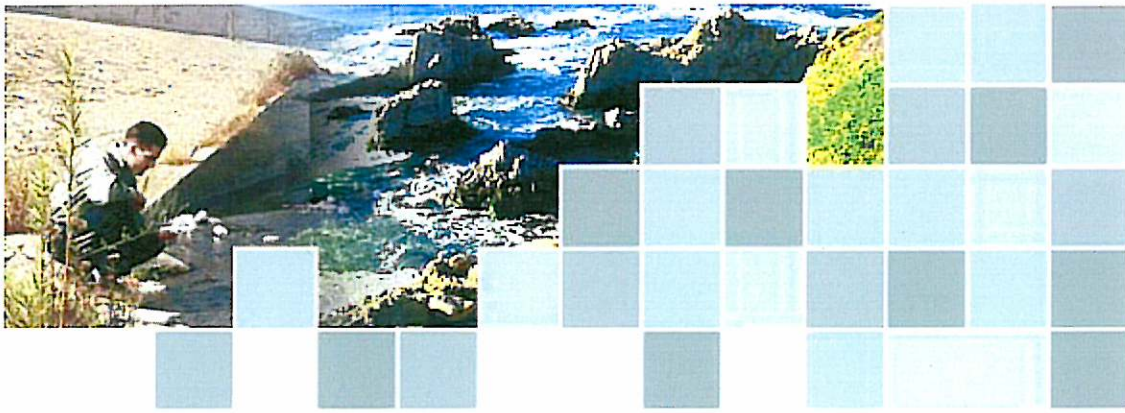




SUSMP Guidebook



Answers to common questions
regarding post construction BMPs

Also available at
<http://jlha.net/downloads>

All new commercial and residential developments need to do their part to help protect the quality of our rivers, wetlands, and ocean.

To help accomplish this, the State Regional Board requires the preparation of a Standard Urban Stormwater Mitigation Plan (SUSMP). The SUSMP must follow a specific template and be submitted to the City for approval.

No grading, demolition, or building permits will be issued until this step is accomplished.

Your project design needs to prevent the discharge of pollutants (including trash)



Trash net across typical Southern California Channel

Photo courtesy of LA County

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Step 1

You must determine if your project is a Priority Project.

All Priority Projects will need a Standard Urban Stormwater Mitigation Plan.

To determine if your project requires a SUSMP, you must complete **form PC** (example at the end of this document)

If your project is over one acre you will also need a SWPPP (Stormwater Pollution Prevention Plan) and WDID (Waste Discharge Identification number issued by State Water Resources Control Board in Sacramento)

Step 2

Proceed with the preparation of the SUSMP (Priority Projects only). Remember, the SUSMP follows a specific format any deviation or omission may result in repeated reviews prior to approval.

Don't forget to Include:

- A cover page
- Project and site description
- Pollutants of concern
- Description of why you selected the BMP you are proposing
- Plans
- Operation and Maintenance manual

A comprehensive and well-written project description will minimize review time and preclude questions that arise from a poorly written project description that does not provide all of the necessary information

Step 3

Your site design and BMP selection is critical. You should incorporate "Low Impact Development" standards where ever possible.

The SUSMP must incorporate

1. Site Designs that:

- a. minimize the exposure to pollutants (ex: placing a roof over material handling areas), and
- b. minimize the amount of runoff (ex: directing runoff to and enlarging pervious areas),

2. Source Controls:

which are activities that occupants of the site will implement (for example, regular sweeping of parking lots and keeping trash bin lids closed),

These items will require some thought based on the specific project, merely listing generic BMPs is not sufficient.

Step 4

Priority projects must Capture, Treat, and/or Infiltrate stormwater runoff. This section of the SUSMP must include:

1. **A narrative report** describing how you intend to treat the runoff (see the following guideline for detailed instructions). **Form P1** should be included in this section and is attached at the end of this document.
2. **Plans** – Your capture/infiltration details must be shown on the grading/civil plans
3. **Calculations** – You must show that your proposed capture/infiltration system will be adequate. **Single Family Hillside projects** only need direct the runoff to a properly designed vegetative area.
For more sample runoff and volume calculations, see appendix A of www.ladpw.org/wmd/NPDES/SUSMP_MANUAL.pdf
Form P2 should be included in this section and is attached after form P1.
4. When using infiltration as a treatment BMP, a stamped and signed **geotechnical letter** must be included to show that soil is suitable for infiltration and that soil instability will not occur once development is constructed.
5. **Operations and Maintenance** - Once the construction finished, the job is not over! An O&M Manual must be included

Step 5

Once you have been informed that your SUSMP is acceptable you may record the maintenance covenant (an example of the form can be found at the end of this document). **DO NOT RECORD UNTIL GIVEN OK BY SUSMP REVIEWER**

Three copies of all documents and plans will be needed for final approval.

1. Are there any additional forms that I need to fill out?

Yes, you must complete Forms PC, OC1, P1 P2 and the Maintenance Covenant and Agreement. If your project is over 1 acre you must also complete the LSWPPP Form. All Forms are available at the download page of www.JLHA.net.

2. What pollutants do I treat for?

This is for the applicant to decide based upon the end-use of the project. Typically these will include: trash, nutrients, oil & grease, copper, zinc, lead and cadmium, and bacteria

3. What types of Treatment BMPs are acceptable?

Don't forget to describe and show on plans which type of structural BMP will be used, either solely or as a "treatment train" to mitigate these pollutants of concern. Acceptable BMPs are generally:

Infiltration

- *Minimum 0.5 inch per hour percolation rate*
- *Pre-filtration required*
- *Depth to ground water must be in excess of 10 feet below the bottom of the BMP*
- *No existing soil contamination*
- *Proposals for Infiltration BMPs must be accompanied with stamped letter from a geotechnical, soils, or civil engineer with soil experience indicating that soil instability will not occur as a result of this type of BMP*

Bioswales

- *Grass must be kept between 3 and 6 inches high (Other vegetative types may be acceptable)*
- *Irrigation must be provided*
- *Must be a minimum of 10 feet wide and have a surface area of 4% of the tributary area*
- *Gravel swales and "dry stream bed" designs may be acceptable*
- *Pre and post-filtration required*
- *No standing water within 72 hours of cessation or rainfall*

Capture and reuse

- *The first flush of runoff may be captured in cisterns for reuse as landscape water, etc. (Health Department clearance will be required for the connection to the potable water system.)*

Green roofs

- *Framing will need to be structurally adequate*
- *Access to roofs will need to be provided*
- *Irrigation will be necessary*

Bio Filtration/Evapotranspiration

- *Specifically designed planters, tree wells, and bio filtration systems*
- *Designs must follow approved standards*

Other innovative designs are encouraged, as long as these will adequately mitigate stormwater pollutants

4. What design standards do I use?

These are subject to change as the Regional Board modifies and updates their standards. As a starting point, it will be either the runoff from the first $\frac{3}{4}$ inch of rainfall (the first flush) or the continuous flow of runoff from 0.2 inches per hour storm.

5. My project is built property line to property line. Can I put the BMPs in the public right of way?

NO. *No structural BMPs will be permitted in, above or under the public right-of-way.*

6. Instead of including ongoing maintenance procedures can I just include the manufacturers spec sheets?

NO. *Every job is unique and a narrative describing each maintenance procedure, identifying the responsible parties and frequency is required. (The City will NOT be responsible for operations and maintenance of your BMPs, but will take enforcement action if your BMPs are not being maintained.)*

