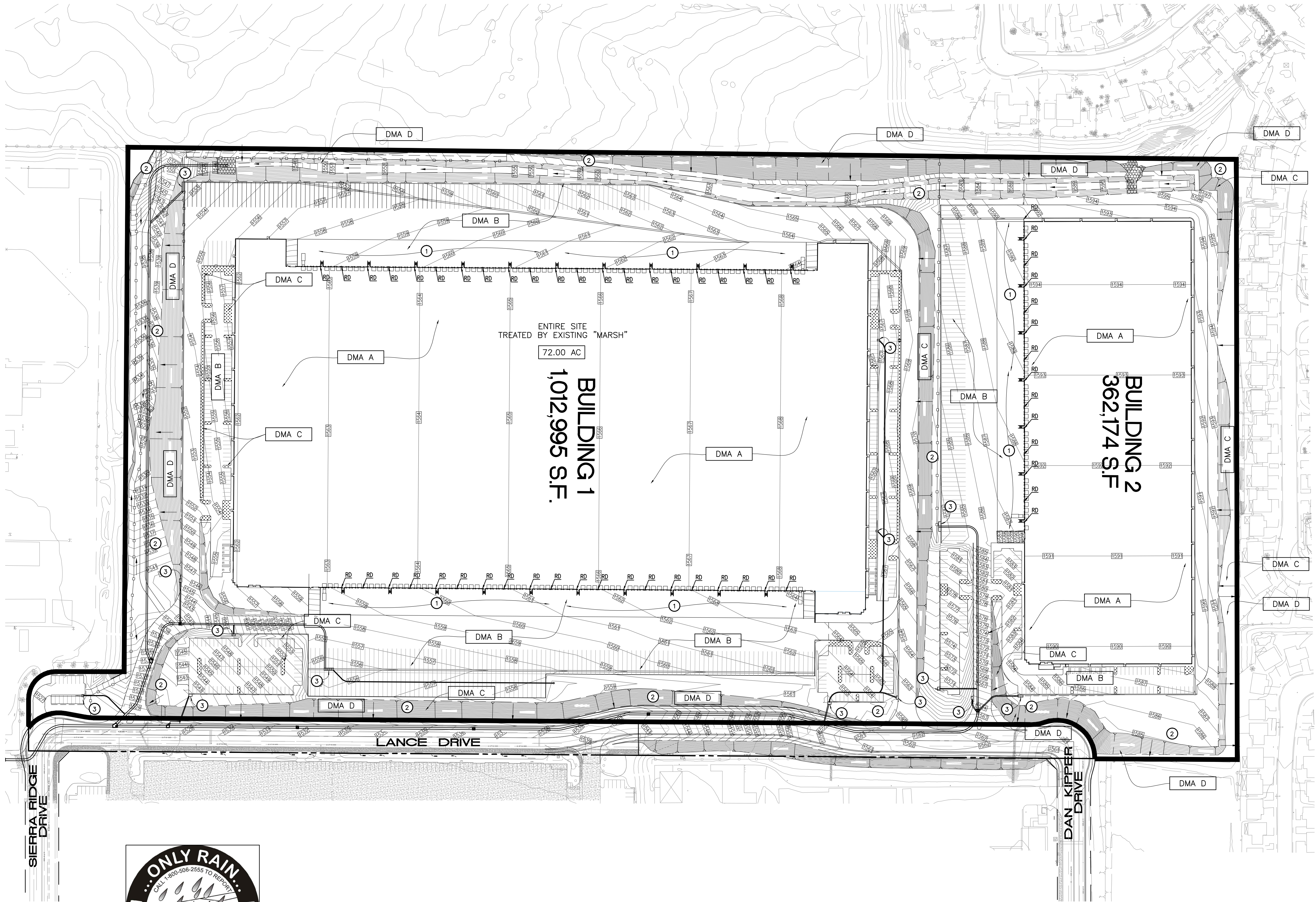
☐ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map





VICINITY MAP
N.T.S.

