

**Major Stormwater Management Plan
(Major SWMP)**

**For
Tentative Map 5576 - Vista de Lamar
(PDS2013-TM-5576)**

**Preparation / Revision Date:
September 4, 2013 / December 13, 2013**

Prepared For:
Salim Miro, Managing Partner
SCSS Development, LLC
2608 West Canyon Avenue
San Diego, CA 92123
(619) 246-8012

Prepared By:



Lawrence W. Walsh
Lawrence W. Walsh, RCE 46316

12-13-13

Date



Walsh Engineering & Surveying, Inc.
607 Aldwych Road, El Cajon, CA 92020
(619) 588-6747 (619) 792-1232 Fax

The selection, sizing, and preliminary design of stormwater treatment and other control measures in this plan have been prepared under the direction of the above-stated Registered Civil Engineer and meet the requirements of Regional Water Quality Control Board Order R9-2007-0001 and subsequent amendments.

**SDC PDS RCVD 12-17-13
TM5576**

The Major Stormwater Management Plan (Major SWMP) must be completed in its entirety and accompany applications to the County for a permit or approval associated with certain types of development projects. To determine whether your project is required to submit a Major or Minor SWMP, please reference the County’s Stormwater Intake Form for Development Projects.

Project Name:	Vista De Lamar Tentative Map
Project Location/Address:	3053 & 3055 Bancroft Drive, Spring Valley
Permit Number (Land Development Projects):	PDS2013-TM-5576
Work Authorization Number (CIP only):	
Applicant:	Salim Miro, Managing Partner
Applicant’s Address:	2608 West Canyon Av. San Diego, CA 92123
Plan Prepared By (<i>Leave blank if same as applicant</i>):	Walsh Engineering & Surveying, Inc.
Preparer’s Address:	607 Aldwych Road, El Cajon, CA 92020
Date:	December 13, 2013

The County of San Diego Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) (Ordinance No. 9926) requires all applications for a permit or approval associated with a Land Disturbance Activity to be accompanied by a Storm Water Management Plan (SWMP) (section 67.806.b). The purpose of the SWMP is to describe how the project will minimize the short and long-term impacts on receiving water quality. Projects that meet the criteria for a priority development project are required to prepare a Major SWMP.

Since the SWMP is a living document, revisions may be necessary during various stages of approval by the County. Please provide the approval information requested below.

Project Stages	Does the SWMP need revisions?		If YES, Provide Revision Date	County Reviewer
	YES	NO		

Instructions for a Major SWMP can be downloaded at <http://www.sdcounty.ca.gov/dpw/watersheds/susmp/susmp.html>

Completion of the following checklists and attachments will fulfill the requirements of a Major SWMP for the project listed above.

STEP 1

PRIORITY DEVELOPMENT PROJECT DETERMINATION

TABLE 1: IS THE PROJECT IN ANY OF THESE CATEGORIES?

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	A	Housing subdivisions of 10 or more dwelling units. Examples: single-family homes, multi-family homes, condominiums, and apartments.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	B	Commercial—greater than one acre (total disturbed area). Any development other than heavy industry or residential. Examples: hospitals; laboratories and other medical facilities; educational institutions; recreational facilities; municipal facilities; commercial nurseries; multi-apartment buildings; car wash facilities; mini-malls and other business complexes; shopping malls; hotels; office buildings; public warehouses; automotive dealerships; airfields; and other light industrial facilities.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	C	Heavy industry—greater than one acre (total disturbed area). Examples: manufacturing plants, food processing plants, metal working facilities, printing plants, and fleet storage areas (bus, truck, etc.).
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	D	Automotive repair shops. A facility categorized in any one of Standard Industrial Classification (SIC) codes 5013, 5014, 5541, 7532-7534, or 7536-7539.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	E	Restaurants. Any facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is greater than 5,000 square feet. Restaurants where land development is less than 5,000 square feet shall meet all SUSMP requirements except for structural treatment BMP and numeric sizing criteria requirements and hydromodification requirements.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	F	Hillside development greater than 5,000 square feet. Any development that creates 5,000 square feet of impervious surface and is located in an area with known erosive soil conditions, where the development will grade on any natural slope that is twenty-five percent or greater.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	G	Environmentally Sensitive Areas (ESAs). All development located within or directly adjacent to or discharging directly to an ESA (where discharges from the development or redevelopment will enter receiving waters within the ESA), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition. “Directly adjacent” means situated within 200 feet of the ESA. “Discharging directly to” means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	H	Parking lots 5,000 square feet or more or with 15 or more (paved) parking spaces and potentially exposed to urban runoff.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	I	Street, roads, highways, and freeways. Any paved surface that is 5,000 square feet or greater used for the transportation of automobiles, trucks, motorcycles, and other vehicles.
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	J	Retail Gasoline Outlets (RGOs) that are: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.

