Project Specific Water Quality Management Plan

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

**Project Title:** Insert text here

**Public Works No:** Insert text here (Leave blank for Preliminary)

**Design Review/Case No:** Insert text here

|  |
| --- |
| **Contact Information:** |
| **Prepared for:** Insert Developer Name, Address, and Phone Number |
| **Prepared by:** Insert Name and Title of Preparer, address, and Phone Number  |
|  |

|  |
| --- |
| [ ]  **Preliminary** |
| [ ]  **Final** |

**Original Date Prepared**: Insert text here

**Revision Date(s)**: Insert text here

*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 <Owner's Name> by <Preparer's Name> for the <Project Name> project.

This WQMP is intended to comply with the requirements of the City of Riverside for <Insert Description of Planning Case>, Planning Case No. <Insert Planning Case No.> 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 the 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:

**Table of Contents**

[Section A: Project and Site Information 5](#_Toc358272064)

[A.1 Maps and Site Plans 5](#_Toc358272065)

[A.2 Receiving Waters 6](#_Toc358272066)

[A.3 Additional Permits/Approvals required for the Project: 6](#_Toc358272067)

[Section B: Optimize Site Utilization (LID Principles) 7](#_Toc358272068)

[Section C: Delineate Drainage Management Areas (DMAs) 8](#_Toc358272069)

[Section D: Implement LID BMPs 10](#_Toc358272070)

[D.1 Infiltration Applicability 10](#_Toc358272071)

[D.2 Harvest and Use Assessment 11](#_Toc358272072)

[D.3 Bioretention and Biotreatment Assessment 13](#_Toc358272073)

[D.4 Feasibility Assessment Summaries 14](#_Toc358272074)

[D.5 LID BMP Sizing 15](#_Toc358272075)

[Section E: Alternative Compliance (LID Waiver Program) 16](#_Toc358272076)

[E.1 Pollutants of Concern 17](#_Toc358272077)

[E.2 Stormwater Credits 18](#_Toc358272078)

[E.3 Sizing Criteria 18](#_Toc358272079)

[E.4 Treatment Control BMP Selection 19](#_Toc358272080)

[Section F: Hydromodification 20](#_Toc358272081)

[F.1 Hydrologic Conditions of Concern (HCOC) Analysis 20](#_Toc358272082)

[F.2 HCOC Mitigation 21](#_Toc358272083)

[Section G: Source Control BMPs 22](#_Toc358272084)

[Section H: Construction Plan Checklist 23](#_Toc358272085)

[Section I: Operation, Maintenance and Funding 24](#_Toc358272086)

**List of Tables**

Table A.1 Identification of Receiving Waters 6

Table A.2 Other Applicable Permits 6

Table C.1 DMA Classifications 8

Table C.2 Type ‘A’, Self-Treating Areas 8

Table C.3 Type ‘B’, Self-Retaining Areas 8

Table C.4 Type ‘C’, Areas that Drain to Self-Retaining Areas 9

Table C.5 Type ‘D’, Areas Draining to BMPs 9

Table D.1 Infiltration Feasibility 10

Table D.2 LID Prioritization Summary Matrix 14

Table D.3 DCV Calculations for LID BMPs 15

Table E.1 Potential Pollutants by Land Use Type 17

Table E.2 Water Quality Credits 18

Table E.3 Treatment Control BMP Sizing 18

Table E.4 Treatment Control BMP Selection 19

Table F.1 Hydrologic Conditions of Concern Summary 20

Table G.1 Permanent and Operational Source Control Measures 22

Table H.1 Construction Plan Cross-reference 23

**List of Appendices**

[Appendix 1: Maps and Site Plans 25](#_Toc358271856)

[Appendix 2: Construction Plans 26](#_Toc358271857)

[Appendix 3: Soils Information 27](#_Toc358271858)

[Appendix 4: Historical Site Conditions 28](#_Toc358271859)

[Appendix 5: LID Infeasibility 29](#_Toc358271860)

[Appendix 6: BMP Design Details 30](#_Toc358271861)

[Appendix 7: Hydromodification 31](#_Toc358271862)

[Appendix 8: Source Control 32](#_Toc358271863)