LEGEND

- 1 ABOVEGROUND TRUCK DOCK
- 2 LANDSCAPE/EFFICIENT IRRIGATION
- 3 STORM DRAIN SYSTEM SIGNS
"ONLY RAIN DOWN THE STORM DRAIN"
- 4 NOT USED
- 5 NOT USED
- 6 NOT USED

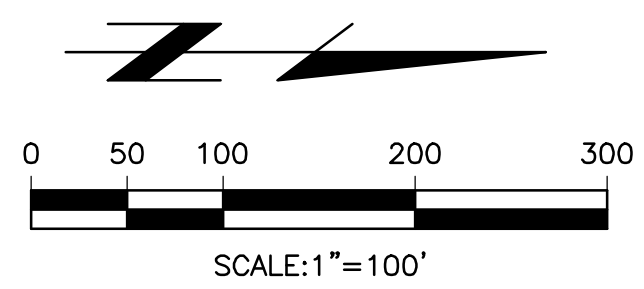
NOTE:

- RD ROOF DRAIN
- BOUNDARY
- FLOW LINE
- DEPRESSED LANDSCAPE

DMA Name or ID	Surface Type(s) ¹	Area (Sq. Ft.)	Area (Acres)	DMA Type
DMA A	Roofs	1,375,169	31.57	Type D
DMA B	Concrete or Asphalt	987,506	22.67	Type D
DMA C	Ornamental Landscaping	307,937	7.07	Type D
DMA D	Ornamental Landscaping	465,708	10.69	Type A



SAMPLE STENCIL TO BE USED NEAR
GRATE AND CURB OPENING INLETS
SAMPLE CATCH BASIN STENCIL



PREPARED FOR:
HILLWOOD INVESTMENTS
901 VIA PIEMONTE, SUITE 175
ONTARIO, CA 91764
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FAX: (909) 382-0073