To use the table, review each definition A through K. If any of the definitions match, the project is a Priority Development Project. Note some thresholds are defined by square footage of impervious area created; others by the total area of the development. Please see special requirements for previously developed sites and project exemptions on page 6 of the County SUSMP.

STEP 2

PROJECT STORMWATER QUALITY DETERMINATION

Total Project Site Area 2.48 (Acres or ft²)

Estimated amount of disturbed area: 2.4 (Acres or ft²)

(If >1 acre, you must also provide a WDID number from the SWRCB) WDID: In process

Complete A through C and the calculations below to determine the amount of impervious surface on your project before and after construction.

A. Total size of project site: 2.48 net (Acres or ft²)

B. Total impervious area (including roof tops) before construction 0.2 (Acres or ft²)

C. Total impervious area (including roof tops) after construction 1.0 (Acres or ft²)

Calculate percent impervious before construction: $B/A = \underline{8}\%$

Calculate percent impervious after construction: $C/A = \underline{59}\%$

Please provide detailed descriptions regarding the following questions:

TABLE 2: PROJECT SPECIFIC STORMWATER ANALYSIS

1.	Please provide a brief description of the project.
	Vista de Lamar is a 20-unit Condominium project. The site is 2.8 gross acres in size. There are 2 existing single family residences that will be removed. The site is located on the east side of Bancroft Drive, south of Highway 94 between Avenida De Lamar and Meghan Court.
2.	Describe the current and proposed zoning and land use designation.
	The project is zoned VR-7.3, Village Residential Use Regulation, which allow for a maximum density of 7.3 dwelling units per net acre.
3.	Describe the pre-project and post-project topography of the project. (Show on Plan)
	The site is characterized by a rolling hill. located on a hillside which slopes on all directions. Topography was flown and surveyed and is shown on the plans.
4.	Describe the soil classification, permeability, erodibility, and depth to groundwater for LID and Treatment BMP consideration. (Show on Plan) If infiltration BMPs are proposed, a Geotechnical Engineer must certify infiltration BMPs in Attachment E.
	It has been determined from the Soils Hydrologic Group Map that the project site contains Soil Type "D".
5.	Describe if contaminated or hazardous soils are within the project area. (Show on Plan)
	N/A
6.	Describe the existing site drainage and natural hydrologic features. (Show on Plan).
	The runoff sheet flows in all directions with no natural hydrologic features.
7.	Describe site features and conditions that constrain, or provide opportunities for stormwater control, such as LID features.
	The site has been designed to use the least amount of impervious surface possible. There is only one access driveway that provides access to the new residences.
8.	Is this project within the environmentally sensitive areas as defined on the maps in Appendix A of the <i>County of San Diego Standard Urban Storm Water Mitigation Plan for Land Development and Public Improvement Projects</i> ?
	Yes No
9.	Is this an emergency project? If yes, please provide a description below.
	Yes No

CHANNELS & DRAINAGES

Complete the following checklist to determine if the project includes work in channels.

TABLE 3: CHANNEL & DRAINAGE ANALYSIS

No.	CRITERIA	YES	NO	N/A	COMMENTS
1.	Will the project include work in channels?		✘		If YES go to 2 If NO go to 13.
2.	Will the project increase velocity or volume of downstream flow?				If YES go to 6.
3.	Will the project discharge to unlined channels?				If YES go to 6.
4.	Will the project increase potential sediment load of downstream flow?				If YES go to 6.
5.	Will the project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability?				If YES go to 8.
6.	Review channel lining materials and design for stream bank erosion.				Continue to 7.
7.	Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity.				Continue to 8.
8.	Include, where appropriate, energy dissipation devices at culverts.				Continue to 9.
9.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.				Continue to 10.
10.	Include, if appropriate, detention facilities to reduce peak discharges.				Continue to 11.
11.	“Hardening“ natural downstream areas to prevent erosion is not an acceptable technique for protecting channel slopes, unless pre-development conditions are determined to be so erosive that hardening would be required even in the absence of the proposed development.				Continue to 12.
12.	Provide other design principles that are comparable and equally effective.				Continue to 13.
13.	End	✔			

TEMPORARY CONSTRUCTION BMPs

Please check the construction BMPs that may be implemented during construction of the project. The applicant will be responsible for the placement and maintenance of the BMPs incorporated into the final project design.