[Appendix 9: O&M 33](#_Toc358271864)

[Appendix 10: Educational Materials - 34 -](#_Toc358271865)

# Project and Site Information

<Insert a Brief Narrative Describing the Proposed Project>

|  |
| --- |
| Project Information |
| Type of Project: | Insert Commercial/Residential/Institutional/Municipal/Industrial, as applicable |
| Ward Area: | Insert Ward Area |
| Community Name: | Insert Community Name, see map |
| Development Name: | Insert Development Name, if known |
| Project Location |
| Latitude & Longitude (DMS): Insert coordinates here |
| Project Watershed and Sub-Watershed: Santa Ana; Santa Ana River, Reach 3/4 |
| APN(s): Insert text here |
| Map Book and Page No.: Insert text here |
| Project Characteristics |
| Proposed or Potential Land Use(s) | Insert text here |
| Proposed or Potential SIC Code(s) | Insert text here |
| Area of Impervious Project Footprint (SF) | Insert text here |
| Total Area of proposed Impervious Surfaces within the Project Limits (SF)/or Replacement | Insert text here |
| 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 existing Impervious Surfaces within the project limits (SF) | Insert text here. |
| Is the project located within any MSHCP Criteria Cell? | [ ]  Y [ ]  N |
| If so, identify the Cell number: | Insert text here. |
| 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) | Insert text here. |
| What is the Water Quality Design Storm Depth for the project? | Insert text here. |

## Maps and Site Plans

Appendix 1 includes a map of the local vicinity and existing site. In addition, 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
 |

## Receiving Waters

In order of upstream to downstream, the receiving waters that the project site is tributary to are as follows. A map of the receiving waters is included in Appendix 1.

Table A.1 Identification of Receiving Waters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Receiving Waters | Hydrologic Unit | EPA Approved 303(d) List Impairments | Designated Beneficial Uses | Proximity to RARE Beneficial Use |
| Santa Ana River, Reach 4 | 801.21 | Pathogens | GWR, REC1, REC2, WARM, WILD | N/A |
| Lake Evans | 801.27 | None | REC1, REC2, WARM, COLD, WILD | N/A |
| Tequesquite Arroyo (Sycamore Creek) | 801.27 | None | GWR, REC1, REC2, WARM, WILD, SPWN | N/A |
| Anza Park Drain | 801.27 | None | MUN, REC1, REC2, WARM, WILD, SPWN | N/A |
| Mockingbird Reservoir | 801.26 | None | AGR, REC1, REC2, WARM, WILD | N/A |
| Temescal Creek, Reach 1 | 801.25 | None | REC1, REC2, WARM, WILD | N/A |
| Santa Ana River, Reach 3 | 801.21 | Pathogens | AGR, GWR, REC1, REC2, WARM, WILD, RARE, SPWN | Insert distance (in miles) |

## 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 Conditional Use PermitCity of Riverside Design ReviewCity of Riverside Building PermitCity of Riverside Grading PermitCity of Riverside Construction Permit | [ ]  Y[ ]  Y[ ]  Y[ ]  Y[ ]  Y | [ ]  N[ ]  N[ ]  N[ ]  N[ ]  N |

# Optimize Site Utilization (LID Principles)

Review of the information collected in Section ‘A’ will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, **constraints** might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. **Opportunities** might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your LID design and explain your design decisions to others.

The 2010 Santa Ana MS4 Permit further requires that LID Retention BMPs (Infiltration Only or Harvest and Use) be used unless it can be shown that those BMPs are infeasible. Therefore, it is important that your narrative identify and justify if there are any constraints that would prevent the use of those categories of LID BMPs. Similarly, you should also note opportunities that exist which will be utilized during project design. Upon completion of identifying Constraints and Opportunities, include these on your WQMP Site plan in Appendix 1. (REMOVE INSTRUCTIONS)

**Site Optimization**

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will help you determine how best to optimize your site and subsequently identify opportunities and/or constraints, and document compliance. (REMOVE INSTRUCTIONS)

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

*Insert narrative here*

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

*Insert narrative here*

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

*Insert narrative here*

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

*Insert narrative here*

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

*Insert narrative here*

# Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications. (REMOVE INSTRUCTIONS)

Table C.1 DMA Classifications

|  |  |  |  |
| --- | --- | --- | --- |
| DMA Name or ID | Surface Type(s) | Area (Sq. Ft.) | DMA Type |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

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

|  |  |  |  |
| --- | --- | --- | --- |
| DMA Name or ID | Area (Sq. Ft.) | Stabilization Type | Irrigation Type (if any) |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Table C.3 Type ‘B’, Self-Retaining Areas

|  |  |
| --- | --- |
| Self-Retaining Area | Type ‘C’ DMAs that are draining to the Self-Retaining Area |
| DMAName/ ID | Post-project surface type | Area (square feet) | StormDepth (inches)  | DMA Name / ID | [C] from Table C.4 =  | Required Retention Depth (inches) |
| [A] | [B] | [C] | [D] |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

$$\left[D\right]=\left[B\right]+\frac{\left[B\right]∙[C]}{[A]}$$

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 | Runofffactor | Product | DMA name /ID | Area (square feet) | Ratio  |
| [A] | [B] | [C] = [A] x [B] |  [D] | [C]/[D] |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

Table C.5 Type ‘D’, Areas Draining to BMPs

|  |  |
| --- | --- |
| DMA Name or ID | BMP Name or ID |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |

# Implement LID BMPs

## 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

If yes has been checked, Infiltration BMPs shall not be used for the site. If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether or not your project discharges to an approved downstream ‘Highest and Best Use’ feature. (REMOVE INSTRUCTIONS)

**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 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer. (REMOVE INSTRUCTIONS)

Table D.1 Infiltration Feasibility

|  |  |  |
| --- | --- | --- |
| **Does the project site…** | **YES** | **NO** |
| …have any DMAs with a seasonal high groundwater mark shallower than 10 feet? |  |  |
|  If Yes, list affected DMAs: |  |  |
| …have any DMAs located within 100 feet of a water supply well? |  |  |
|  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? |  |  |
|  If Yes, list affected DMAs: |  |  |
| …have measured in-situ infiltration rates of less than 1.6 inches / hour? |  |  |
|  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? |  |  |
|  If Yes, list affected DMAs: |  |  |
| …geotechnical report identify other site-specific factors that would preclude effective and safe infiltration? |  |  |
|  Describe here:  |  |  |

If you answered “Yes” to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs. (REMOVE INSTRUCTIONS)

## Harvest and Use Assessment

The following conditions apply*:*

[ ]  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 (verified 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 required as the Design Capture Volume will be infiltrated or evapotranspired).

[ ]  None of the above.

Harvest and Use BMPs need not/to be assessed for the site. If none of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use), otherwise omit the following sections. (REMOVE INSTRUCTIONS)

**Irrigation Use Feasibility**

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site: (REMOVE ALL HIGHLIGHTED INSTRUCTIONS)

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

 *Total Area of Irrigated Landscape*: Insert Area (Acres)

 *Type of Landscaping (Conservation Design or Active Turf)*: List Landscaping Type

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:* Insert Area (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).

 *The project EIATIA factor*: Enter your EIATIA Factor

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*: Insert Area (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)** |
| Insert Area (Acres) | Insert Area (Acres) |

**Toilet Use Feasibility**

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site: (REMOVE ALL HIGHLIGHTED INSTRUCTIONS)

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: Number of daily Toilet Users*

 *Project Type: Enter 'Residential', 'Commercial', 'Industrial' or 'Schools'*

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: Insert Area (Acres)*

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-1 in [Chapter 2](#Chapter2) to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

 *The project TUTIA factor: Enter your TUTIA Factor*

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: Required number of toilet users*

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)** |
| Insert Area (Acres) | Insert Area (Acres) |

**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.

Insert narrative description here.

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: Projected Average Daily Use (gpd)*

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: Insert Area (Acres)*

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](#Chapter2) to determine the minimum demand for non-potable uses per tributary impervious acre.

 *The project factor: Enter Value from Table 2-3*

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: Minimum use required (gpd)*

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the Average Daily non-potable demand (Step 1) to the minimum required non-potable use (Step 4).

|  |  |
| --- | --- |
| **Minimum required non-potable use (Step 4)** | **Projected average daily use (Step 1)** |
| Minimum use required (gpd) | Projected Average Daily Use (gpd) |

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. (REMOVE ALL HIGHLIGHTED INSTRUCTIONS ABOVE)

## 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 the 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 (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 City of Riverside to discuss this option. If you checked this box, then proceed to Section E to document your alternative compliance measures. (REMOVE INSTRUCTIONS)

[ ]  None of the above.

## Feasibility Assessment Summaries

In concurrence with the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, Table D.2 below summarizes which LID BMPs are technically feasible, and which are not, based upon the established hierarchy. (REMOVE INSTRUCTIONS)

Table D.2 LID Prioritization Summary Matrix

|  |  |  |
| --- | --- | --- |
| DMA Name/ID | **LID BMP Hierarchy** | No LID (Alternative Compliance) |
| 1. Infiltration
 | 1. Harvest and use
 | 1. Bioretention
 | 1. Biotreatment
 |
|  | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |
|  | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |
|  | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |
|  | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |
|  | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |
|  | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  |

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, with technical infeasibility criteria included in Appendix 5, and Alternative Compliance measures for those DMAs documented in Section E. (REMOVE INSTRUCTIONS)

Insert narrative description here or leave blank.

## LID BMP Sizing

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First**,** calculate the Design Capture Volume for each LID BMP using the VBMP worksheet in Appendix F of the LID BMP Design Handbook. Second**,** design the LID BMP to meet the required VBMP using a method approved by the City of Riverside.Utilize the worksheets found in the LID BMP Design Handbook or consult with the City of Riverside to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed. (REMOVE INSTRUCTIONS)

Table D.3 DCV Calculations for LID BMPs

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| DMA Type/ID | DMA Area (square feet) | Post-Project Surface Type | Effective Impervious Fraction, If | DMA Runoff Factor | DMA Areas x Runoff Factor | *Enter BMP Name / Identifier Here* |
|  | [A] |  | [B] | [C] | [A] x [C] |
|  |  |  |  |  |  | *Design Storm Depth (in)* | *Design Capture Volume,* **VBMP** *(cubic feet)* | *Proposed Volume on Plans (cubic feet)* |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | AT = Σ[A]  |  | Σ= [D] | [E] | $$[F] = \frac{[D]x[E] }{12}$$ | [G] |

[B], [C] are obtained from Section 2.3.1 of the WQMP Guidance Document

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

[G] is obtained from LID BMP design procedure sheet, placed in Appendix 6

# 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 confirmation of LID waiver approval by the Regional Board). For the 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 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.

If 1st box is checked, then remove entirely the following subsections E.1 through E.4

If 2nd box is checked, then list affected DMAs here with a brief narrative.

(REMOVE INSTRUCTIONS)

## 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. (REMOVE INSTRUCTIONS)

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 ft2) | P | N | N | N | N | N | P | P |
| [ ]  | Hillside Development (>5,000 ft2) | P | N | P | P | N | P | P | P |
| [ ]  | Parking Lots (>5,000 ft2) | 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  |

## Stormwater Credits

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A. (REMOVE INSTRUCTIONS)

Table E.2 Water Quality Credits

|  |  |
| --- | --- |
| Qualifying Project Categories | Credit Percentage2 |
|  |  |
|  |  |
|  |  |
| *Total Credit Percentage1* |  |
| *1Cannot Exceed 50%**2Obtain corresponding data from Table 3-8 in the WQMP Guidance Document* |

## Sizing Criteria

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information. (REMOVE INSTRUCTIONS)

Table E.3 Treatment Control BMP Sizing

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| DMA Type/ID | DMA Area (square feet) | Post-Project Surface Type | Effective Impervious Fraction, If | DMA Runoff Factor | DMA Area x Runoff Factor |  | *Enter BMP Name / Identifier Here* |
|  | [A] |  | [B] | [C] | [A] x [C] |  |
|   |   |   |   |   |   | *Design Storm Depth (in)* | *Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)* | *Total Storm Water Credit % Reduction* | *Proposed Volume or Flow on Plans (cubic feet or cfs)* |
|   |   |   |   |   |   |
|   |   |   |   |   |   |
|   |   |   |   |   |   |
|   |   |   |   |   |   |
|   |   |   |   |   |   |
|  | AT = Σ[A]  |  | Σ= [D] | [E] | $$[F] = \frac{[D]x[E] }{[G]}$$ | [F] X (1-[H]) | [I] |

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

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

[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12

[H] is from the Total Credit Percentage as Calculated from Table E.2 above

[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

## Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

* **High**: equal to or greater than 80% removal efficiency
* **Medium**: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1. (REMOVE INSTRUCTIONS)

Table E.4 Treatment Control BMP Selection

|  |  |  |
| --- | --- | --- |
| Selected Treatment Control BMP Name or ID1 | Priority Pollutant(s) of Concern to Mitigate2 | Removal Efficiency Percentage3 |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
| *1 Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.**2 Cross Referenced from Table E.1 above.**3 As documented in a Co-Permittee Approved Study and provided in Appendix 6.* |

# Hydromodification

## 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. (REMOVE INSTRUCTIONS)

The project does not/does create a Hydrologic Condition of Concern, meeting/not meeting the criteria for HCOC Exemption as shown below:

**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

Results included in Table F.1 below and hydrologic analysis included in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

|  |  |
| --- | --- |
|  | 2 year – 24 hour |
| Pre-condition | Post-condition | % Difference |
| Time of Concentration | INSERT VALUE | INSERT VALUE | INSERT VALUE |
| Flow (CFS) | INSERT VALUE | INSERT VALUE | INSERT VALUE |
| Volume (Cubic Feet) | INSERT VALUE | INSERT VALUE | INSERT VALUE |

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 (Prado Dam, 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.

Does the project qualify for this HCOC Exemption? [ ]  Y [ ]  N

## 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:

[ ]  a. Additional LID BMPS are implementedonsite 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.

[ ]  b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

[ ]  c. 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.

 [ ]  d. None of the above.

Be sure to include all pertinent documentation used in your analysis of the items a, b or c in Appendix 7. (REMOVE INSTRUCTIONS)

# 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:

1. *Identify Pollutant Sources*: Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.
2. *Note Locations on Project-Specific WQMP Exhibit*: Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1.
3. *Prepare a Table and Narrative*: Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of runoff Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. Add additional narrative in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.
4. *Identify Operational Source Control BMPs:* To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Copermittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site. (REMOVE INSTRUCTIONS)

The following table identifies the potential sources of runoff pollutants for this project and specifies how they are addressed through permanent controls and operational BMPs:

Table G.1 Permanent and Operational Source Control Measures

|  |  |  |
| --- | --- | --- |
| Potential Sources of Runoff pollutants | Permanent Structural Source Control BMPs | Operational Source Control BMPs |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# Construction Plan Checklist

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP. (REMOVE INSTRUCTIONS)

Table H.1 Construction Plan Cross-reference

|  |  |  |  |
| --- | --- | --- | --- |
| BMP No. or ID | BMP Identifier and Description | Plan Sheet Number(s) | Latitude / Longitude |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP. (REMOVE INSTRUCTIONS)

# Operation, Maintenance and Funding

As required by the City of Riverside, the following 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 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.

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

|  |  |
| --- | --- |
| Maintenance Mechanism: | Insert text here. |

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

|  |  |
| --- | --- |
| [ ]  Y | [ ]  N |

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.

 Maps and Site Plans

*Location Map, WQMP Site Plan and Receiving Waters Map*

 Construction Plans

*Grading and Drainage Plans*

 Soils Information

*Geotechnical Study and Other Infiltration Testing Data*

 Historical Site Conditions

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

 LID Infeasibility

*LID Technical Infeasibility Analysis*

 BMP Design Details

*BMP Sizing, Design Details and other Supporting Documentation*

 Hydromodification

*Supporting Detail Relating to Hydrologic Conditions of Concern*

 Source Control

*Pollutant Sources/Source Control Checklist*

 O&M

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

 Educational Materials

*BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information*