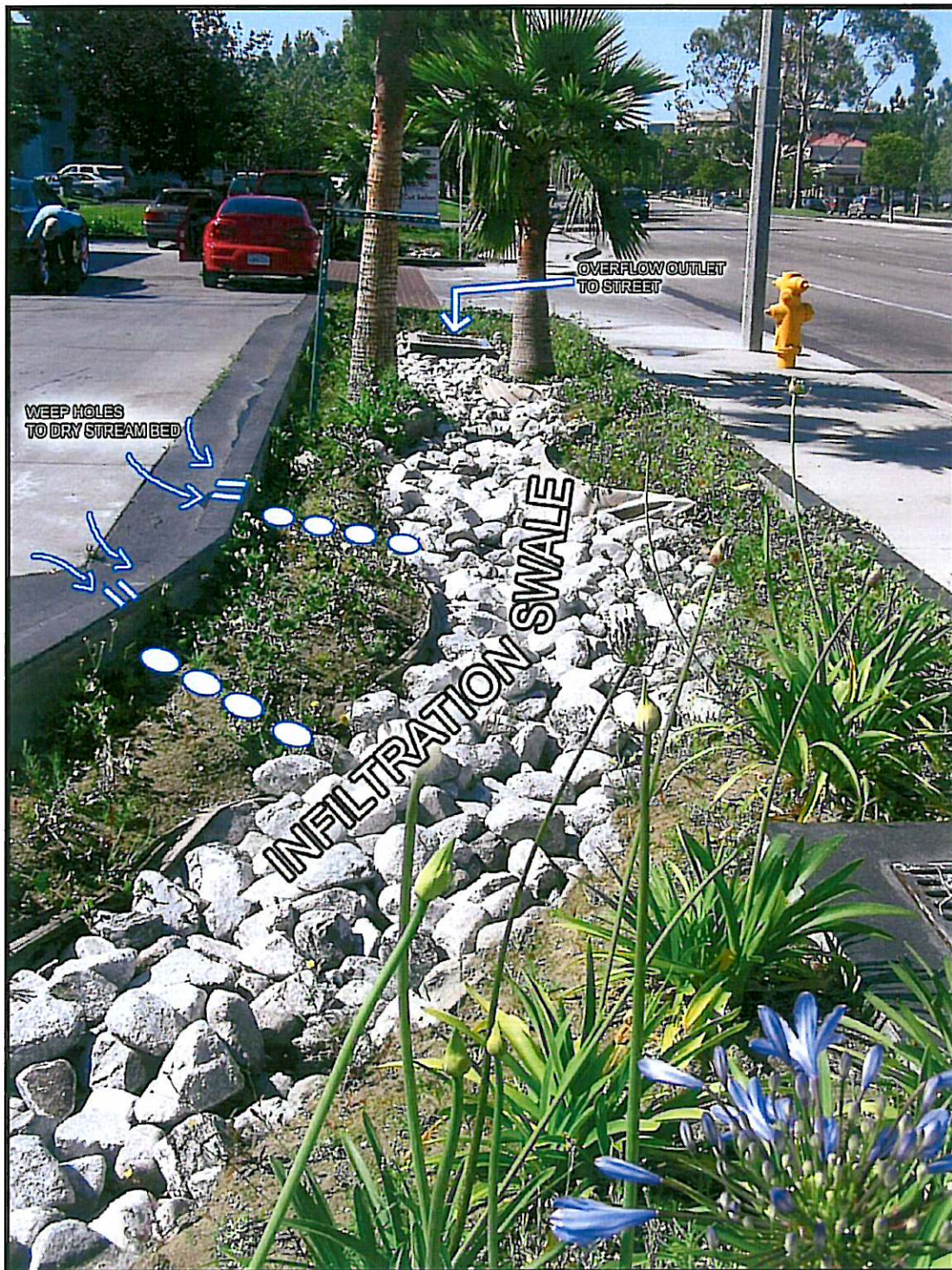
7. Since the water is being treated, can I discharge industrial waste water into the treatment BMP system?

NO. *The treatment system is only for rainwater.*

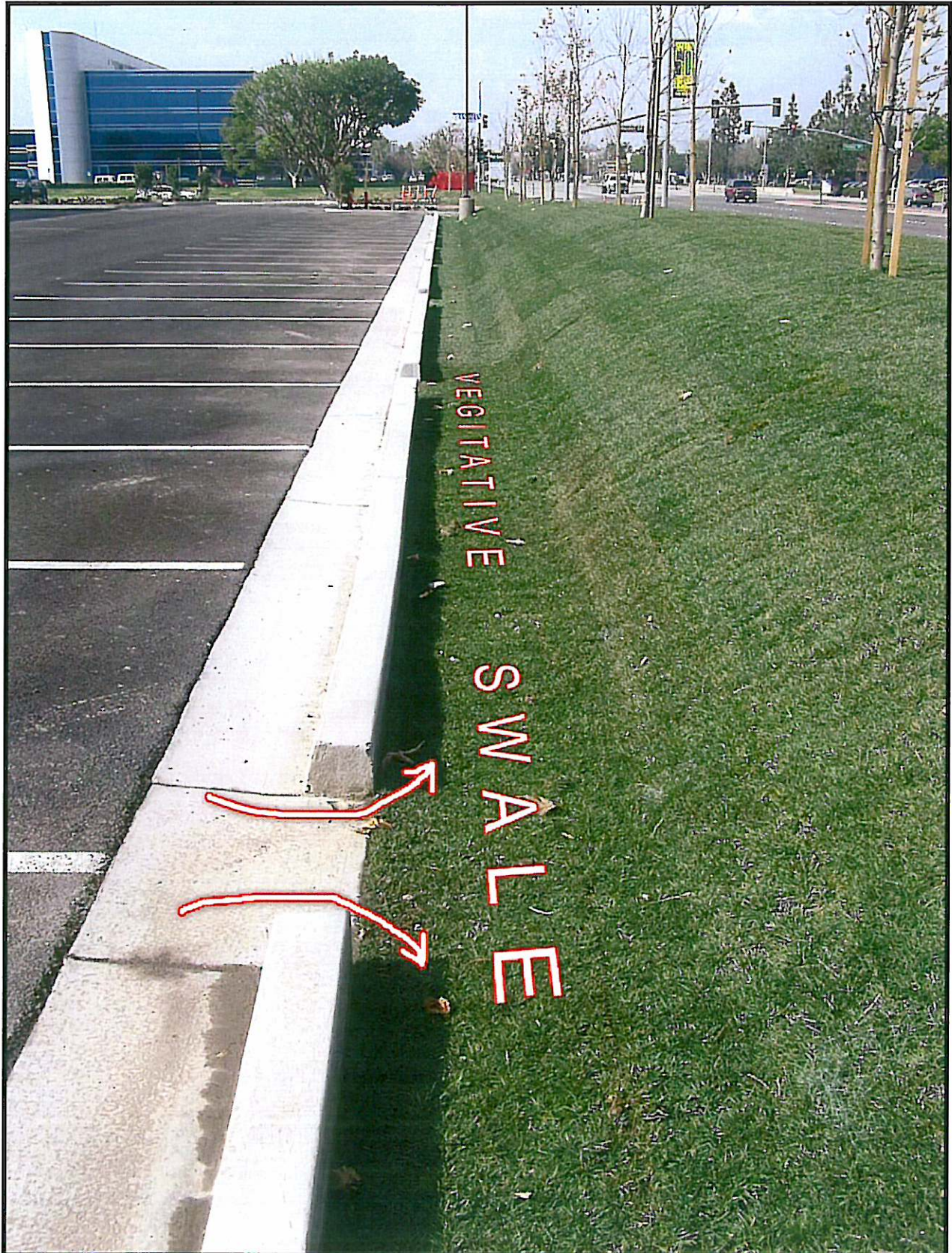
8. Can I wait until the project is approved to record the maintenance covenant?

Yes. This is the last step of the SUSMP approval process. Do not record the maintenance covenant until given an OK by the SUSMP plan reviewer.