- Silt Fence
- Fiber Rolls
- Street Sweeping and Vacuuming
- Storm Drain Inlet Protection
- Stockpile Management
- Solid Waste Management
- Stabilized Construction Entrance/Exit
- Dewatering Operations
- Vehicle and Equipment Maintenance
- Any minor slopes created incidental to construction and not subject to a major or minor grading permit shall be protected by covering with plastic or tarp prior to a rain event, and shall have vegetative cover reestablished within 180 days of completion of the slope and prior to final building approval.
- Desilting Basin
- Gravel Bag Berm
- Sandbag Barrier
- Material Delivery and Storage
- Spill Prevention and Control
- Concrete Waste Management
- Water Conservation Practices
- Paving and Grinding Operations

EXCEPTIONAL THREAT TO WATER QUALITY DETERMINATION

Complete the checklist below to determine if a proposed project will pose an “exceptional threat to water quality,” and therefore require Advanced Treatment Best Management Practices during the construction phase.

TABLE 4: EXCEPTIONAL THREAT TO WATER QUALITY DETERMINATION

No.	CRITERIA	YES	NO	INFORMATION
1.	Is all or part of the proposed project site within 200 feet of waters named on the Clean Water Act (CWA) Section 303(d) list of Water Quality Limited Segments as impaired for sedimentation and/or turbidity? Current 303d list may be obtained from the following site: http://www.waterboards.ca.gov/water_issues/programs/tmdl/2010_state_ir_reports/category5_report.shtml			If YES, continue to 2. If NO, go to 5.
2.	Will the project disturb more than 5 acres, including all phases of the development?			If YES, continue to 3. If NO, go to 5.
3.	Will the project disturb slopes that are steeper than 4:1 (horizontal: vertical) with at least 10 feet of relief, and that drain toward the 303(d) listed receiving water for sedimentation and/or turbidity?			If YES, continue to 4. If NO, go to 5.
4.	Will the project disturb soils with a predominance of USDA-NRCS Erosion factors k_f greater than or equal to 0.4? http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm			If YES, continue to 6. If NO, go to 5.
5.	Project is not required to use Advanced Treatment BMPs.			Document for Project Files by referencing this checklist.
6.	Project poses an “exceptional threat to water quality” and is required to use Advanced Treatment BMPs.			Advanced Treatment BMPs must be consistent with WPO section 67.811(b)(20)(D) performance criteria

Exemption potentially available for projects that require advanced treatment: Project proponent may perform a Revised Universal Soil Loss Equation, Version 2 (RUSLE 2), Modified Universal Soil Loss Equation (MUSLE), or similar analysis that demonstrates (to the County official’s satisfaction) that advanced treatment is not required.

STEP 3

HYDROMODIFICATION DETERMINATION

The following questions provide a guide to collecting information relevant to hydromodification management plan (HMP) issues. If the project is exempt from the HMP criteria, please provide the supporting documentation in Attachment H. Please reference the full descriptions of the HMP exemptions located in Figure 1-1 of the County SUSMP.

TABLE 5: HYDROMODIFICATION DETERMINATION

	QUESTIONS	YES	NO	Information
1.	Will the project reduce the pre-project impervious area and are the unmitigated post-project outflows (outflows without detention routing) to each outlet location less as compared to the pre-project condition?			If NO, continue to 2. If YES, go to 7.
2.	Would the project site discharge runoff directly to an exempt receiving water, such as the Pacific Ocean, San Diego Bay, an exempt reservoir, or a tidally-influenced area?			If NO, continue to 3. If YES, go to 7.
3.	Would the project site discharge to a stabilized conveyance system, which has the capacity for the ultimate Q ₁₀ , and extends to the Pacific Ocean, San Diego Bay, a tidally-influenced area, an exempt river reach or reservoir?			If NO, continue to 4. If YES, go to 7.
4.	Does the contributing watershed area to which the project discharges have an impervious area percentage greater than 70 percent?			If NO, continue to 5. If YES, go to 7.
5.	Is this an urban infill project which discharges to an existing hardened or rehabilitated conveyance system that extends beyond the “domain of analysis,” where the potential for cumulative impacts in the watershed are low, and the ultimate receiving channel has a “Low” susceptibility to erosion as defined in the SCCWRP channel assessment tool?			If NO, continue to 6. If YES, go to 7.
6.	Project is required to manage hydromodification impacts.			Reference Appendix G “Hydromodification Management Plan” of the County SUSMP.
7.	Project is not required to manage hydromodification impacts.			Hydromodification Exempt. Keep on file.

STEP 4

POLLUTANTS OF CONCERN DETERMINATION

WATERSHED

Please check the watershed(s) for the project.

<input type="checkbox"/> San Juan 901	<input type="checkbox"/> Santa Margarita 902	<input type="checkbox"/> San Luis Rey 903	<input type="checkbox"/> Carlsbad 904
<input type="checkbox"/> San Dieguito 905	<input type="checkbox"/> Penasquitos 906	<input type="checkbox"/> San Diego 907	<input checked="" type="checkbox"/> Sweetwater 909
<input type="checkbox"/> Otay 910	<input type="checkbox"/> Tijuana 911	<input type="checkbox"/> Whitewater 719*	<input type="checkbox"/> Clark 720*
<input type="checkbox"/> West Salton 721*	<input type="checkbox"/> Anza Borrego 722*	<input type="checkbox"/> Imperial 723*	

http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/index.shtml

*Projects located fully within these watersheds require only a Minor SWMP.

HYDROLOGIC SUB-AREA NAME AND BASIN NUMBER(S)

Basin Number	Sub-Area Name
909.12	La Nacion HSA

http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/index.shtml

RECEIVING WATERS that each project discharge point proposes to discharge to.

RECEIVING WATERS (river, lake, reservoir, etc.)	Hydrologic Unit Basin Number	Impairment(s) listed [303(d) listed waters or waters with established TMDLs]. List the impairments identified in Table 7 .	Distance to Project
N/A			

http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r9_06_303d_reqtmdl_s.pdf

GROUND WATERS

Ground Waters	Hydrologic Unit Basin Number	MUN	AGR	IND	PROC	GWR	FRESH
Lower Sweetwater	909.1		X	X			

http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/index.shtml

+ Exempted from Municipal

● Existing Beneficial Use

○ Potential Beneficial Use

PROJECT ANTICIPATED AND POTENTIAL POLLUTANTS

Using Table 6, identify pollutants that are anticipated to be generated from the proposed priority project categories. Pollutants associated with any hazardous material sites that have been remediated or are not threatened by the proposed project are not considered a pollutant of concern.

TABLE 6: ANTICIPATED AND POTENTIAL POLLUTANTS GENERATED BY LAND USE TYPE

<i>PDP Categories</i>	<i>General Pollutant Categories</i>								
	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Detached Residential Development	X	X			X	X	X	X	X
Attached Residential Development	X	X			X	P ⁽¹⁾	P ⁽²⁾	P	X
Commercial Development 1 acre or greater	P ⁽¹⁾	P ⁽¹⁾		P ⁽²⁾	X	P ⁽⁵⁾	X	P ⁽³⁾	P ⁽⁵⁾
Heavy industry /industrial development	X		X	X	X	X	X		
Automotive Repair Shops			X	X ^(4/5)	X		X		
Restaurants					X	X	X	X	
Hillside Development >5,000 ft ²	X	X			X	X	X		X
Parking Lots	P ⁽¹⁾	P ⁽¹⁾	X		X	P ⁽¹⁾	X		P ⁽¹⁾
Retail Gasoline Outlets			X	X	X	X	X		
Streets, Highways & Freeways	X	P ⁽¹⁾	X	X ⁽⁴⁾	X	P ⁽⁵⁾	X		
<p>X = anticipated P = potential (1) A potential pollutant if landscaping exists on-site. (2) A potential pollutant if the project includes uncovered parking areas. (3) A potential pollutant if land use involves food or animal waste products. (4) Including petroleum hydrocarbons. (5) Including solvents.</p>									

PROJECT POLLUTANTS OF CONCERN SUMMARY TABLE

Please summarize the identified project pollutants-of-concern by checking the appropriate boxes in the table below and list any surface water impairments identified. Pollutants anticipated to be generated by the project, which are also causing impairment of receiving waters, shall be considered the primary pollutants of concern. For projects where no primary pollutants of concern exist, those pollutants identified as anticipated shall be considered secondary pollutants of concern.

TABLE 7: PROJECT POLLUTANTS OF CONCERN

Pollutant Category	Anticipated (X)	Potential (P)	Surface Water Impairments (determined by your receiving waters impairments on page 10)
Sediments	X		N/A
Nutrients	X		N/A
Heavy Metals			N/A
Organic Compounds			N/A
Trash & Debris	X		N/A
Oxygen Demanding Substances	X		N/A
Oil & Grease	X		N/A
Bacteria & Viruses	X		N/A
Pesticides	X		N/A

STEP 5

LID AND SITE DESIGN STRATEGIES

Each numbered item below is a Low Impact Development (LID) requirement of the WPO. Please check the box(s) under each number that best describes the LID BMP(s) and Site Design Strategies selected for this project. LID BMPs selected on this table will be typically represented as a self-retaining area, self-treating area, pervious pavement and greenroof, which, should be delineated in the Drainage Management Area map in Attachment C.

TABLE 8: LID AND SITE DESIGN

1.	Conserve natural Areas, Soils, and Vegetation
<input checked="" type="checkbox"/>	Preserve well draining soils (Type A or B)
<input type="checkbox"/>	Preserve Significant Trees
<input type="checkbox"/>	Preserve critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions
<input type="checkbox"/>	Other. Description:
2.	Minimize Disturbance to Natural Drainages
<input checked="" type="checkbox"/>	Set-back development envelope from drainages
<input type="checkbox"/>	Restrict heavy construction equipment access to planned green/ open space areas
<input type="checkbox"/>	Other. Description:
3.	Minimize and Disconnect Impervious Surfaces (see 5)
<input type="checkbox"/>	Clustered Lot Design
<input checked="" type="checkbox"/>	Items checked in 5
<input type="checkbox"/>	Other. Description:
4.	Minimize Soil Compaction
<input type="checkbox"/>	Restrict heavy construction equipment access to planned green/ open space areas
<input type="checkbox"/>	Re-till soils compacted by construction vehicles/equipment
<input checked="" type="checkbox"/>	Collect & reuse upper soil layers of development site containing organic materials
<input type="checkbox"/>	Other. Description:
5.	Drain Runoff from Impervious Surfaces to Pervious Areas
	<u>LID Street & Road Design</u>
<input type="checkbox"/>	Curb-cuts to landscaping
<input type="checkbox"/>	Rural Swales
<input type="checkbox"/>	Concave Median
<input type="checkbox"/>	Cul-de-sac Landscaping Design
<input checked="" type="checkbox"/>	Other. Description: Porous pavement to be used on the private driveway

<u>LID Parking Lot Design</u>	
<input type="checkbox"/>	Permeable Pavements
<input type="checkbox"/>	Curb-cuts to landscaping
<input checked="" type="checkbox"/>	Other. Description: Porous pavement will be used on the parking spaces
<u>LID Driveway, Sidewalk, Bike-path Design</u>	
<input type="checkbox"/>	Permeable Pavements
<input type="checkbox"/>	Pitch pavements toward landscaping
<input checked="" type="checkbox"/>	Other. Description: Porous concrete will be used on the driveways for each home.
<u>LID Building Design</u>	
<input type="checkbox"/>	Cisterns & Rain Barrels
<input checked="" type="checkbox"/>	Downspout to swale or landscaping
<input type="checkbox"/>	Vegetated Roofs
<input type="checkbox"/>	Other. Description: Downspouts to outlet pipe and to outlet to bioretention area
<u>LID Landscaping Design</u>	
<input type="checkbox"/>	Soil Amendments
<input checked="" type="checkbox"/>	Reuse of Native Soils
<input checked="" type="checkbox"/>	Smart Irrigation Systems
<input type="checkbox"/>	Street Trees
<input type="checkbox"/>	Other. Description:
6.	Minimize erosion from slopes
<input type="checkbox"/>	Disturb existing slopes only when necessary
<input checked="" type="checkbox"/>	Minimize cut and fill areas to reduce slope lengths
<input checked="" type="checkbox"/>	Incorporate retaining walls to reduce steepness of slopes or to shorten slopes
<input type="checkbox"/>	Provide benches or terraces on high cut and fill slopes to reduce concentration of flows
<input checked="" type="checkbox"/>	Rounding and shaping slopes to reduce concentrated flow
<input checked="" type="checkbox"/>	Collect concentrated flows in stabilized drains and channels
<input type="checkbox"/>	Other. Description:

STEP 6

SOURCE CONTROL

Please complete the checklist on the following pages to determine Source Control BMPs. Below is instruction on how to use the checklist. (Also see instructions on page 60 of the *SUSMP*)

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies and list in Table 9.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your Source Control Exhibit in Attachment B.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs into Table 9.
4. Use the format in Table 9 below to summarize the project Source Control BMPs. Incorporate all identified Source Control BMPs in your Source Control Exhibit in Attachment B.

TABLE 9: PROJECT SOURCE CONTROL BMPS

<i>Potential source of runoff pollutants</i>	<i>Permanent source control BMPs</i>	<i>Operational source control BMPs</i>
Landscape / outdoor pesticide use	Minimize irrigation runoff	Limit use of Pesticides, See CASQA fact sheet 41
Refuse Areas	Site refuse handling and proper signage	Adequate receptacles and
Parking Lot and Private Driveway	Porous pavement	Regular sweeping, Collect debris and wash.

Describe your specific Source Control BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting Source Control BMPs or substituting alternatives.

Landscape / Outdoor Pesticide Use - The following methods to reduce excessive irrigation runoff shall be consider, and incorporated and implemented:

- Rain shutoff devices shall be used to prevent irrigation after precipitation.
- Designing irrigation systems to each landscape area's specific water requirements.
- Using flow reducers or shutoff valves triggered by a pressure drop to control after loss in the event of broken sprinkler heads or lines.
- Employing other comparable, equally effective, method to reduce irrigation water runoff.
- The irrigation system used will be monitored and maintained such that there is no excess watering.
- Pesticide use will be limited.

Refuse Area - It will be maintained by each homeowner within their own private yard area.

Parking Lot and Private Driveway -

- Porous pavement will be used which is a self treating facility.
- It will be maintained and cleaned regularly to prevent litter and debris from entering the surface storm water flow.

IF THESE SOURCES WILL BE ON THE PROJECT SITE THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants – List in Table 9	2 Permanent Controls—Show on Source Control Exhibit, Attachment B	3 Permanent Controls—List in Table 9 and Narrative	4 Operational BMPs—Include in Table 9 and Narrative
<input type="checkbox"/> A. On-site storm drain inlets	<input type="checkbox"/> Locations of inlets. <div style="border: 1px solid black; width: 60px; height: 40px; margin: 0 auto; text-align: center; color: blue; font-weight: bold;">N/A</div>	<input type="checkbox"/> Mark all inlets with the words “No Dumping! Flows to Bay” or similar where feasible.	<input type="checkbox"/> Maintain and periodically repaint or replace inlet markings. <input type="checkbox"/> Provide stormwater pollution prevention information to new site owners, lessees, or operators. <input type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com <input type="checkbox"/> Include the following in lease agreements: “Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains.”
<input type="checkbox"/> B. Interior floor drains and elevator shaft sump pumps	<div style="border: 1px solid black; width: 60px; height: 40px; margin: 0 auto; text-align: center; color: blue; font-weight: bold;">N/A</div>	<input type="checkbox"/> State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	<input type="checkbox"/> Inspect and maintain drains to prevent blockages and overflow.
<input type="checkbox"/> C. Interior parking garages	<div style="border: 1px solid black; width: 60px; height: 40px; margin: 0 auto; text-align: center; color: blue; font-weight: bold;">N/A</div>	<input type="checkbox"/> State that parking garage floor drains will be plumbed to the sanitary sewer.	<input type="checkbox"/> Inspect and maintain drains to prevent blockages and overflow.

IF THESE SOURCES WILL BE ON THE PROJECT SITE THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants - List in Table 9	2 Permanent Controls—Show on Source Control Exhibit, Attachment B	3 Permanent Controls—List in Table 9 and Narrative	4 Operational BMPs—Include in Table 9 and Narrative
<input type="checkbox"/> D1. Need for future indoor & structural pest control	<div style="border: 1px solid black; padding: 5px; display: inline-block;">N/A</div>	<input type="checkbox"/> Note building design features that discourage entry of pests.	<input type="checkbox"/> Provide Integrated Pest Management information to owners, lessees, and operators.

IF THESE SOURCES WILL BE ON THE PROJECT SITE THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants – List in Table 9	2 Permanent Controls—Show on Source Control Exhibit, Attachment B	3 Permanent Controls—List in Table 9 and Narrative	4 Operational BMPs—Include in Table 9 and Narrative
<p>✓✓ D2. Landscape/ Outdoor Pesticide Use</p> <p><u>Note: Should be consistent with project landscape plan (if applicable).</u></p>	<p>✓✓ Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained.</p> <p>✓✓ Show self-retaining landscape areas, if any.</p> <p>✓✓ Show stormwater treatment facilities.</p>	<p>State that final landscape plans will accomplish all of the following:</p> <p>✓✓ Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.</p> <p>✓✓ Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.</p> <p>✓✓ Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.</p> <p>✓✓ Consider using pest-resistant plants, especially adjacent to hardscape.</p> <p>✓✓ To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.</p>	<p>✓✓ Maintain landscaping using minimum or no pesticides.</p> <p>✓✓ See applicable operational BMPs in Fact Sheet SC-41, “Building and Grounds Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com</p> <p>✓✓ Provide IPM information to new owners, lessees and operators.</p>

IF THESE SOURCES WILL BE ON THE PROJECT SITE THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants – List in Table 9	2 Permanent Controls—Show on Source Control Exhibit, Attachment B	3 Permanent Controls—List in Table 9 and Narrative	4 Operational BMPs—Include in Table 9 and Narrative
<input type="checkbox"/> E. Pools, spas, ponds, decorative fountains, and other water features. N/A	<input type="checkbox"/> Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet.	<input type="checkbox"/> If the local municipality requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	<input type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-72, “Fountain and Pool Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
<input type="checkbox"/> F. Food service N/A	<input type="checkbox"/> For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. <input type="checkbox"/> On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	<input type="checkbox"/> Describe the location and features of the designated cleaning area. <input type="checkbox"/> Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	<input type="checkbox"/>

IF THESE SOURCES WILL BE ON THE PROJECT SITE THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants – List in Table 9	2 Permanent Controls—Show on Source Control Exhibit, Attachment B	3 Permanent Controls—List in Table 9 and Narrative	4 Operational BMPs—Include in Table 9 and Narrative
<input type="checkbox"/> G. Refuse areas <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p style="color: blue; text-align: center;">Trash areas will be maintained by each homeowner within their own private yard area.</p> </div>	<input type="checkbox"/> Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. <input type="checkbox"/> If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area. <input type="checkbox"/> Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	<input type="checkbox"/> State how site refuse will be handled and provide supporting detail to what is shown on plans. <input type="checkbox"/> State that signs will be posted on or near dumpsters with the words “Do not dump hazardous materials here” or similar.	<input type="checkbox"/> State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post “no hazardous materials” signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, “Waste Handling and Disposal” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
<input type="checkbox"/> H. Industrial processes. <div style="border: 1px solid black; padding: 5px; margin-top: 10px; text-align: center;"> <p style="color: blue; font-size: 1.2em;">N/A</p> </div>	<input type="checkbox"/> Show process area.	<input type="checkbox"/> If industrial processes are to be located on site, state: “All process activities to be performed indoors. No processes to drain to exterior or to storm drain system.”	<input type="checkbox"/> See Fact Sheet SC-10, “Non-Stormwater Discharges” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

IF THESE SOURCES WILL BE ON THE PROJECT SITE THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants – List in Table 9	2 Permanent Controls—Show on Source Control Exhibit, Attachment B	3 Permanent Controls—List in Table 9 and Narrative	4 Operational BMPs—Include in Table 9 and Narrative
<input type="checkbox"/> I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.) <div style="border: 1px solid black; width: 60px; height: 40px; margin: 10px auto; text-align: center; color: blue; font-weight: bold; font-size: 1.2em;">N/A</div>	<input type="checkbox"/> Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area. <input type="checkbox"/> Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults. <input type="checkbox"/> Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.	<input type="checkbox"/> Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of local Hazardous Materials Programs for: <ul style="list-style-type: none"> ▪ Hazardous Waste Generation ▪ Hazardous Materials Release Response and Inventory ▪ California Accidental Release (CalARP) ▪ Aboveground Storage Tank ▪ Uniform Fire Code Article 80 Section 103(b) & (c) 1991 ▪ Underground Storage Tank 	<input type="checkbox"/> See the Fact Sheets SC-31, “Outdoor Liquid Container Storage” and SC-33, “Outdoor Storage of Raw Materials ” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

<p><input type="checkbox"/> K. Vehicle/Equipment Repair and Maintenance</p> <div style="border: 1px solid black; width: 50px; height: 40px; margin: 20px auto; text-align: center; color: blue; font-weight: bold; font-size: 1.2em;">N/A</div>	<ul style="list-style-type: none"> <input type="checkbox"/> Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater. <input type="checkbox"/> Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas. <input type="checkbox"/> Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained. 	<ul style="list-style-type: none"> <input type="checkbox"/> State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area. <input type="checkbox"/> State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. <input type="checkbox"/> State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. 	<p>In the SUSMP report, note that all of the following restrictions apply to use the site:</p> <ul style="list-style-type: none"> <input type="checkbox"/> No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains. <p>No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately.</p> <ul style="list-style-type: none"> <input type="checkbox"/> No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.
---	--	---	--

<p><input type="checkbox"/> L. Fuel Dispensing Areas</p> <div style="border: 1px solid black; width: 60px; height: 40px; margin: 20px auto; text-align: center; color: blue; font-weight: bold;">N/A</div>	<p><input type="checkbox"/> Fueling areas¹ shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable.</p> <p><input type="checkbox"/> Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area¹.] The canopy [or cover] shall not drain onto the fueling area.</p>		<p><input type="checkbox"/> The property owner shall dry sweep the fueling area routinely.</p> <p><input type="checkbox"/> See the Business Guide Sheet, "Automotive Service—Service Stations" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com</p>
--	---	--	--

¹ The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

<p>O. Miscellaneous Drain or Wash Water</p> <ul style="list-style-type: none"> <input type="checkbox"/> Boiler drain lines <input type="checkbox"/> Condensate drain lines <input type="checkbox"/> Rooftop equipment <input type="checkbox"/> Drainage sumps <input type="checkbox"/> Roofing, gutters, and trim. <div style="border: 1px solid black; width: 60px; height: 40px; margin: 20px auto; text-align: center; color: blue; font-size: 1.2em;">N/A</div>		<ul style="list-style-type: none"> <input type="checkbox"/> Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. <input type="checkbox"/> Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. <p>Rooftop mounted equipment with potential to produce pollutants shall be roofed and/or have secondary containment.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. <input type="checkbox"/> Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. 	
<ul style="list-style-type: none"> <input type="checkbox"/> P. Plazas, sidewalks, and parking lots. <div style="border: 1px solid black; width: 60px; height: 40px; margin: 20px auto; text-align: center; color: blue; font-size: 1.2em;">N/A</div>			<ul style="list-style-type: none"> <input type="checkbox"/> Plazas, sidewalks, and parking lots shall be swept regularly to prevent the accumulation of litter and debris. Debris from pressure washing shall be collected to prevent entry into the storm drain system. Washwater containing any cleaning agent or degreaser shall be collected and discharged to the sanitary sewer and not discharged to a storm drain.

STEP 7

LID AND TREATMENT CONTROL SELECTION

A treatment control BMP and/or LID IMP must be selected to treat the project pollutants of concern identified in Table 7 “Project Pollutants of Concern”. A treatment control facility with a high or medium pollutant removal efficiency for the project’s most significant pollutant of concern shall be selected. It is recommended to use the design procedure in Chapter 4 of the SUSMP to meet NPDES permit LID requirements, treatment requirements, and flow control requirements. If your project does not utilize this approach, the project will need to demonstrate compliance with LID, treatment and hydromodification flow control requirements. Review Chapter 2 “Selection of Stormwater Treatment Facilities” in the SUSMP to assist in determining the appropriate treatment facility for your project.

Will this project be utilizing the unified LID design procedure as described in Chapter 4 of the Local SUSMP? <i>(If yes, please document in Attachment D following the steps in Chapter 4 of the County SUSMP)</i>	
Yes	No
If this project is not utilizing the unified LID design procedure, please describe how the alternative treatment facilities will comply with applicable LID criteria, stormwater treatment criteria, and hydromodification management criteria.	

- Indicate the project pollutants of concern (POCs) from Table 7 in Column 2 below.

TABLE 10: GROUPING OF POTENTIAL POLLUTANTS of Concern (POCs) by fate during stormwater treatment

Pollutant	Check Project Specific POC	Coarse Sediment and Trash	Pollutants that tend to associate with fine particles during treatment	Pollutants that tend to be dissolved following treatment
Sediment	✓✓	X	X	
Nutrients	✓✓		X	X
Heavy Metals			X	
Organic Compounds			X	
Trash & Debris	✓✓	X		
Oxygen Demanding	✓✓		X	
Bacteria	✓✓		X	
Oil & Grease	✓✓		X	
Pesticides	✓✓		X	

*All POC's are Secondary POC's.

- Indicate the treatment facility(s) chosen for this project in the following table.

TABLE 11: GROUPS OF POLLUTANTS and relative effectiveness of treatment facilities

Pollutants of Concern	Bioretention Facilities (LID)	Settling Basins (Dry Ponds)	Wet Ponds and Constructed Wetlands	Infiltration Devices (LID)	Media Filters	Higher-rate biofilters	Higher-rate media filters	Trash Racks & Hydro-dynamic Devices	Vegetated Swales
Coarse Sediment and Trash	High	High	High	High	High	High	High	High	High
Pollutants that tend to associate with fine particles during treatment	High	High	High	High	High	Medium	Medium	Low	Medium
Pollutants that tend to be dissolved following treatment	Medium	Low	Medium	High	Low	Low	Low	Low	Low

- Please check the box(s) that best describes the Treatment Control BMP(s) and/or LID IMP selected for this project. Please check if the treatment facility is designed for water quality or hydromodification flow control. Check both boxes if the facility is designed for both water quality and hydromodification flow control.

TABLE 12: PROJECT TCBMPS - BMPs designed to treat stormwater (e.g., LID and hydromod) shall be considered TCBMPS.

TCBMP Type	Water Quality Treatment	Hydromodification Flow Control
Bioretention Facilities (LID)		
<input checked="" type="checkbox"/> Bioretention area	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Flow-through Planter		
<input type="checkbox"/> Cistern with Bioretention		
Basins		
<input type="checkbox"/> Extended/dry detention basin with grass/vegetated lining		
<input type="checkbox"/> Extended/dry detention basin with impervious lining		
<input type="checkbox"/> Underground vault		
<input type="checkbox"/> Cistern		
Infiltration Devices (LID)		

<input type="checkbox"/> Infiltration basin		
<input type="checkbox"/> Infiltration trench		
<input type="checkbox"/> