

Water Quality Management Plan (WQMP) Template/User Guide

Introduction

The preparation of a development project WQMP is a requirement of the City's Urban Runoff Management Program. This program was developed by the City to comply with State and Federal regulations to control and eliminate runoff pollution into receiving waters such as creeks, lakes and the ocean. In any case where a WQMP is required, a draft WQMP must be submitted with the application for a development permit. In this initial phase of development approval, the structural BMPs are the principal element of concern. Therefore, the concept grading plan as part of the initial development application must clearly show all proposed structural BMPs in conformance to Section 7 herein. The draft WQMP submitted at that time must address all aspects related to the determination of the structural BMPs. Other aspects may be considered later in the final WQMP document that must be submitted for review and approval prior to grading or building permit approval.

This template is to be used in preparing WQMPs for development projects in the City of Lake Forest. The template is a simplified document that generally follows the structure of the more comprehensive Orange County Drainage Area Management Plan (DAMP) and the City's Local Implementation Plan (LIP) for water quality. Therefore, the Orange County DAMP and the City's LIP should be used as a reference when more specific guidance is necessary. **The City requires Project WQMPs to be prepared using the guidelines set forth in the Model WQMP, provided in DAMP, Section 7, Exhibit 7.II.** The LIP can be accessed by contacting the City Public Works Department. The Orange County DAMP can be reviewed at www.ocwatersheds.com. Another useful reference document is the California Stormwater Quality Association New development and Redevelopment handbook. The handbook is available at www.cabmphandbooks.com. This handbook provides direct and practical in-depth information in all areas related to developing a WQMP. In general, the DAMP and LIP summarize the regulations, and the handbook explains ways to attain conformance to the regulations.

It is recommended that project applicants follow this WQMP template as much as possible, as it will help facilitate preparation and the corresponding City review process. However, use of this specific template is not required.

Determination of Need/Extent of WQMP

Most types of projects require a WQMP, and requirements are more extensive for certain types of projects. Any application for a project that requires discretionary action and includes a precise plan of development (Site Development Permit, Use Permit or Variance Permit), requires a WQMP to be submitted with the initial development permit application. Further, any project involving construction and installation of facilities for the conveyance of liquids other than stormwater, potable water, reclaimed water or domestic sewage, are required to submit a WQMP with the application for a project. There are also some types of projects that are considered "Priority Projects", which require a WQMP to be submitted regardless of the type of application, as listed in the following table:

Proposed Project Includes:	Yes	No
1. Residential development of 10 units or more		
2. Commercial and industrial development greater than 100,000 square feet including parking areas		
3. Automotive repair shop (SIC codes 5013, 5014, 5541, 7532-7534, and 7536-7539)		
4. Restaurant where the land area of development is 5,000 square feet or more including parking areas (SIC code 5812)		
5. For San Diego Region - Hillside development greater than 5,000 square feet For Santa Ana Region - Hillside development on 10,000 square feet or more, which is located on areas with known erosive soil conditions or where natural slope is 25 percent or more		
6. Impervious surface of 2,500 square feet or more located within, directly adjacent to (within 200 feet), or discharging directly to receiving water within Environmentally Sensitive Areas.		
7. Parking lot area of 5,000 square feet or more, or with 15 or more parking spaces, and potentially exposed to urban runoff		
8. For San Diego Region - Streets, roads, highways, and freeways which would create a new paved surface that is 5,000 square feet or greater		
9. For Santa Ana Region – All significant redevelopment projects, where significant redevelopment is defined as the addition of 5,000 or more square feet of impervious surface on an already developed site.		

Further details of required WQMP components can be reviewed in Appendix A-7 of the City's LIP or Section 7.II-1.0 of Exhibit 7.II of the Orange County DAMP, [OC Model WQMP](#).

How to Use this Template

This template was created in Microsoft Word and should be edited using Microsoft Word 98 or later version or a compatible program. To use this template simply rename and save this file to your computer and begin editing. Prior to submitting the WQMP for City review, add all necessary figures and attachments, complete the table of contents, and convert all text to black text.

This template is an outline of a WQMP. It also provides directions for completing the WQMP, as well as text and tables to assist you in the WQMP preparation. These different elements of the template are identified in different colors of text as described below.

- The Black text is intended to provide language to be incorporated into your WQMP (it can remain as part of your WQMP submittal).
- **The Red text includes instructions and notes. Please insert the required information and delete all Red text from the final document.**
- **The Blue text identifies required information that may or may not be applicable to the project. If applicable, edit the Blue text as necessary for applicability and**

project specifics. If not applicable, delete the Blue text.

Purpose of the WQMP

The main purpose of the Water Quality Management Plan (WQMP) is to identify the potential development hydrologic and water quality impacts that could result from a project and to specify the Best Management Practice (BMP) measures that will be incorporated into the project reduce or eliminate identified impacts to the maximum extent practicable.

Water Quality Management Plan (WQMP)

for:

Insert Project Name

Insert Project Address Insert City Name

Insert APN, Tract Numbers, City Project Number, and Permit
Numbers (as available)

Prepared for:

Insert Owner/developer

Address City, State, Zip, Telephone number, Email address

Prepared by:

Insert Engineer/Consultant Company Name

Contact Person Address City, State, Zip Telephone number, Email address

Insert Date

Owner's Certification Water Quality Management Plan (WQMP)

Insert Project Name: _____

Insert Tract/Parcel Map Number:

This Water Quality Management Plan (WQMP) has been prepared for **Owner/Developer Name**. The WQMP is intended to comply with the requirements of the City of Lake Forest Urban Runoff Management Program and Stormwater Ordinance, as well as the Municipal Stormwater Permit which requires the preparation of WQMPs for priority development projects.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this WQMP. The undersigned will ensure that this plan is carried out and amended as appropriate to reflect up-to-date conditions on the site consistent with the current City of Lake Forest Urban Runoff Management Program and the intent of the NPDES/MS4 Permit for Waste Discharge Requirements as authorized by the State and EPA. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

To be completed by the Owner or Developer.

Signed: _____

Name: _____

Title: _____

Company: _____

Address: _____

Telephone #: _____

Date: _____

Email Address: _____

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Section 1 Project Description

Complete the following table.

1. Detailed development description: Please include a detailed development project description. The description should include the proposed structure/s to be removed and/or built on the property including external hardscape areas, garages, property yard drains, stormdrains system, drainage lines, landscape areas, retaining walls, pools/spas and other external features.
2. Project location and site address: Provide the project location and site address
3. Property size: Describe the size of the property parcel and the size of proposed development project in acres and sq ft.
4. Existing use: Describe the existing use of site.
5. Type of development: Describe the type of development such as residential, commercial, etc.
6. Impervious/pervious surface areas: Describe the existing and final developed impervious and pervious surface areas in acres and sq ft. Calculate and describe the increase or decrease in impervious area for existing versus the final developed condition.
7. Property ownership: Describe the property Ownership – is it a private development, planned community with a homeowners association, is any infrastructure planned to be transferred to City.
8. Other: Include any other relevant details about the project.

Section 2 Project Location Map

The location of the project site is illustrated in [Figures 2.1 and 2.2](#).

Insert a local vicinity map and provide the Thomas Bros. Map number.

Section 3 Project Site Assessment

This project site assessment section provides important information that is used when considering the potential water quality and hydrologic impacts that could be caused by the proposed project. This information is important when considering the appropriate BMPs to reduce identified potential impacts as well as when developing measures to reduce those impacts.

Complete the following table.

1. Zoning and land use designation: Provide the zoning and land use designation.

2.	Existing and proposed drainage: Describe the existing and proposed drainage of site and surrounding property.
3.	Will the drainage system be modified by the development? Answer Yes or No. If Yes, please describe.
4.	Will drainage coincide with City's system or flow to a creek or ocean? Answer Yes or No. If Yes, please describe.
5.	Watershed and receiving waters: Include the name of the watershed and receiving waters referencing the City's Urban Runoff Management Program or Water Quality Environmentally Sensitive Areas map available at the Counter or at County Stormwater Program .
6.	303(d) listed receiving waters: Identify receiving waters that this project drains to that are listed on the most recent Clean Water Act 303(d) and list pollutants for which the receiving waters are impaired (the 303(d) list can be found at the SWRCB website: 303(d) List)
7.	Total Maximum Daily Loads (TMDLs): Identify applicable pollutant Total Maximum Daily Loads (TMDLs). See also TMDLs .
8.	Environmentally Sensitive Areas (ESAs) and/or Areas of Special Biological Significance (ASBS): Identify the Environmentally Sensitive Areas (ESAs) and/or Areas of Special Biological Significance (ASBS) the project is either located in or in close proximity to as shown on the ESA Watershed Maps. San Diego Creek Watershed Map ; Aliso Creek Watershed Map
9.	Soil type(s) and condition: Describe the site's soil type(s) and condition.

Section 4 Pollutants of Concern

This section of the water quality management plan identifies primary and secondary pollutants of concern. Pollutants of concern are those that are anticipated to be generated by the proposed project. Pollutants of concern are differentiated between primary and secondary depending on the condition of downstream receiving waters. If the project will drain to a receiving water that is impaired for a pollutant anticipated from that project, that pollutant is a primary pollutant of concern. Pollutants frequently identified on the 303(d) list of California impaired water bodies include metals, nitrogen, nutrients, indicator bacteria, pesticides and trash (see [303\(d\) List](#)). In some cases, there may be specific conditions (i.e. other known water quality problems) that warrant identifying an anticipated pollutant as a primary pollutant of concern. If there is no corresponding impairment or other water quality problem in the receiving waters for an anticipated pollutant, the pollutant is a secondary pollutant of concern.

Complete the following table.

1.	Project categories and features: Identify the project categories and features from Table 7.II-2 of Orange County DAMP, Exhibit 7.II, that apply to this project. (See Exhibit 7.II)
2.	Primary pollutants of concern: List the anticipated pollutants for the project (identified using Table 7.II-2) that have also been identified in 303(d) as causing impairment of receiving waters.

3. Secondary pollutants of concern: List all other anticipated pollutants for the project (identified using Table 7.II-2).
4. Project water quality analyses: Provide information from any completed CEQA documents, site approvals, permits or analyses related to project's potential pollutants and environmental impacts.
5. Project watershed information: Provide information from any relevant watershed planning documents (i.e. biological assessments, City's general plan) regarding water quality problems on or downstream of the project site, and relevant plans, policies, or water quality improvement projects.

Section 5 Hydrologic and Geotechnical Conditions of Concern/Drainage Report

This section of the water quality management plan identifies hydrologic and geotechnical conditions of concern related to the proposed project. Hydrologic or geotechnical conditions of concern are identified through a review of on-site and downstream drainage paths. If the proposed project would cause or contribute flows to problems along on-site or downstream drainage paths, these problems or future problems are considered conditions of concern. Conditions of concern can include problems such as flooding, erosion, scour, and other impacts that can adversely affect channel and habitat integrity.

In order to identify conditions of concern, a comprehensive understanding of flow volume, rate, duration, energy, and peak flow is necessary. Often, a formal drainage study is necessary which considers the project area's location in the larger watershed, topography, soil and vegetation conditions, percent impervious area, natural and infrastructure drainage features, and any other relevant hydrologic and environmental factors. As part of the study, the drainage report includes:

- Field reconnaissance to observe downstream conditions
- Computed rainfall and runoff characteristics including a minimum of peak flow rate, flow velocity, runoff volume, time of concentration and retention volume
- Establishment of site design, source control and treatment control measures to be incorporated and maintained to address downstream conditions of concern

If the downstream channel(s) is fully natural or partially improved with a significant potential for erosive conditions or alteration of habitat integrity to occur as a result of upstream development, a drainage study report, prepared by a registered civil engineer in the State of California, with experience in fluvial geomorphology and water resources management is required to be included in the WQMP. The drainage report may be referenced and a detailed summary provided that addresses the items above.

If a drainage report is required, use the following paragraph:

A drainage report was prepared for the proposed project by insert name of engineer, as required by the City, and is included as Attachment B. A summary of the drainage report is provided below. Complete the table and provide a detailed summary after the table of the required elements of the drainage report bulleted above.

If a drainage report is not required, use the following paragraph:

A drainage report was not prepared for the proposed project; however, a State of California registered civil engineer (insert name of engineer and engineering firm) reviewed the project for potential conditions of concern. The following is a summary of that review.

If a geotechnical report was required, also include the following sentence:

A geotechnical report was also prepared for the proposed project by insert name of engineer, as required by the City, and is included as Attachment C.

Complete the following table.

1. Project location: Describe the project's location within the larger watershed perspective.
2. Topography, soil and vegetation: Describe topography, soil and vegetation conditions of the project site.
3. Impervious area: Provide percent impervious area on existing site and percent after development.
4. Drainage features: Describe natural and infrastructure drainage features.
5. Relevant hydrologic and environmental factors: Include other relevant hydrologic and environmental factors either on-site, in the project's vicinity, adjacent property or downstream of the site such as sensitive biological areas, areas prone to flooding, areas with erosion problems, etc.
6. Proposed hydrologic conditions: Summarize changes in the hydrologic system resulting from proposed development (i.e. increased runoff volume, reduced infiltration, increased flow frequency).
7. Significant impact on downstream channels and habitat integrity: Identify any changes resulting from the project that will have significant impact on downstream channels and habitat integrity. If off-site flows will be increased, this assessment requires a review of downstream areas. Areas with existing or future potential for flooding, erosion, and/or scour should be discussed.
8. Project hydrology analyses: Provide information from any previous analyses related to project's potential hydrologic impacts such as reports prepared for previous CEQA documents, site approvals, or permits.
9. Project watershed information: Provide information from any relevant watershed planning documents (i.e. drainage master plans, City's general plan) regarding hydrologic problems on or downstream of the project site, and relevant plans, policies, or water quality improvement projects.

Hydrology Report Summary (include if applicable)

Provide a detailed summary of the required elements of the drainage report including a table of pre- and post-development peak flow rate, flow velocity, runoff volume, time of concentration and retention volume.

Section 6 Best Management Practices (BMPs)

Minimizing a development's effects on water quality and the environment can be most effectively achieved by using a combination of BMPs which include Site Design, Source Control and Treatment Control measures. These design and control measures employ a multi-level strategy. The strategy consists of: 1) reducing or eliminating post-project runoff; 2) controlling sources of pollutants; and 3) treating stormwater runoff before discharging it to the stormdrain system or to receiving waters.

This WQMP and the proposed BMPs for the proposed project have been developed to minimize drainage impacts identified in Section 5 and the introduction of pollutants identified in Section 4 into the municipal stormdrain system and/or ultimate drainage receiving water body.

For more detailed information on the use and design of BMPs please see the California Stormwater Quality Association New development and Redevelopment handbook. The handbook is available at www.cabmphandbooks.com. Additional information is also available in the City's LIP.

6.1 Site Design BMPs

The most effective means of avoiding or reducing water quality and hydrologic impacts is through incorporation of measures into the project design. These measures should be taken into consideration early in the planning of a project as they can affect the overall design of a project.

The design of the proposed project has considered and incorporated site design concepts as described below.

Complete the following tables. Describe in detail how your project incorporates each of the concepts below (or provide an explanation as to why your project could not incorporate the concept). All concepts should be considered and incorporated where practicable. For more information, please refer to the City's LIP.

SITE DESIGN CONCEPT 1: MINIMIZE STORMWATER RUNOFF, MINIMIZE PROJECT'S IMPERVIOUS FOOTPRINT AND CONSERVE NATURAL AREAS

1.	Minimizing impervious footprint: Describe how your project minimizes impervious footprint.
2.	Conservation of natural areas: Describe where and how your project conserves natural areas.
3.	Use of permeable paving or other surfaces: Your project should include construction of low-traffic areas with open-jointed paving materials or permeable surfaces. Describe where these techniques have been implemented.

4.	Designing to minimum widths necessary: Streets, sidewalks and parking lot aisles should be designed to the minimum widths necessary, while complying with ADA regulations and other life safety requirements. Please verify that minimum widths have been implemented and provide an explanation where they are not.
5.	Incorporation of landscaped buffers: If the project has private streets, incorporation of landscaped buffer areas between sidewalks and streets should be provided. Please describe where this has been incorporated.
6.	Reduced street widths: Your project should include reduced street widths where off-street parking is available. (Street widths must still comply with life safety requirements for fire and emergency vehicle access.) Please describe if this conditions applies and where it has been incorporated.
7.	Maximize canopy interception: Describe how your project maximizes landscaping canopy interception of precipitation.
8.	Use of native or drought tolerant trees/shrubs: Describe how your project maximizes water conservation by preserving existing native trees/shrubs and planting additional native or drought tolerant trees/shrubs.
9.	Minimizing impervious surfaces in landscaping: Describe how your project minimizes the use of impervious surfaces in the landscape design.
10.	Use of natural drainage systems: Describe how your project uses natural drainage systems.
11.	Low flow infiltration: Your project should use perforated pipe or gravel filtration pits for low flow infiltration, where applicable and practicable. However, projects must also comply with hillside grading ordinances that limit or restrict infiltration of runoff. Please describe any low flow infiltration features of the project or reasons for not including them.
12.	Onsite ponding areas or retention facilities: Your project should include onsite ponding areas or retention/detention facilities, where applicable and practicable.
13.	Other site design features: Describe any other site design features that are incorporated into the project.

SITE DESIGN CONCEPT 2: MINIMIZE DIRECTLY CONNECTED IMPERVIOUS AREAS (DCIAs)

1.	Draining rooftops into adjacent landscaping: Your project should drain rooftops into adjacent landscaping prior to discharging to the stormdrain. Please describe where this features have been implemented and if it has not, explain why.
2.	Draining to adjacent landscaping: Your project should drain impervious sidewalks, walkways, trails, and patios into adjacent landscaping. Please describe where these features have been implemented and if it has not, explain why.

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>3. Vegetated drainage swales: Vegetated drainage swales should be used where possible in lieu of underground piping or imperviously lined swales. Please describe where these features have been implemented and if it has not, explain why.</p> |
| <p>4. Site drainage system: Where practicable, your project should use one or a combination of the following systems for its drainage: rural swale system, urban curb/swale system, dual drainage system, or other comparable design concepts. (for further guidance, see Start at the Source [1999]) Please describe how these types of systems are incorporated into the site's drainage and if not, explain why.</p> |
| <p>5. Residential driveways: Your project should use one of the following features for design of residential driveways: shared access, flared driveways, wheel strips, or drain driveway into adjacent landscaping. Please describe what feature is incorporated and if none, explain why.</p> |
| <p>6. Residential parking areas: Your project should use the following features for design of residential parking areas:</p> <ul style="list-style-type: none">• Uncovered temporary or guest parking on private residential lots paved with permeable surface; and• Drainage into landscaping prior to discharging to the municipal stormdrain system. <p>Please describe how these features are incorporated and if not, explain why and any comparable design concepts incorporated.</p> |
| <p>7. Non-residential parking areas: Your project should use the following features for design of non-residential parking areas:</p> <ul style="list-style-type: none">• Incorporate landscape areas into the drainage design; and• Construct overflow parking constructed with permeable paving. <p>Please describe how these features are incorporated and if not, explain why and any comparable design concepts incorporated.</p> |

6.2 Source Control BMPs

Source Control BMPs are measures focusing on reducing or eliminating post-project runoff and controlling sources of pollutants. Source Control BMPs must be included in all projects and can be represented in structural measures such as landscape, irrigation, signage considerations, materials, and design of areas; and non-structure measures such as requirements, cleaning, education, and maintenance.

Complete the following table. Indicate Y (Yes – included) or N (No – not included) in the Included box for the listed BMPs. If not included or not applicable, provide an explanation. If included, provide a specific description in sections following the table. Include frequency of implementation and responsible party.

Table 6.1 Source Control Non-Structural BMPs		
Number	BMP and Objective	Included
<i>Routine Non-Structural BMPs (numbers correspond to those in City's WQMP)</i>		
N1	Education for Property Owners, Tenants and Occupants: Practical informational materials are provided to residents, occupants, or tenants to increase the public's understanding of stormwater quality, sources of pollutants, and what they can do to reduce pollutants in stormwater. <i>Explanation/Description: Add either explanation if not included or detailed description if included. Include educational materials as Appendix A.</i>	Y/N
N2	Activity Restrictions: Rules or guidelines for developments are established within appropriate documents (i.e. CC&Rs, lease terms, etc.) which prohibit activities that can result in discharges of pollutants. <i>Explanation/Description: Add either explanation if not included or detailed description if included.</i>	Y/N
N3	Common Area Landscape Management: Specific practices are followed and ongoing maintenance is conducted to minimize erosion and over-irrigation, conserve water, and reduce pesticide and fertilizer applications. <i>Explanation/Description: Add either explanation if not included or detailed description if included.</i>	Y/N
N4	BMP Maintenance: In order to ensure adequate and comprehensive BMP implementation, all responsible parties are identified for implementing all non-structural BMPs and for structural BMPs, cleaning, inspection, and other maintenance activities are specified including responsible parties for conducting such activities. <i>Explanation/Description: Add either explanation if not included or detailed description if included.</i>	Y/N
N5	Title 22 CCR Compliance: Hazardous waste is managed properly through compliance with applicable Title 22 regulations. <i>Explanation/Description: Add either explanation if not included or detailed description of applicable requirements and compliance activities if included.</i>	Y/N

N6	<p>Local Water Quality Permit Compliance: The project complies with water quality permits issued by the City to ensure clean stormwater discharges.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description of permit conditions and compliance activities if included.</p>	Y/N
N7	<p>Spill Contingency Plan: A Spill Contingency Plan is implemented to ensure that spills are managed properly by requiring stockpiling of cleanup materials, notification of responsible agencies, disposal of cleanup materials, documentation, etc.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	Y/N
N8	<p>Underground Storage Tank Compliance: Because of the known or potential presence of underground storage tanks (USTs) on the project site, applicable UST regulations apply and are adhered to in order to avoid harm to humans or the environment. <i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	Y/N
N9	<p>Hazardous Materials Disclosure Compliance: Because hazardous materials or wastes will be generated, handled, transported, or disposed of in association with the project, measures are taken to comply with applicable local, state, and federal regulation to avoid harm to humans and the environment. <i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	Y/N
N10	<p>Uniform Fire Code Implementation: The project includes a hazardous material storage facility or other area regulated by Article 80 and therefore implements measures to comply with this section of the Uniform Fire Code.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	Y/N
N11	<p>Common Area Litter Control: Trash management and litter control procedures are specified, including responsible parties, and implemented to reduce pollution of drainage water.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	Y/N
N12	<p>Employee Training: Practical informational materials and/or training are provided to employees to increase their understanding of stormwater quality, sources of pollutants, and their responsibility for reducing pollutants in stormwater.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	Y/N
N13	<p>Housekeeping of Loading Docks: Cleaning and clean up procedures are specified and implemented for loading dock areas to keep the area free for pollutants and reduce associated pollutant discharges.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	Y/N
N14	<p>Drainage Facility Inspection: Inspection procedures, schedules, and responsibilities are established for drainage facilities to ensure regular cleaning, inspection, and maintenance.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed</p>	Y/N

	description if included.	
N15	Street Sweeping Private Streets and Parking Lots: Street sweeping frequency and responsible parties are identified and regular sweeping is conducted to reduce pollution of drainage water.	Y/N
	<i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.	
N17	Retail Gasoline Outlets: Specific operational and maintenance BMPs are implemented to the extent feasible to reduce potential for pollutant discharge from wash off by runoff, leaks, and spills.	Y/N
	<i>Explanation/Description:</i> Add either explanation if not included or detailed description if included. Include educational materials as Appendix A.	

Number	BMP and Objective	Included
Source Control Structural BMPs (numbers correspond to the California BMP Handbook)		
SC-10	Site Design and Landscape Planning: Landscape planning methodologies are incorporated into project design to maximize water storage and infiltration opportunities and minimize surface and groundwater contamination from stormwater.	Y/N
	<i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.	
SC-11	Roof Runoff Controls: Direct roof runoff away from paved areas and to pervious areas, cisterns, infiltration trenches, and/or storage areas for reuse to reduce total volume and rate of site runoff and retain pollutant on site.	Y/N
	<i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.	
SC-12	Efficient Irrigation: Project plans include application methods to minimize irrigation water discharged into stormwater drainage systems.	Y/N
	<i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.	
SC-13	Stormdrain System Signs: Stencils or affixed signs a placed adjacent to stormdrain inlets to prevent waste dumping at stormdrain inlets.	Y/N
	<i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.	
SC-20	Pervious Pavements: Porous concrete or asphalt, blocks with pervious spaces or joints, or grass or gravel surfaces are employed to reduce runoff volume and provides treatment.	Y/N
	<i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.	

<p>SC-21</p>	<p>Alternative Building Materials: Specialized building materials are employed that have lower potential to leach pollutants, and reduce need for future painting or other pollutant generating maintenance activities. For example, some treated wood contains pollutants that can leach out to the environment and some metal roofs and roofing materials result in high metal content in runoff.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	<p>Y/N</p>
<p>SC-30</p>	<p>Fueling Areas: Project plans are developed for cleaning, spill cleanup, containment, leak prevention, and incorporation of design to reduce rain and runoff that could come in contact with fueling areas.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	<p>Y/N</p>
<p>SC-31</p>	<p>Maintenance Bays and Docks: Project design incorporates measures to cover or otherwise eliminate run-on and off from bays and docks, and direct connections to stormdrain are eliminated.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	<p>Y/N</p>
<p>SC-32</p>	<p>Trash Enclosures: Trash storage areas are covered and enclosed to prevent introduction of trash and debris to site runoff.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	<p>Y/N</p>
<p>SC-33</p>	<p>Vehicle and Equipment Washing Areas: Designated wash areas or facilities are contained and wash water is reused, treated, or otherwise properly disposed of.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	<p>Y/N</p>
<p>SC-34</p>	<p>Outdoor Material Storage Areas: Outdoor storage areas for materials containing pollutants, especially hazardous materials, are covered and enclosed, on impervious surfaces, and include secondary containment when applicable.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	<p>Y/N</p>
<p>SC-35</p>	<p>Outdoor Work Areas: Outdoor work areas are covered, contained, and treated as necessary to reduce opportunity of pollutants from work activities to enter stormwater.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	<p>Y/N</p>
<p>SC-36</p>	<p>Outdoor Processing Areas: Outdoor processing areas are covered, contained, and treated as necessary to reduce opportunity of pollutants from work activities to enter stormwater.</p> <p><i>Explanation/Description:</i> Add either explanation if not included or detailed description if included.</p>	<p>Y/N</p>

6.3 Treatment Control BMPs

Treatment control BMPs utilize treatment mechanisms to remove pollutants that have entered stormwater runoff and consist of public domain BMPs (identified in the following table with as TC-##) and manufactured or proprietary BMPs (identified in the following table with as MP-##). BMP numbers correspond to the California BMP Handbook.

The following table identifies the treatment control BMPs included in the proposed project.

Complete the following table. Indicate Y (Yes – included) or N (No – not included) in the Included box for the listed BMPs. If not included or not applicable, provide an explanation. If included, briefly state the location(s).

Table 6.2 Treatment Control BMPs		
Number	BMP and Objective	Included
<i>Infiltration</i>		
TC-10	<p>Infiltration Trench: A long narrow rock filled trench with no outlet receives water and stores it until it infiltrates into the underlying soil. Its effective are removing most pollutants but can get clogged with sediment.</p> <p><i>Explanation/Description:</i> If not included, provide explanation. If included, describe location and design.</p>	Y/N
TC-11	<p>Infiltration Basin: A shallow impoundment designed to capture and hold stormwater until it infiltrates into underlying soil. Effective at removing most pollutants but requires large areas and may be constrained by soil types.</p> <p><i>Explanation/Description:</i> If not included, provide explanation. If included, describe location and design.</p>	Y/N
TC-12	<p>Retention/Irrigation: Stormwater is captured in cistern, basin, trench, or other storage area and is subsequently used for irrigation of site landscaping.</p> <p><i>Explanation/Description:</i> If not included, provide explanation. If included, describe location and design.</p>	Y/N
<i>Detention and Settling</i>		
TC-20	<p>Wet Pond: A constructed basin with a permanent pool of water throughout the year. Differ from wetlands because it is of greater depth. Treats stormwater runoff by settling and biological uptake.</p> <p><i>Explanation/Description:</i> If not included, provide explanation. If included, describe location and design.</p>	Y/N
TC-21	<p>Constructed Wetland: A constructed basin with permanent pool of shallow water throughout most of year with substantial vegetative coverage.</p> <p><i>Explanation/Description:</i> If not included, provide explanation. If included, describe location and design.</p>	Y/N
TC-22	<p>Extended Detention Basin: A constructed basin with an outlet designed to detain stormwater for at least 48 hours to allow particles and pollutants to settle.</p>	Y/N

	<i>Explanation/Description: If not included, provide explanation. If included, describe location and design.</i>	
MP-20	Wetland: Similar to a constructed wetland but a self contained, manufactured module with vegetation that mimics natural wetland processes.	Y/N
	<i>Explanation/Description: If not included, provide explanation. If included, describe location and design.</i>	
Biofiltration		
TC-30	Vegetated Swale: Open, shallow, vegetated channels that collect and slowly convey runoff through the property. Filters runoff through vegetation, subsoil matrix, and/or underlying soils; traps pollutants, promotes infiltration and reduce flow velocity.	Y/N
	<i>Explanation/Description: If not included, provide explanation. If included, describe location and design.</i>	
TC-31	Vegetated Buffer Strip: Vegetated surfaces that are designed to treat sheet flow from adjacent surfaces. Removes pollutants by deceleration, settling, and infiltration.	Y/N
	<i>Explanation/Description: If not included, provide explanation. If included, describe location and design.</i>	
TC-32	Bioretention: A soil and plant based filtration strategy that involved capturing stormwater in depressed landscaped areas. Bioretention practices are flexible strategies for using landscaping as treatment.	Y/N
	<i>Explanation/Description: If not included, provide explanation. If included, describe location and design.</i>	
Filtration		
TC-40	Media Filter: Usually two-chambered with a pretreatment settling basin and a filter bed filled with sand or other absorptive filter media.	Y/N
	<i>Explanation/Description: If not included, provide explanation. If included, describe location and design.</i>	
MP-40	Media Filter: Similar to constructed media filter but manufactured as self-contained filtering vaults, units, or cartridges.	Y/N
	<i>Explanation/Description: If not included, provide explanation. If included, describe location and design.</i>	
Flow Through Separation		
TC-50	Water Quality Inlet: Vaults with chambers including screens, settling areas, and/or filter media to promote settling and/or separation of pollutants from stormwater.	Y/N
	<i>Explanation/Description: If not included, provide explanation. If included, describe location and design.</i>	
MP-50	Wet Vault: A vault with a permanent water pool and internal features to promote settling and/or separation of pollutants from stormwater.	Y/N
	<i>Explanation/Description: If not included, provide explanation. If included, describe location and design.</i>	

MP-51	<p>Vortex Separator: Similar to wet vaults but round and use centrifugal action as primary separation mechanism.</p> <p><i>Explanation/Description:</i> If not included, provide explanation. If included, describe location and design.</p>	Y/N
MP-52	<p>Drain Inserts: Boxes, trays, or socks with screens or filter fabric and may also include filter media. They are installed in inlets or catch basins and removal effectiveness for pollutants is generally low except for large sediment.</p> <p><i>Note:</i> Drain inserts cannot be the sole Treatment Control BMP selection for Priority Projects.</p> <p><i>Explanation/Description:</i> If not included, provide explanation. If included, describe location and design.</p>	Y/N
Other		
TC-60	<p>Multiple Systems: A system that uses two or more BMPs in series to increase treatment. Useful when one BMP does not provide sufficient treatment alone.</p> <p><i>Explanation/Description:</i> If not included, provide explanation. If included, describe location and design.</p>	Y/N

6.3.1 SELECTION

Provide a discussion supporting the selection of the proposed treatment control BMPs. The section should be based on achieving the highest removal possible of the primary pollutants of concern associated with the project. Use Table 7-II-6 provided in DAMP, Exhibit 7.II, along with the primary pollutants of concern identified in Section 4 of this WQMP template to select treatment control BMP categories with the highest pollutant removal efficiencies. Include discussion regarding all BMPs that were considered for the project, but were not selected with detailed explanation(s) on why they were not feasible for the project.

6.3.2 SIZING

Sizing is required for all treatment control BMPs to demonstrate that the BMPs will provide adequate treatment for the flows or volumes of water that will be generated by the site. Separate sizing calculations and design specifications should be provided for each individual treatment control BMP and each treatment control BMP location identified for use in a project. The following information should be included in this section of the WQMP:

- Indicate whether the treatment control BMPs were designed using the Stormwater Quality Design Volume (SQDV) or the Stormwater Quality Design Flow (SQDF) – see Section 7 of the City’s LIP and Exhibit 7.II of the DAMP for more information.
- Show calculations and provide key design criteria to demonstrate that the selected BMPs will provide adequate treatment. Please refer to the California Stormwater Quality Association (CASQA) BMP Handbook for New Development/Redevelopment or reference www.cabmphandbooks.com.
- Provide cross sections and details, as appropriate.

6.3.3 LOCATION

Project-based (on-site) structural Treatment Control BMPs should be implemented as close to pollutant sources as possible to minimize costs and maximize pollutant removal prior to runoff entering receiving waters.

- Include verbal description of BMP location(s) and describe the relationship/flow scenario between BMPs if more than one BMP is proposed (e.g. treatment train concept).
- Refer to the BMP Map.

6.3.4 RESTRICTIONS ON USE OF INFILTRATION BMPS

Restrictions on the use of infiltration BMPs are provided in Section 3.3.4 of the DAMP, Exhibit 7.II.

Include the following text if no infiltration BMPs are included:

The proposed project does not include infiltration BMPs.

Include the following text regarding restrictions of infiltration BMPs only if you are proposing an infiltration BMP such as infiltration trench or basin or porous pavement. Swales, biofilters, buffer strips, detention basins and constructed wetlands are not considered infiltration BMPs. Describe in detail how your project meets the restrictions.

The proposed project includes infiltration BMPs (BMPs that are designed to primarily function as infiltration devices) and meets the minimum restrictions on the use of infiltration BMPs as described below.

No.	Condition	Yes	No
1	Does use of structural infiltration Treatment Control BMPs contribute to groundwater quality objectives being surpassed?		X
Explain:			
2	Are pollution prevention and Source Control BMPs implemented at a level that protects groundwater quality?	X	
Explain:			
3	Do structural infiltration Treatment Control BMPs cause a nuisance or pollution (as defined in Water Code Section 13050)?		X
Explain:			
4	Does urban runoff from commercial developments undergo pretreatment to remove physical and chemical contaminants prior to infiltration?	X	
Explain:			
5	Are dry weather flows diverted from infiltration devices except for non-stormwater discharges authorized according to 40 CFR 122.26(d)(2)(iv)(B)(1)?	X	

Explain:			
6	Is the vertical distance from the base of any structural infiltration Treatment Control BMP to the seasonal high groundwater mark at least 10 feet? (Vertical distance criterion may be determined by the City)	X	
Explain:			
7	Does the infiltration soil have adequate physical and chemical characteristics to support proper infiltration durations and treatment of urban runoff for the protection of groundwater?	X	
Explain:			
8	Are structural infiltration Treatment Control BMPs used in areas of industrial activity, light industrial activity or other land uses posing a threat to water quality?		X
Explain:			
9	Is the horizontal distance between the base of any structural infiltration Treatment Control BMP and any water supply well at least 100 feet? (Horizontal distance criterion may be determined by the City)	X	
Explain:			
10	Does any entity implementing a structural infiltration Treatment Control BMP also mitigate any groundwater contamination caused by the infiltration system?	X	
Explain:			

Where infiltration Treatment Control BMPs are authorized, their performance has been evaluated for impacts on groundwater quality.

Section 7 Project Plan and BMP Location Map

Figure 7.1 illustrates the proposed project and the Source Control structural and Treatment BMPs that will be implemented pursuant to this WQMP. The following checklist identifies the required information that is included in the BMP map.

Include a BMP project map, 50 scale minimum size, including the elements listed in the following checklist and complete the checklist.

Included	Requirement
X	Legend, north arrow, scale
X	Show drainage arrows, and drainage areas
X	Entire property on one map (provided sufficient detail is shown)
X	Show structures to be constructed and removed
X	Show proposed and existing stormdrain systems
X	Show all external hardscape surfaces such as walkways, driveways, pools, spas, patio areas etc.
X	Indicate the landscape areas and planters
X	Show nearby waterbodies by name, if available
X	Identify site outlet and/or connection to municipal stormdrain system
X	Identify locations of all source control structural and treatment BMPs on the Map. Indicate the BMP location using the BMP number.
X	Differentiate/identify pervious and impervious surfaces, buildings, activity areas, etc.
X	Identify areas of potential soil erosion

Section 8 Stormwater BMP Maintenance

The City does not accept stormwater structural BMPs as meeting the WQMP requirements standard, unless an Operations and Maintenance (O&M) Plan is prepared and a mechanism is in place that will ensure ongoing long-term maintenance of all structural and non-structural BMPs. **Select the appropriate Maintenance Mechanism for your project (delete all others).**

The _____ project will implement the following maintenance mechanism to ensure ongoing long-term maintenance of all structural and non-structural BMPs.

1. **Public entity maintenance:** The City may approve a public or acceptable quasi-public entity (e.g., the County Flood Control District, or annex to an existing assessment district, an existing utility district, a state or federal resource agency, or a conservation conservancy) to assume responsibility for operation, maintenance, repair and replacement of the BMP. Unless otherwise acceptable to the City, public entity maintenance agreements shall ensure estimated costs are front-funded or reliably guaranteed, (e.g., through a trust fund, assessment district fees, bond, letter of credit or similar means). In addition, the City may seek protection from liability by appropriate releases and indemnities.

The City shall have the authority to approve stormwater BMPs proposed for transfer to any other public entity within its jurisdiction before installation. The City shall be involved in the negotiation of maintenance requirements with any other public entities accepting maintenance responsibilities within their respective jurisdictions; and in negotiations with the resource agencies responsible for issuing permits for the construction and/or maintenance of the facilities. The City must be identified as a third party beneficiary empowered to enforce any such maintenance agreement within their respective jurisdictions.

2. **Project proponent agreement to maintain stormwater BMPs:** The City may enter into a contract with the project proponent obliging the project proponent to maintain, repair and replace the stormwater BMP as necessary into perpetuity. Security or a funding mechanism with a “no sunset” clause may be required. **Include name, Title Company, address and phone number of responsible party.**

3. **Assessment districts:** The City may approve an Assessment District or other funding mechanism created by the project proponent to provide funds for stormwater BMP maintenance, repair and replacement on an ongoing basis. Any agreement with such a District shall be subject to the Public Entity Maintenance Provisions above.

4. **Lease provisions:** In those cases where the City holds title to the land in question, and the land is being leased to another party for private or public use, the City may assure stormwater BMP maintenance, repair and replacement through conditions in the lease.

5. **Conditional development permits:** For discretionary projects only, the City may assure maintenance of stormwater BMPs through the inclusion of maintenance conditions in the conditional development permit. Security may be required.

6. **Alternative mechanisms:** The City may accept alternative maintenance mechanisms if such mechanisms are as protective as those listed above.

8.1 Operation and Maintenance (O&M) Plan

An O&M Plan will be prepared for the proposed project and must be approved by the City prior to construction approvals, permit close out and issuance of certificates of use and occupancy. The O&M Plan describes the designated responsible party to manage the stormwater BMP(s), employee's training program and duties, operating schedule, inspection and maintenance frequencies, routine service schedule, specific maintenance activities, copies of resource agency permits, and any other necessary activities. At a minimum, maintenance agreements shall require the inspection and servicing of all structural BMPs per manufacturer or engineering specifications. Parties responsible for the O&M plan shall retain records for at least 5 years. These documents shall be made available to the City for inspection upon request at any time.

An O&M Plan must be submitted with this WQMP to the City and approved prior to construction approvals, permit close out and issuance of certificates of use and occupancy. The O&M plan must list all non-structural BMPs, source control BMPs, structural BMPs and treatment control BMPs listed as applicable to the project in the WQMP in the following format with information as indicated (insert rows as needed):

Designator Code (e.g. N1 or SC-1)	BMP Name and BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
Non-Structural Source Control BMPs			
Structural Source Control BMPs			
Treatment Control BMPs			

Required Posting

A statement requiring the above table to be laminated and posted in the primary maintenance worker assembly area(s) related to the project shall be included in the WQMP.

Required Permits

List any permits required for the implementation, operation, and maintenance of the BMPs. Possible examples are:

- Permits for connection to sanitary sewer
- Permits from California Department of Fish and Game
- Encroachment permits

If no permits are required, a statement to that effect should be made.

Forms to Record BMP Implementation, Maintenance, and Inspection

The form that will be used to record implementation, maintenance, and inspection of BMPs is attached.