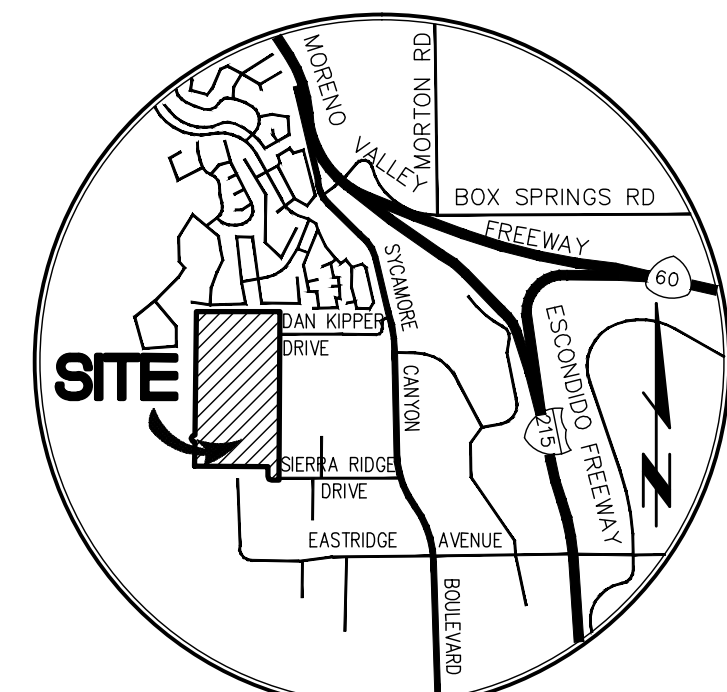
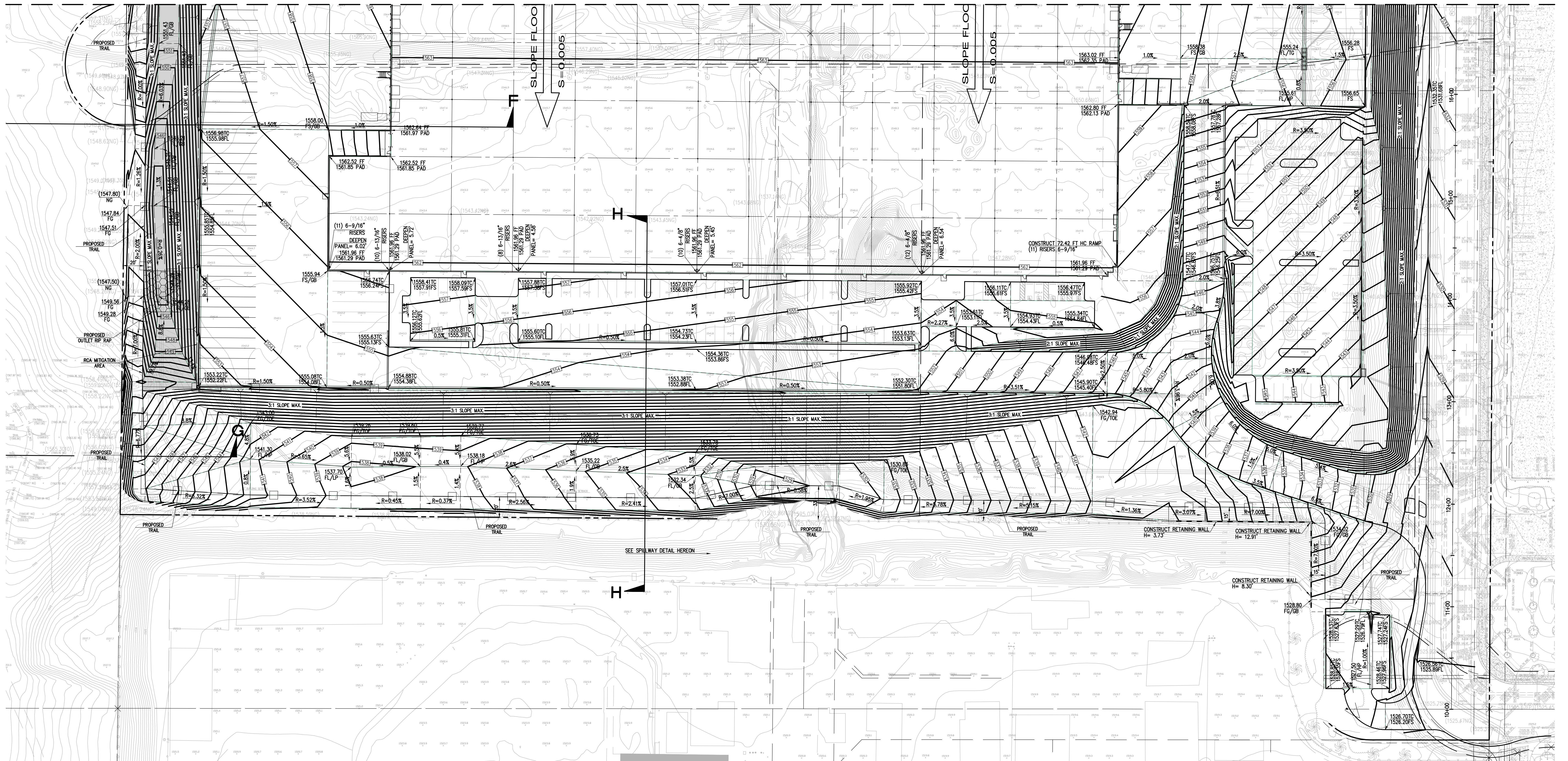
PREPARED BY:
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CITY OF RIVERSIDE PUBLIC WORKS DEPARTMENT	
WOMP SITE MAP	
SYCAMORE V 6275 LANCE DRIVE	
Designed by _____ Checked by _____ Date _____	Approved by _____ Date _____
Designed by _____ Checked by _____ Date _____	Public Works Director _____ R.C.E. _____
Sheet 1 of 1 Sheets	

Appendix 2: Construction Plans

Grading and Drainage Plans

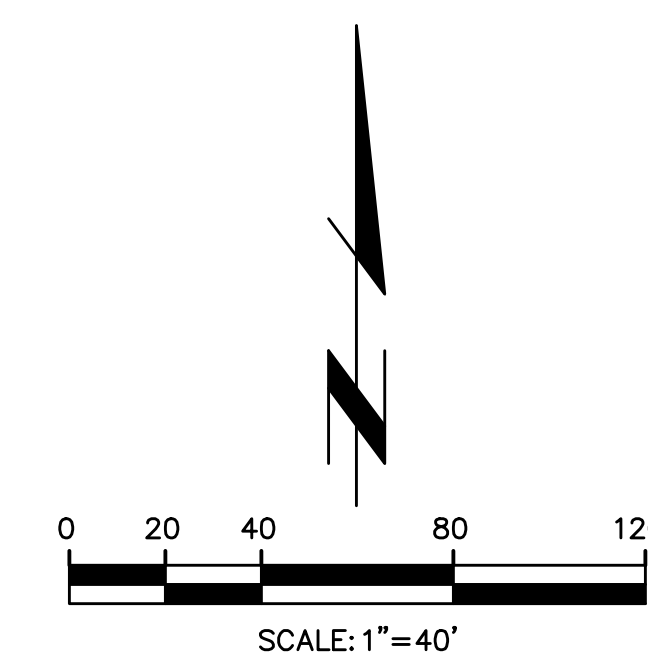
MATCH LINE SEE SHEET 2



EARTHWORK BALANCE CALCULATIONS		3/29/2014
PROJECT:	Sycamore Canyon Project- Bldg. 1	
JOB#:	3261b	
K. SITE AREA:	2,200,470 SF	
L. SUBSIDENCE FACTOR:	(0.063)	
M. SHRINKAGE FACTOR:	-5.0 %	
N. OVEREXCAVATION:	145,674.07 CY	
A. CALCULATED CUT:	340,228 CY	
B. PAVING AND UTILITY SPOILS	- CY	
C. TOTAL CUT: (A+B)	340,228 CY	
D. CALCULATED FILL:	369,617 CY	
E. LIGHT PAVING FILL:	- CY	
F. SUBSIDENCE: (LxK)/27=	(5.094) CY	
G. SHRINKAGE: (M/100)C=	(17,011) CY	
H. OVEREXCAVATION SHRINKAGE	(7,284) CY	
I. TOTAL FILL: (D+E+F+G+H)=	340,228 CY	
J. TOTAL (IMPORT) OR EXPORT:	(0) CY	
SITE ADJUSTMENT	(0.00)	

NOTE: EARTHWORK FIGURES SHOWN ARE APPROXIMATE FIGURES, AND ARE TO BE USED BY BUILDING DEPARTMENT ONLY. CONTRACTOR SHALL CALCULATE HIS OWN EARTHWORK QUANTITIES AND BID A COMPLETE JOB.

EARTHWORK BALANCE CALCULATIONS		3/29/2014
PROJECT:	Sycamore Canyon Project- Bldg. 2	
JOB#:	3261b	
K. SITE AREA:	854,509 SF	
L. SUBSIDENCE FACTOR:	(0.063)	
M. SHRINKAGE FACTOR:	-5.0 %	
N. OVEREXCAVATION:	53,505.78 CY	
A. CALCULATED CUT:	158,667 CY	
B. PAVING AND UTILITY SPOILS	- CY	
C. TOTAL CUT: (A+B)	158,667 CY	
D. CALCULATED FILL:	171,254 CY	
E. LIGHT PAVING FILL:	- CY	
F. SUBSIDENCE: (LxK)/27=	(1,978) CY	
G. SHRINKAGE: (M/100)C=	(7,933) CY	
H. OVEREXCAVATION SHRINKAGE	(2,675) CY	
I. TOTAL FILL: (D+E+F+G+H)=	158,667 CY	
J. TOTAL (IMPORT) OR EXPORT:	(0) CY	
SITE ADJUSTMENT	(0.00)	



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CITY OF RIVERSIDE	
PUBLIC WORKS DEPARTMENT	
CONCEPTUAL GRADING PLAN	
SYCAMORE V	
LANCE DRIVE	
BUILDING 1	
Designed by _____	Approved by _____ Date _____
Checked by _____	
Date _____	
Designed by _____	Public Works Director _____ R.C.E. XXXXX
Date _____	
Checked by _____	
Date _____	
Sheet 1 of 6	Sheets

MATCH LINE SEE SHEET 3

BUILDING 1
1,012,995 S.F.

MATCH LINE SEE SHEET 1

Last Update: 3/29/16
03_13200-3209/3261/3261COP-02.dwg

CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT
CONCEPTUAL GRADING PLAN
SYCAMORE V
LANCE DRIVE
BUILDING 1

PREPARED FOR:

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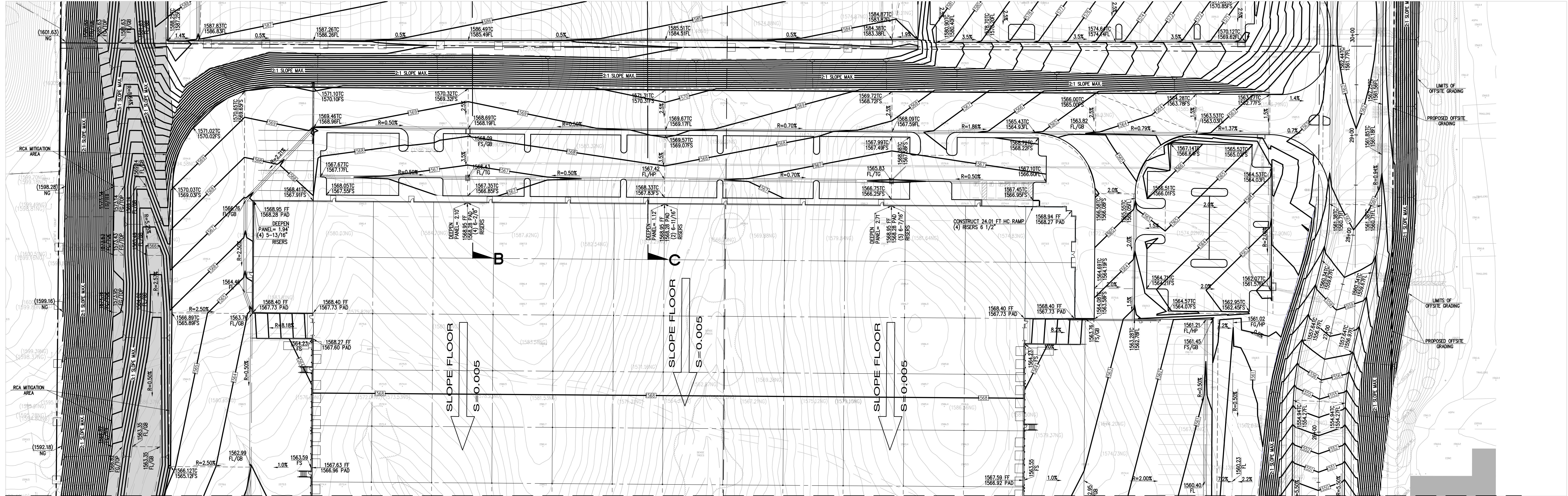
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Designed by	_____	Approved by	_____	Date	_____
Checked by	_____				
Date	_____				
Designed by	_____	Public Works Director	_____	R.C.E.	XXXXX
Date	_____				
Checked by	_____				
Date	_____				

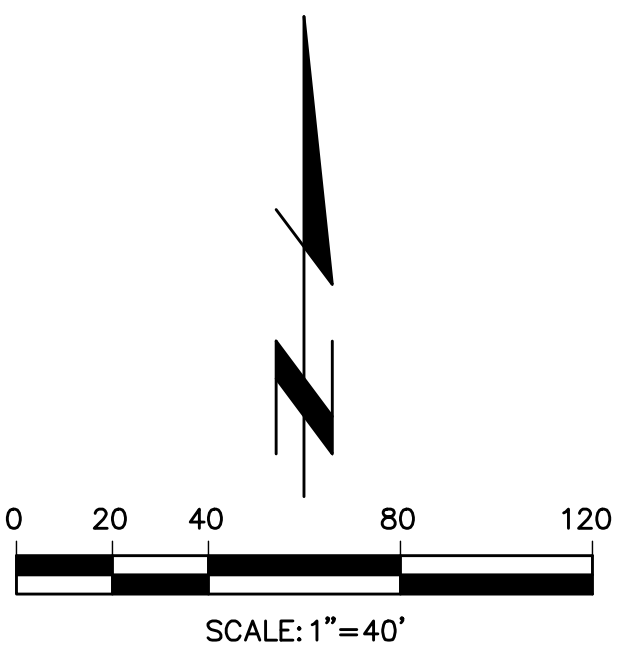
Sheet **2** of **6** Sheets

3261/2 OF 6 SHEET

FOR BUILDING 2 - SEE SHEET 4



MATCH LINE SEE SHEET 2



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CITY OF RIVERSIDE
PUBLIC WORKS DEPARTMENT
CONCEPTUAL GRADING PLAN
SYCAMORE V
LANCE DRIVE
BUILDING 1

Designed by _____	Approved by _____	Date _____
Checked by _____		
Designed by _____	Public Works Director _____	R.C.E. XXXXX
Checked by _____		
Date _____	Sheet 3 of 6	Sheets

3261/3 OF 6 SHEET

Last Update: 3/29/16
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