Example #1 Infiltration Swale



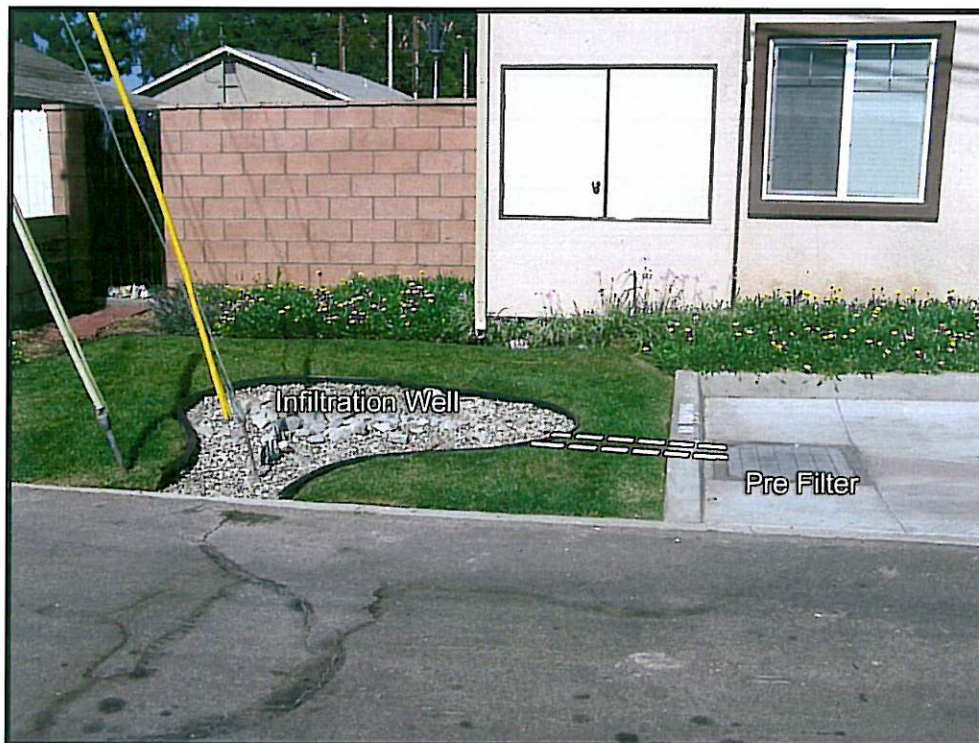
Example #2 Vegetative Swale



Example #3 Subsurface Infiltration Trench



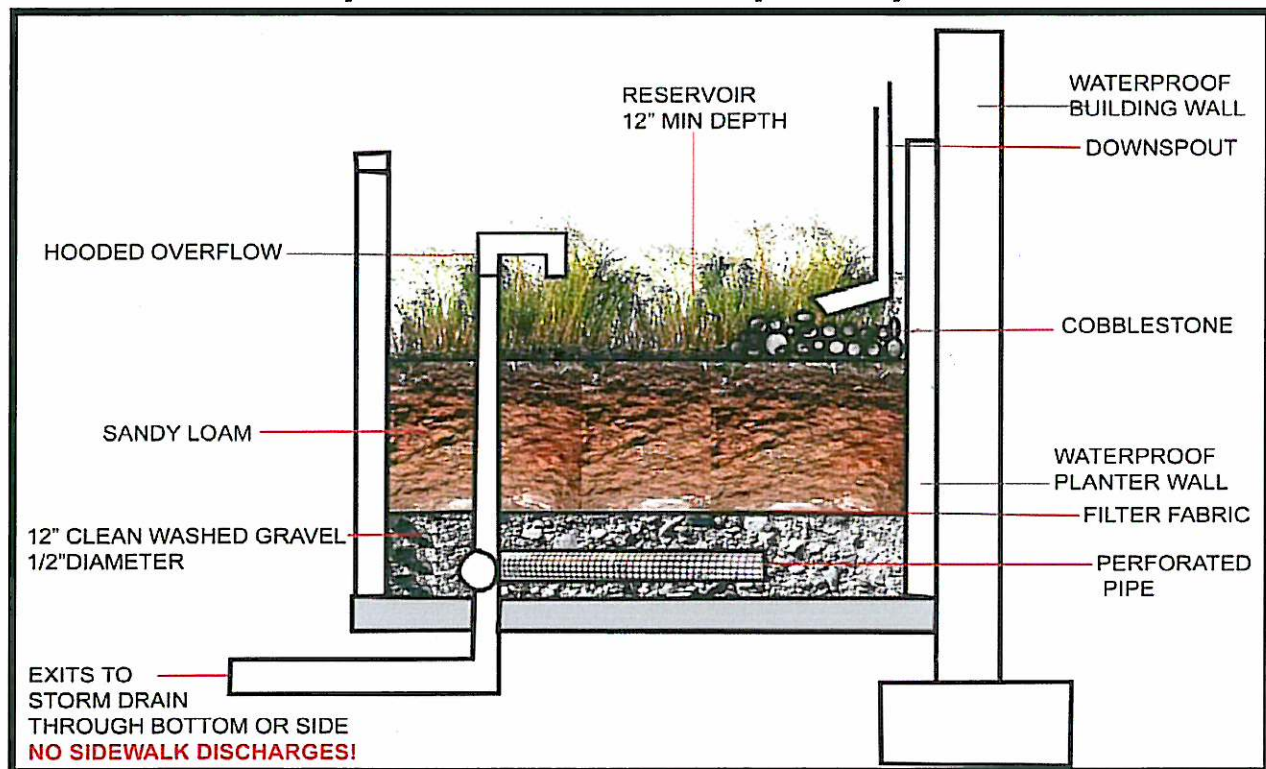
Example #4 Infiltration Well



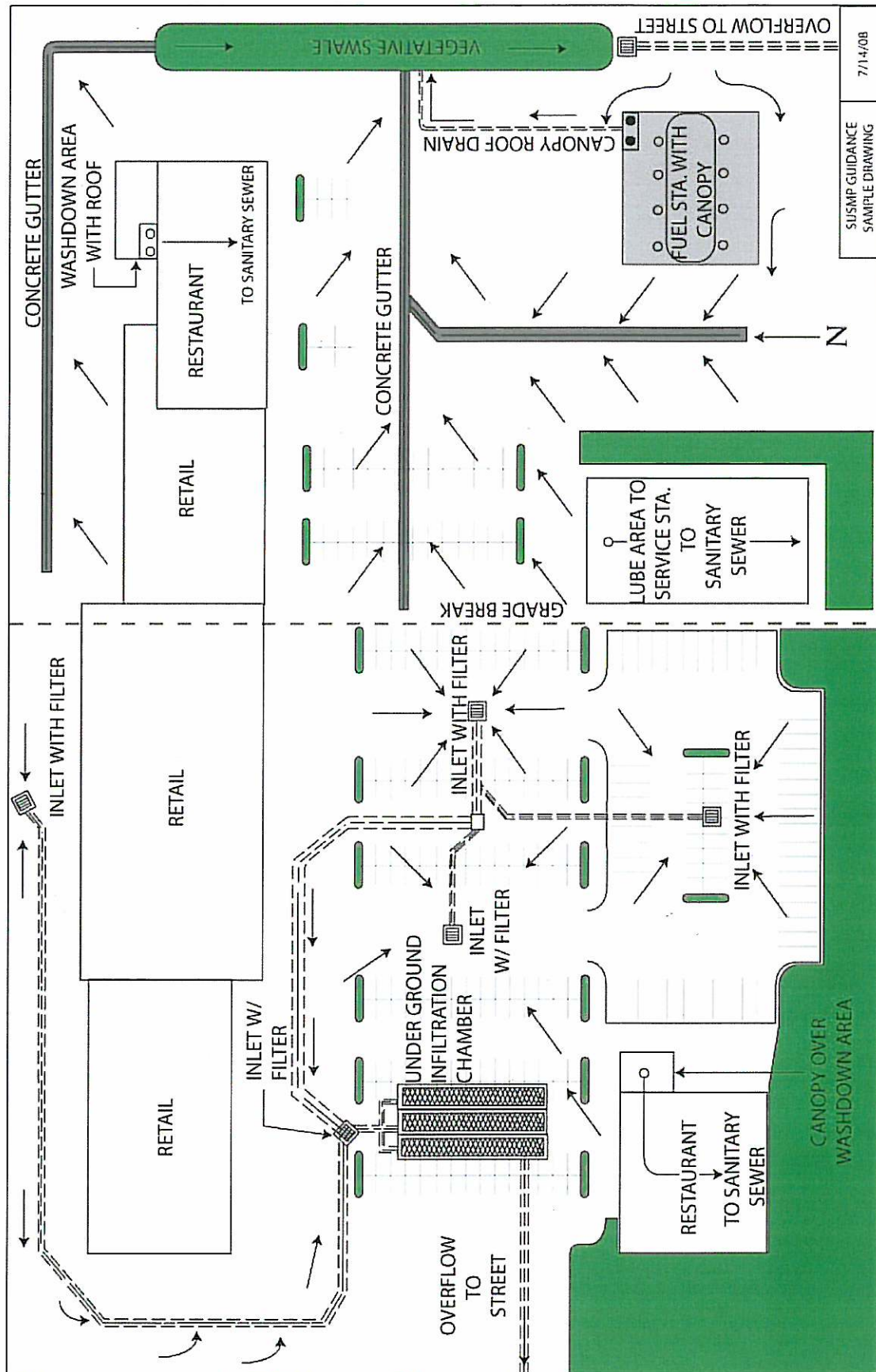
Example #5 Pavers and Infiltration



Example #6 Small Scale Evapotranspiration

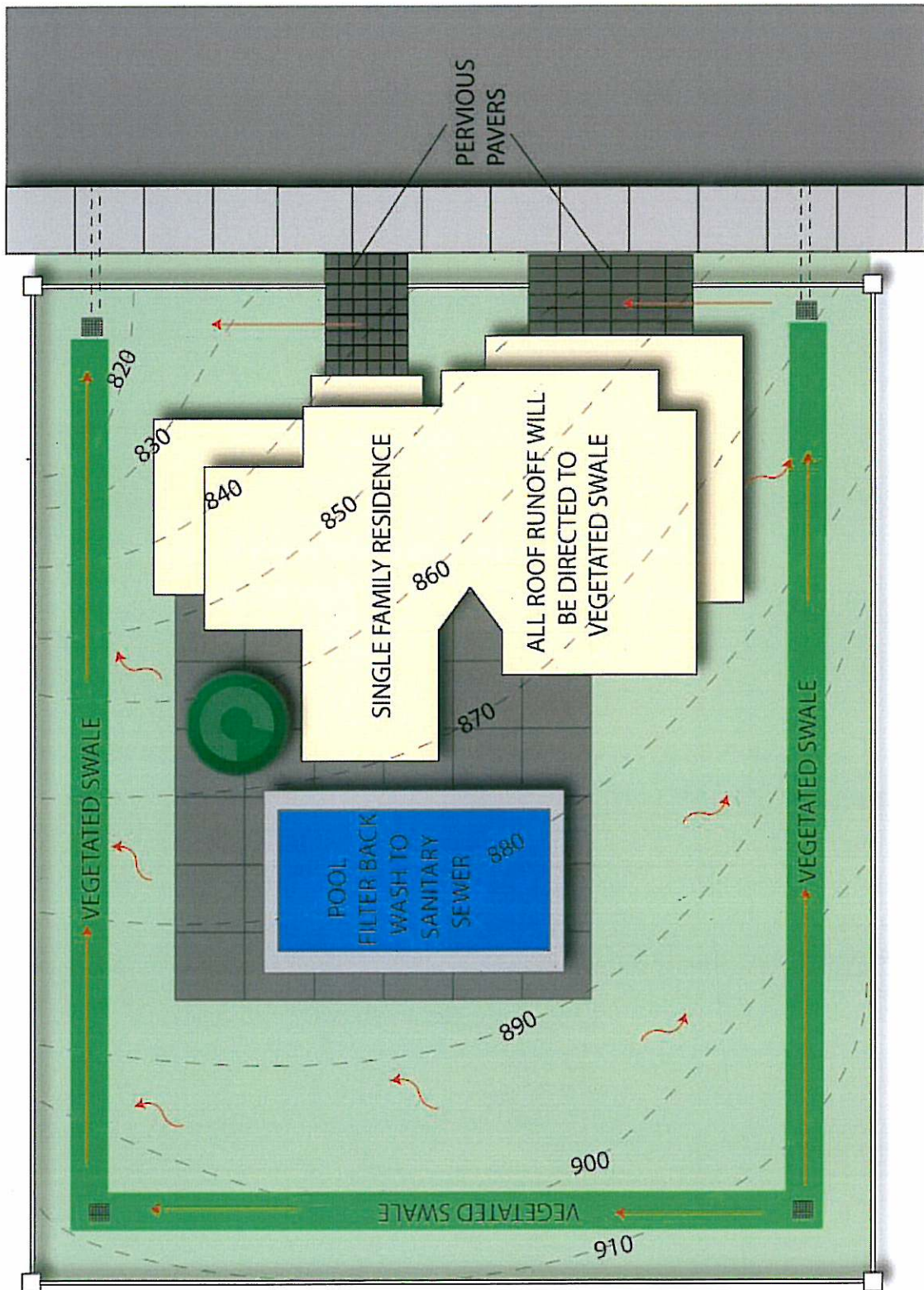


Site Design Example #1 – Commercial



SUSMP GUIDANCE
SAMPLE DRAWING
7/14/08

Site Design Example #2 – Single Family Hillside



- Forms OC1, P1, P2, PC
- One treatment BMP per row on form P2 (even if part of a treatment train)
- Wet stamp/signature on all forms and agreements
- "Stormwater Construction Notes" (SWPPP Projects only)
- 3 sets of SUSMP in a report format - include plans
- A site description including: project area and surrounding planning areas in sufficient detail to allow project location to be plotted on a base map (bordering streets, structures, etc)
- Pre-project peak stormwater runoff discharge rate
- Post-project peak stormwater runoff discharge rate
- "No Dumping - Drains to Ocean" logo or equivalent that will be installed on all privately owned and operated internal yard drains, catch basins, drain inlets draining to the street or storm drain system
- Calculations and method to capture or treat the volume of runoff produced from each storm event up to 3/4 inch of rainfall or flow through runoff resulting from a storm of 0.2 inches per hour for the entire site
- Locations of and provide treatment specifications of BMPs INCLUDING installation details on the plans
- Maintenance procedures of the treatment systems and the site
- Recorded Maintenance Covenant
- The treatment system including a filter and then infiltration or biofiltration
- If infiltration is chosen as part of the treatment process, a geotechnical letter must be submitted stating that soil will not exhibit instability as a result of implementing proposed treatment BMPs, and infiltration base is at least 10ft above groundwater, along with wet signature/stamp.

**EXAMPLE
ONLY**

STORM WATER PLANNING PROGRAM PRIORITY PROJECT CHECKLIST

**FORM
PC**

Project Name	Owner Name	Developer Name
Project Address	Owner Address	Developer Address
Check/Track Number	Owner Phone	Developer Phone

PART 1 – TYPE OF PROJECT

Does the proposed project fall into one of the following categories?	YES	NO
1. A new development of 10 or more unit homes, including single and multiple family homes, condominiums, apartments, etc.		
2. A new industrial or commercial development with 1 acre or more of impervious surface.		
3. A new automotive service facility.		
4. A new retail gasoline outlet.		
5. A new restaurant.		
6. A new parking lot with either 5,000 ft ² of impervious surface or with 25 or more parking spaces.		
7. A new hillside project (1 acre or more of surface area).		
8. Redevelopment projects		
9. Project located in, adjacent to or discharging directly to an ESA* <u>AND</u> creates 2,500 ft ² or more of impervious surface area.		

If checked YES, numerical criteria will apply to items 1,2,6-9 and items 3-5 with project areas of 5,000 ft² or more of surface area. If any of the boxes in Part 1 are checked YES, this project will require the preparation of a Standard Urban Stormwater Mitigation Plan.

* Defined in definition section of the document If all boxes are checked no, a SUSMP will not be required.

PART 2 – PROJECT SPECIFIC CONCERNS

Does the proposed project include any of the following elements?	YES	NO
1. Vehicle or equipment fueling areas (retail or private)		
2. Vehicle or equipment maintenance areas, including repair or washing		
3. Commercial or industrial waste handling or storage		
4. Outdoor handling or storage of hazardous materials		
5. Outdoor manufacturing areas		
6. Outdoor food handling or processing		
7. Outdoor animal care, confinement, or slaughter		
8. Outdoor horticulture activities		

If any of the boxes in Part 2 are checked YES, this project will require the preparation of a Site Specific Stormwater Mitigation Plan. If boxes in Parts 1 and 2 are both checked YES, a combined Standard Urban Stormwater Mitigation Plan will need to be submitted.

Applicant Name

Applicant Title

Applicant Signature

Date

cc: one copy of documents to Public Works

JLHA - PC

**EXAMPLE
ONLY**

**STORM WATER PLANNING PROGRAM
PRIORITY DEVELOPMENT &
REDEVELOPMENT PROJECTS**

**FORM
P1**

Project Name _____ Project Location _____	GENERAL PROJECT CERTIFICATION <i>A completed original of this form must accompany all SUSMP submittals.</i>
Company Name _____ Address _____	
Contact Name / Title _____ Phone / FAX / Email _____	

Best Management Practices (BMPs) have been incorporated into the design of this project to accomplish the following:

1. Minimize impacts from storm water runoff on the biological integrity of Natural Drainage Systems and water bodies in accordance with requirements under CEQA (Cal. Pub. Resources Code § 21100), CWC § 13369, CWA § 319, CWA § 402(p), CWA § 404, CZARA § 6217(g), ESA § 7, and local government ordinances.
2. Maximize the percentage of permeable surfaces to allow more percolation of storm water into the ground.
3. Minimize the amount of storm water directed to impermeable surfaces and to the MS4.
4. Minimize pollution emanating from parking lots through the use of appropriate Treatment Control BMPs and good housekeeping practices.
5. Properly design and maintain Treatment Control BMPs in a manner that does not promote breeding of vectors.
6. Provide for appropriate permanent measures to reduce storm water pollutant loads in stormwater from the development site.

I certify that this Standard Urban Storm Water Mitigation Plan and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted.

Post Construction / Maintenance Certification

As the responsible party, I certify that the BMPs will be implemented, monitored and maintained to ensure their continued effectiveness. In the event of a property transfer, the new owner will be notified of the BMPs in use at this site and must include written conditions in the sales or lease agreement, which requires the recipient to assume responsibility for maintenance and conduct a maintenance inspection at least once a year. The information contained herein is, to the best of my knowledge and belief, true, accurate, and complete.

In consideration of the execution of the City approval of the proposed Standard Urban Stormwater Mitigation Plan (SUSMP) including any proposed treatment system, the applicant hereby agrees to indemnify, save and keep the City, its officers, agents and employees free and harmless from and against any and all claims for injury, damage, loss, liability, cost and expense of any nature whatsoever, which the City, its officer, agents, or employees may suffer, sustain, incur, pay out as a result of any and all actions, suits, proceedings, claims and demands which may be brought, made, or filed against the City, its officers, agents or employees by reason of or arising out of, or in any manner connected with any and all operations permitted by this approval. This indemnification extends to further agree that the City is not responsible for any additional requirements or restrictions due to changes in regulations, policies or enforcement practices of the California Regional Water Quality Control Board, or any other applicable regulatory agencies.

Property Owner Name

Property Owner Signature

Applicant Title

Date

PLANNING BEST MANAGEMENT PRACTICES

BMP Name	BMP Identification Number and Name	✓ if to be used
Car Wash Facility	SC-21 : Vehicle and Equipment Cleaning	
Constructed Wetlands	MP-20 : Wetlands	
Control of Impervious Runoff	-N/A-	
Efficient Irrigation	-N/A-	
Energy Dissipaters	EC-10 : Velocity Dissipation Devices	
Extended Detention Basins	TC-22 : Extended Detention Basin	
Infiltration Basins	TC-11 : Infiltration Basins	
Infiltration Trenches	TC-10 : Infiltration Trenches	
Inlet Trash Racks	-N/A-	
Landscape Design	EC-2 : Preservation of Existing Vegetation EC-4 : Hydro seeding EC-6 & EC-8 : Straw & Wood Mulching	
Linings for Urban Runoff Conveyance Channels	-N/A-	
Materials Management	SC-30 : Outdoor Loading/Unloading	
Media Filtration	TC-40 : Media Filter	
Motor Fuel Concrete Dispensing Areas	SC-20 : Vehicle and Equipment Fueling	
Motor Fuel Dispensing Area Canopy	SC-20 : Vehicle and Equipment Fueling	
Water Quality Inlets	TC-50 : Water Quality Inlet	
Outdoor Storage	SC-31 : Outdoor Liquid Container Storage SC-33 : Outdoor Storage of Raw Materials	
Porous Pavement and/or Alternative Surfaces	-N/A-	
Protect Slopes and Channels	EC-11 : Slope Drains EC-12 : Streambank Stabilization	
Self-Contained Areas for Vehicle or Equipment Washing, Steam Cleaning, Maintenance, Repair, or Material Processing	SC-21 : Vehicle and Equipment Cleaning SC-22 : Vehicle and Equipment Repair SC-32 : Outdoor Equipment Operations	
Storm Drain System Stenciling and Signage	SC-34 : Waste Handling and Disposal (Signage Section)	
Trash Container Areas	SC-34 : Waste Handling and Disposal	
Vegetated Swales and Strips	TC-32 : Bioretention	
Wet Ponds	TC-20 : Wet Ponds	
Other:	• • •	

Please refer to the California Storm Water Best Management Practice Handbooks for more information.

STRUCTURAL/TREATMENT BMPs

(attach additional sheets as necessary)

Area Designation (must correspond on plans)	Area (ft ²)	Average Impervious Factor	Estimated Flow Rates or Volume*	Anticipated Potential Pollutants	Type of BMP (include model number if any)	BMP Location (briefly describe)	Design Treatment Capacity

Recording requested by and mail to:

Name: EXAMPLE ONLY

Address: EXAMPLE ONLY

***** Space Above This Line For Recorder's Use *****

**MASTER COVENANT AND AGREEMENT
REGARDING ON-SITE BMP MAINTENANCE**

The undersigned hereby certifies I am (we are) the owner(s) of the hereinafter legally described real property located in the City, County of Los Angeles, State of California (please give legal description: assessor's ID, tract no, lot not, etc.):

Site Address _____

I (we) do hereby covenant and agree to and with the City to maintain according to the O&M Plan (attachment 1), all on-site structural stormwater pollution removal devices including but not limited to: Detention/Sedimentation System, Filtration Systems, Infiltration Systems, Oil and Water Separators, Water Quality Inlets and Dry Wells. The specific structural BMPs are listed as follows:

That owner(s) shall maintain the listed drainage devices above on the property indicated and as shown on plans permitted by the City of in a good and functional condition to safeguard the property owners and adjoining properties from damage and pollution.

That owner(s) shall provide printed educational materials with any sale of the property which provide information on what stormwater management facilities are present, the type(s) and location(s) of maintenance signs that are required, and how the necessary maintenance can be performed.

This covenant and agreement shall run with the land and shall be binding upon any future owners, encumbrances, their successors, heirs or assigns and shall continue in effect until the Engineering Division of the City of approves its termination.

(Print Name of Property Owner)

(Print Name of Property Owner)

(Signature of Property Owner)

(Signature of Property Owner)

Dated this _____ day of _____ 20 ____.

***** Space Below This Line For Notary's Use *****

ALL PURPOSE ACKNOWLEDGEMENT

STATE OF CALIFORNIA, COUNTY OF LOS ANGELES

On _____ before me, _____ (name and title of officer), personally appeared _____, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Notary Public Signature (SEAL)

Definitions:

Pervious surfaces are those that allow storm water runoff to percolate through. Typical pervious surfaces include: grass, gravel, concrete pavers, and some specially designed asphalts.

Hillside means property where the slope is 25% or greater and where grading contemplates cut or fill slopes.

Redevelopment means land-disturbing activity that result in the creation, addition, or replacement of 5,000 ft² or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to:

- The expansion of a building footprint;
- Addition or replacement of a structure;
- Replacement of impervious surface area that is not part of a routine maintenance activity; and
- Land disturbing activities related to structural or impervious surfaces

It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include modifications to existing single family structures, or emergency construction activities required to immediately protect public health and safety.

Environmentally Sensitive Areas (ESAs) means an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and would be disturbed or degraded by human activities and developments. Also, an area designated by the City as approved by the Regional Water Quality Control Board.

- Other definitions can be found on the MS4 NPDES Permit -

http://www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/municipal/

**Standard Urban Stormwater Mitigation Plan
(SUSMP)**

for

PROJECT NAME

PROJECT ADDRESS

Tract No. / CUP No. / Etc.

PREPARED FOR

**Name of Owner/Developer
Street Address
City, State, Zip Code
Telephone No.
Fax No.**

PREPARED BY

**Name of Firm that prepared SUSMP
Name of Person that prepared SUSMP
Street Address
City, State, Zip Code
Telephone No.
Fax No.
Email**

SUSMP Prepared: MONTH, DAY, YEAR

OWNER'S CERTIFICATION

Standard Urban Stormwater Mitigation Plan for

PROJECT NAME
Tract No. / CUP No. / Etc.

This Standard Urban Stormwater Mitigation Plan (SUSMP) for [insert project name] has been prepared for [insert name of owner/developer] by [name of firm that prepared SUSMP]. This SUSMP is intended to comply with the requirements of the City of Culver City, County of Los Angeles, requiring the preparation of a project specific SUSMP.

I certify under penalty of law that this document and all attachments were prepared under my jurisdiction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for the gathered information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Los Angeles County Stormwater Quality Management Plan (SQMP), and the intent of the stormwater and urban runoff NPDES Permit and Waste Discharge Requirements for the County of Los Angeles, Los Angeles County Flood Control District and the incorporated Cities of Los Angeles County under the jurisdiction of the Los Angeles Regional Water Quality Control Board. A copy of this SUSMP will be maintained at the project site/office.

This SUSMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party having responsibility for implementing portions of this SUSMP. At least one copy of the approved and certified copy of this SUSMP shall be available on the subject property in perpetuity. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the SUSMP.

[SIGN HERE]

Owner/Engineer of Record's Signature

[INSERT NAME]

Company

[INSERT NAME]

Printed Name/Title

[INSERT ADDRESS]

Company Address

[INSERT NUMBER]

Telephone No.

[INSERT DATE]

Date

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I. Project Description

1. Project Information

- Name of project owner.
- Address of project owner.
- Telephone/email for project owner.
- Describe ownership of all portions of project and site.
 1. Will any infrastructure be transferred to public agencies (City, County, Caltrans, etc.)?
- Project site address.

2. Permits

- List all tract or permit number(s), condition number(s), and any acquired waste discharge identification numbers (WDIDs) pertaining to the project.

3. Project Description

- Provide a detailed project description, include the following:
 1. Land-use type or category (see Form PC).
 2. Project size/disturbed area of land.
 3. Will a homeowners or property owners association be formed?
Will the association be involved in long term maintenance?
Provide verification of BMP maintenance provisions. Also, for BMPs in common and developments with Home Owner Associations: covenants, conditions, and restrictions (CC&Rs) or equivalent legal binding documentation must be provided (see attached Master Covenant & Agreement).
- Describe all paved areas, including the type of parking areas.
- Describe all landscaped areas.
- INDUSTRIAL/COMMERCIAL:
 - Describe completely and accurately where facilities will be located.
 - What kinds of materials and products will be used?
 - How and where materials will be received and stored?
 - What kinds of wastes will be generated?
 - Provide Standard Industrial Classification (SIC) Code which best describes the facilities operations?
 - Describe the type of use (or uses) for each building or tenant space.
 - Does project include food preparation, cooking, and eating areas (specify location and type of area)?
 - Describe delivery areas and loading docks (specify location and design and if below grade and types of materials expected to be stored).
 - Describe outdoor materials storage areas (describe and depict location(s), specify type(s) of materials expected to be stored).
 - Describe activities that will routinely be conducted outdoors.
 - Describe any activities associated with equipment or vehicle maintenance and repair, including washing or cleaning. Indicates number of service bays or number of fueling islands/fuel pumps, if applicable.
- RESIDENTIAL:
 - Range of lot and home sizes;
 - Describes all community facilities such as: laundry, car wash, swimming pools, Jacuzzi, parks, open spaces, tot lots, etc.

4. Site Description

- Describe project area and surrounding planning areas in sufficient detail to allow project location to be plotted on a base map (bordering streets, structures, etc.).
- Provide site address and site size.
 1. Provide total site area (square footage/nearest tenth acre).
 2. Provide total area of land being disturbed (square footage/nearest tenth acre).
- Identify soil type(s) and the quantity and percentage of pervious and impervious surface for pre-project and post-project conditions.
- Describe pre-project site drainage and how it ties into the drainage of surrounding or adjacent areas.

- Describe proposed project drainage and how it ties into drainage of surrounding or adjacent areas.
- Indicate the pre-project and post-project peak stormwater runoff discharge rates.
 1. Post-development peak storm water runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increased peak storm water discharge rate will result in increased potential for downstream erosion.
- Indicate any potential for downstream erosion flow in an unlined culvert, creek, or other erosive drainage way.
- Identify the watershed in which the project is located and the:
 1. downstream receiving waters
 2. known water quality impairments as included in the 303(d) list
 3. applicable Total Maximum Daily Loads (TMDL)
 4. hydrologic conditions of concern
- Identify known Environmentally Sensitive Areas (ESA) and Areas of Special Biological Significance (ASBS) within the vicinity and their proximity to the project.
- Identify the potential stormwater or urban runoff pollutants reasonably expected to be associated with the project.
- Describe how any adverse impacts will effectively be mitigated through the incorporation and implementation of BMPs.

II. Best Management Practices

1. Minimize stormwater runoff/runoff rate, minimize project's impervious footprint, conserve natural areas, such as:

- a. Maximize the permeable area. This can be achieved in various ways, including but not limited to, increasing building density (number of stories above or below ground) and developing land use regulations seeking to limit impervious surfaces.
- b. Runoff from developed areas may be reduced by using alternative materials or surfaces with a lower coefficient of runoff, or "C-Factor".
- c. Conserve natural areas. This can be achieved by concentrating or clustering development on the least environmentally sensitive portions of a site while leaving the remaining land in a natural, undisturbed condition.
 - i. Explain/show any portion of land or native vegetation to remain in undisturbed condition.
 - ii. Explain/show any areas of maximized vegetation.
 - iii. Identify any riparian areas and wetlands that will remain undisturbed.
 - iv. Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.
 - v. Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.
 - vi. Promote natural vegetation by using parking lot islands and other landscaped areas.
- d. Construct walkways, trails, patios, overflow parking lots, alleys, driveways, low-traffic streets, and other low-traffic areas with open-jointed paving materials or permeable surfaces, such as pervious concrete, porous asphalt, unit pavers, and granular materials.
- e. Construct streets, sidewalks, and parking lot aisles to the minimum widths necessary, provided that public safety and a pedestrian friendly environment are not compromised. Incorporate landscape buffer areas between sidewalks and streets.
- f. Where soils conditions are suitable, use perforated pipes or gravel filtration pits for low flow infiltration.
- g. Construct onsite ponding areas, rain gardens, or retention facilities to increase opportunities for infiltration, while being cognizant of the need to prevent the development of vector breeding areas.

2. Minimize directly connected impervious areas:

- a. Where landscaping is proposed, drain rooftops into adjacent landscaping prior to discharging to the storm drain.
- b. Where landscaping is proposed, drain impervious sidewalks, walkways, trails, and patios into adjacent landscaping.
- c. Increase the use of vegetated drainage swales in lieu of underground piping or imperviously lined swales.
- d. System can be designed to capture the first flush and discharged to adjacent vegetated swale or gravel shoulder, high flows can connect directly to municipal storm drain systems.
- e. Overflow parking (parking stalls provided in excess of the Agency's minimum parking requirements) may be constructed with permeable paving.

3. Protect slopes and channels

- a. Show all BMPs used to decrease the potential of slopes/channels from eroding and impacting stormwater runoff.
- b. Describe methods to stabilize disturbed and denuded slopes through the use of additional conveyance and/or re-vegetation.
 - i. For re-vegetation purposes, native or drought tolerant plants are the preferred selection.
- c. Describe methods to utilize natural drainage systems to the maximum extent practicable.
- d. Show all energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion, with the approval of all agencies with jurisdiction, e.g., the US Army Corps of Engineers and the California Department of Fish and Game.

4. Provide storm drain system stenciling and signage

- a. Show the "No Dumping – Drains to Ocean" logo or equivalent that will be installed on all privately owned and operated internal yard drains, catch basins, and drain inlets draining to the street or storm drain system.
- b. Indicate that the "No Dumping" logos be post at all ingress and egress points of the channel. If there are no ingress/egress points, signs must be posted every 300-foot intervals.

5. Properly design outdoor material storage areas

- a. Show any outdoor material storage areas in the project.
- b. Provide storage enclosure or secondary containment (berms, dikes, curbs) to prevent contact with or containment of stormwater runoff.
- c. Describe impervious paving for spill containment.
- d. Detail roof structure over containment area (any overhangs for storage areas must be greater than 20% of the height).

6. Properly design trash storage areas

- a. Show any trash storage areas in the project.
- b. Indicate that the trash enclosure will have screens or walls to minimize the transport of trash and litter by the wind or water.
- c. Indicate that the trash enclosure drainage will be directed to vegetated areas where feasible.
- d. Show that runoff water from adjoining roofs and pavement will be directed around trash areas to avoid flow through.

7. Subterranean parking/storage

- a. Provide backup generator or other alternate power source to instantaneously start in the even of a power failure when roof water or other significant runoff source is directed to the basement or other subterranean portions of the structure.
- b. Provide a note on plans (and within the SUSMP) that there will be no hose bibs or washing areas in any subterranean parking areas. Provide domestic plumbing plan with notes to this effect.
- c. Provide and show on plans a rain diversion system (trench drain/sump pump, etc.) to intercept and prevent any rainfall from entering parking areas via ramps. (This diverted water must be treated prior to discharge to storm drain system).
- d. Unless otherwise approved under a valid Industrial Waste Discharge Permit or equivalent, all floor drains in subterranean parking areas must discharge via a treatment BMP, to the storm drain system.

Site Design BMPs

Technique	Included?		If no, state justification.
	Yes	No	
Minimize Directly Connected Impervious Areas (DCIAs) (C-Factor Reduction)			
Create Reduced or "Zero Discharge" Areas (Runoff Volume Reduction) ¹			
Minimize Impervious Area/Maximize Permeability (C-Factor Reduction) ²			
Conserve Natural Areas (C-Factor Reduction)			

¹ Detention and retention areas incorporated into landscape design provide areas for retaining and detaining stormwater flows, resulting in lower runoff rates and reductions in volume due to limited infiltration and evaporation. Such Site Design BMPs may reduce the size of Treatment Control BMPs.

² The "C Factor" is a representation of the ability of a surface to produce runoff. Surfaces that produce higher volumes of runoff are represented by higher C Factors. By incorporating more pervious, lower C Factor surfaces into a development, lower volumes of runoff will be produced. Lower volumes and rates of runoff translate directly to lowering treatment requirements.

Include narrative describing how site design concepts were considered and incorporated into project plans.

MINIMIZE STORM WATER POLLUTANTS OF CONCERN

Development must be designed so as to minimize, to the maximum extent practicable, the introduction of pollutants of concern that may result in significant impacts.

- Pollutants of concern, consist of the pollutants that exhibit one or more of the following characteristics:
 - Current loadings or historic deposits of the pollutant are impacting the beneficial uses of a receiving water
 - Elevated levels of the pollutants are found in sediments of receiving water and/or have the potential to bioaccumulate in organisms therein, or the detectable inputs of the pollutant are at a concentrations or loads considered potentially toxic to humans and/or flora and fauna.
- In meeting this specific requirement, "minimization of the pollutants of concern", will require the incorporation of a BMP or combination of BMPs best suited to maximize the reduction of pollutant loadings in that runoff to the Maximum Extent Practicable.

*Downspouts must have splash blocks or equivalent if not hard piped to a treatment facility.

DESIGN STANDARDS FOR STRUCTURAL OR TREATMENT CONTROL BMPs

- Explain how the pollutants of concern are treated before runoff is discharged off of the property.
- Provide calculations and describe the method to mitigate (treat and infiltrate) stormwater runoff from:
 - Flow Based Treatment Control
 - The flow of runoff produced from a rain event equal to at least 0.2" per hour intensity, for the entire site, including roof, roadways, and driveways, and
 - Volumetric Treatment Control
 - The volume of runoff produced from a ¾" storm event, prior to its discharge to a storm water conveyance system, or

AND

Control peak flow discharge to provide stream channel and over bank flood protection, based on flow design criteria.

- For existing developed facilities, treatment of runoff from the entire site is required if more than 50% of the site is being redeveloped.
- Complete Form P2, using ONE row for EACH treatment BMP (e.g. each filter completes ONE line)
- Show locations of and provide treatment specifications of BMPs, **including** installation details on the plans.
 - Plans should have picture, make, and model of the treatment system included.
- Describe the maintenance procedures of the treatment systems, be specific.
 - e.g. Filters will be inspected/cleaned every two weeks. The filters will be replaced as needed, **but** no less than once a year.
- Treatment systems are **NOT** permitted in the public right-of-way.
- Provide copy of sanitary sewer agency approval for rainwater diversion systems.
- Facilities draining to and intending to use treatment facilities on other parcels **MUST** have a recorded easement or other legally binding agreement between landowners.
- Rainwater from escalator and elevator pits must be directed to holding tanks and properly disposed of.
- Note on plans that structural BMPs must be accessible for inspection by City personnel during regular business hours.
- Treatment BMPs should be designed so that standing water does not occur. If there is no alternative, show that:
 1. the water will be pumped out within 72 hours of a rainstorm, and
 2. there will be no dry-weather flows into the treatment BMPApplicants with other treatment BMPs should obtain clearance from the local mosquito abatement district as part of this review process.
- Landscaped areas can only be used as treatment BMPs if properly designed as such. Provide evidence of treatment capabilities (retention calculations, grass type and height, slopes, area, etc.)
- Vegetative (landscape) treatment system must not have slopes greater than 6%. Check dams and equivalent must be installed every 50 to 100 on slopes between 4-6% to reduce velocity.

LIMITATION ON THE USE OF INFILTRATION BMPs

Three factors significantly influence the potential for storm water to contaminate ground water. They are (i) pollutant mobility, (ii) pollutant abundance in storm water, (iii) and soluble fraction of pollutant. The risk of contamination of groundwater may be reduced by pretreatment of storm water. A discussion of limitations and guidance for infiltration practices is contained in, *Potential Groundwater Contamination from Intentional and Non-Intentional Stormwater Infiltration, Report No. EPA/600/R-94/051, USEPA (1994)*. In addition, the distance of the groundwater table from the infiltration BMP may also be a factor determining the risk of contamination. A water table distance separation of ten feet depth in California presumptively poses negligible risk for storm water not associated with industrial activity or high vehicular traffic.

Infiltration BMPs are not recommended for areas of industrial activity or areas subject to high vehicular traffic (25,000 or greater average daily traffic (ADT) on main roadway or 15,000 or more ADT on any intersecting roadway) unless appropriate pretreatment is provided to ensure groundwater is protected and the infiltration BMP is not rendered ineffective by overload.

3. Implementation, Maintenance and Inspection Responsibility for BMPs

(Operation & Maintenance Plan)

- Describes the implementation frequency and identifies the entity or party responsible for implementation of each non-structural BMP.
- Identifies the entity (or entities) responsible for the long-term inspection and maintenance of all structural source control BMPs and all Treatment Control BMPs, including name, title, company, address, and phone number.
- Describes the minimum frequency for inspection and maintenance to ensure the effectiveness of each structural source control BMP and each Treatment Control BMP.
- If ownership of the Treatment Control BMPs will be transferred to a public agency, does the WQMP include an Attachment indicating the public agency's intent to accept the Treatment Control BMPs as designed?
- Is an appropriate mechanism for the long-term operation and maintenance, including funding, in place?

PROOF OF ONGOING BMP MAINTENANCE

Improper maintenance is one of the most common reasons why water quality controls will not function as designed or which may cause the system to fail entirely. It is important to consider who will be responsible for maintenance of a permanent BMP, and what equipment is required to perform the maintenance properly. As part of project review, if a project applicant has included or is required to include, Structural or Treatment Control BMPs in project plans, the City of Culver City shall require that the applicant provide verification of maintenance provisions through such means as may be appropriate, including, but not limited to legal agreements, covenants, CEQA mitigation requirements and/or Conditional Use Permits.

For all properties, the verification will include the developer's signed statement, as part of the project application, accepting responsibility for all structural and treatment control BMP maintenance until the time the property is transferred and, where applicable, a signed agreement from the public entity assuming responsibility for Structural or Treatment Control BMP maintenance. The transfer of property to a private or public owner must have conditions requiring the recipient to assume responsibility for maintenance of any Structural or Treatment Control BMP to be included in the sales or lease agreement for that property, and will be the owner's responsibility. The condition of transfer shall include a provision that the property owners conduct maintenance inspection of all Structural or Treatment Control BMPs at least once a year and retain proof of inspection.

For residential properties where the Structural or Treatment Control BMPs are located within a common area which will be maintained by a homeowner's association, language regarding the responsibility for maintenance must be included in the projects conditions, covenants and restrictions (CC&Rs). Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what storm water management facilities are present, signs that maintenance is needed, how the necessary maintenance can be performed, and assistance that the City of Culver City can provide. The transfer of this information shall also be required with any subsequent sale of the property.

If Structural or Treatment Control BMPs are located within a public area proposed for transfer, they will be the responsibility of the developer until they are accepted for transfer by the County or other appropriate public agency. Structural or Treatment Control BMPs proposed for transfer must meet design standards adopted by the public entity for the BMP installed and should be approved by the County or other appropriate public agency prior to its installation.

Location Map, Site Plan, and BMP Details

- Has an 11" x 17" (minimum) to 36" x 48" (maximum) plot plan been included?
- Do all figures, maps, plot plans, etc. have a legend, including a North arrow and scale?
- Are all facilities labeled for the intended function?
- Are all areas of outdoor activity labeled?
- Are all structural BMPs indicated?
- Is drainage flow information, including general surface flow lines, concrete or other surface ditches or channels, as well as storm drain facilities such as catch basins and underground storm drain pipes depicted?
- Depicts where and how on-site drainage ties into the off-site drainage system.
- Includes location of roof drains, drainage swales, underground piping, sumps and sump pump locations from the point of origin to the offsite discharge point.

Educational Materials

Insert text and list materials included.

PROVISIONS APPLICABLE TO INDIVIDUAL PRIORITY PROJECT CATEGORIES

A. SINGLE FAMILY HILLSIDE HOME

- (1) Conserve natural areas; Protect slopes and channels; Provide storm drain system stenciling and signage;
- (2) Divert roof runoff AND surface flow to vegetated areas before discharge unless the diversion would result in slope instability; minimum 10-foot wide areas, 1,200 ft² of treatment area per acre of tributary area (treatment areas must have a slope of less than 2-6% if provided with check dams every 50-100 feet).
- (3) Show any canyons that will be filled, cut or otherwise disturbed (even if only on a temporary basis).

B. 1 acre (43,560 ft²) INDUSTRIAL/COMMERCIAL DEVELOPMENTS

- (1) Properly design loading/unloading dock areas
Loading/unloading dock areas have the potential for material spills to be quickly transported to the storm water conveyance system. To minimize this potential, the following design criteria are required:
 - Cover loading dock areas or design drainage to minimize run-on and runoff of storm water.
 - Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.
 - If no depressed docks, roof must extend beyond the grade break or be equipped with equivalent berms, drainage to vegetative areas, etc.
 - Roofs must extend a minimum of 20% the roof height.
 - Roof downspouts must not discharge to dock areas.
 - Show that there are no hoses in loading area unless specifically needed for fire fighting or the area is equipped with a permitted pre-treatment system.
- (2) Properly design repair/maintenance bays
Oil and grease, solvents, car battery acid, coolant and gasoline from the repair/maintenance bays can negatively impact storm water if allowed to come into contact with storm water runoff. Therefore, design plans for repair bays must include the following:
 - Repair/maintenance bays must be indoors or designed in such a way that do not allow storm water run-on or contact with storm water runoff.
 - Design a repair/maintenance bay drainage system to capture all wash water, leaks and spills. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required by local jurisdiction, obtain an Industrial Waste Discharge Permit.
- (3) Properly design vehicle/equipment wash areas
The activity of vehicle/equipment washing/steam cleaning has the potential to contribute metals, oil and grease, solvents, phosphates, and suspended solids to the storm water conveyance system. Include in the project plans an area for washing/steam cleaning of vehicles and equipment. The area in the site design must be:
 - Self-contained and/ or covered, equipped with a clarifier, or other pretreatment facility, and properly connected to a sanitary sewer.
 - If not, a rain diversion system must be installed.

C. RESTAURANTS

- (1) SUSMP must show that equipment cleaning areas will be indoors or, if outside, see #2.
- (2) Properly design equipment/accessory wash areas
The activity of outdoor equipment/accessory washing/steam cleaning has the potential to contribute metals, oil and grease, solvents, phosphates, and suspended solids to the storm water conveyance system. Include in the project plans an area for the washing/steam cleaning of equipment and accessories. This area must be:
 - Self-contained, equipped with a grease trap, and properly connected to a sanitary sewer.
 - If the wash area is to be located outdoors, it must be covered, paved, have secondary containment, and be connected to the sanitary sewer.
- (3) Show any grease interceptor or other industrial waste pretreatment system.
- (4) Identify and describe area(s) designated for storage of waste grease and other materials.

D. RETAIL GASOLINE OUTLETS

- (1) Properly design fueling area
Fueling areas have the potential to contribute oil and grease, solvents, car battery acid, coolant and gasoline to the storm water conveyance system. The project plans must include the following BMPs:
 - The fuel dispensing area must be covered with an overhanging roof structure or canopy that extends a minimum of 20% of the height beyond the fueling area grade breaks.

- The canopy must not drain onto the fuel dispensing area, and the canopy downspouts must be routed to prevent drainage across the fueling area.
- The fuel dispensing area must be paved with Portland cement concrete (or equivalent smooth impervious surface), and the use of asphalt concrete shall be prohibited.
- The fuel dispensing area must have a 2% to 4% slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of storm water to the extent practicable.
- At a minimum, the concrete fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.

E. AUTOMOTIVE REPAIR SHOPS

(1) Properly design repair/maintenance bays

Oil and grease, solvents, car battery acid, coolant and gasoline from the repair/maintenance bays can negatively impact storm water if allowed to come into contact with storm water runoff. Therefore, design plans for repair bays must include the following:

- Repair/maintenance bays must be indoors or designed in such a way that do not allow storm water run-on or contact with storm water runoff.
- Design a repair/maintenance bay drainage system to capture all wash water, leaks and spills. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required by local jurisdiction, obtain an Industrial Waste Discharge Permit.
- Show any trench drain connected to an industrial waste clarifier or equivalent installed at the entrance to the maintenance bay.
- If no drains are provided in the service bays to sanitary sewer system, provide a detailed description and protocol of how the bays will be cleaned.

(2) Properly design vehicle/equipment wash areas

The activity of vehicle/equipment washing/steam cleaning has the potential to contribute metals, oil and grease, solvents, phosphates, and suspended solids to the storm water conveyance system. Include in the project plans an area for washing/steam cleaning of vehicles and equipment. The area in the site design must be:

- Self-contained and/ or covered, equipped with a clarifier, or other pretreatment facility, and properly connected to a sanitary sewer.
- If not, a rain diversion system must be installed.

(3) Properly design loading/unloading dock areas

Loading/unloading dock areas have the potential for material spills to be quickly transported to the storm water conveyance system. To minimize this potential, the following design criteria are required:

- Cover loading dock areas or design drainage to minimize run-on and runoff of storm water.
- Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.

F. PARKING LOTS

(1) Describe the maintenance schedule (sweeping and removal of excessive oil, grease and build up; be specific).

(2) Show how impervious land coverage of parking areas will be reduced.

(3) Show and describe "Hybrid Parking" (combination pervious and impervious pavement).

(4) Properly design parking area

Parking lots contain pollutants such as heavy metals, oil and grease, and polycyclic aromatic hydrocarbons that are deposited on parking lot surfaces by motor-vehicles. These pollutants are directly transported to surface waters. To minimize the offsite transport of pollutants, the following design criteria are required:

- Reduce impervious land coverage of parking areas.
- Infiltrate runoff before it reaches storm drain system.
- Treat runoff before it reaches storm drain system.

(5) Properly design to limit oil contamination and perform maintenance

Parking lots may accumulate oil, grease, and water insoluble hydrocarbons from vehicle drippings and engine system leaks.

- Treat to remove oil and petroleum hydrocarbons at parking lots that are heavily used (e.g. fast food outlets, lots with 25 or more parking spaces, sports event parking lots, shopping malls, grocery stores, discount warehouse stores).
- Ensure adequate operation and maintenance of treatment systems particularly sludge and oil removal, and system fouling and plugging prevention control.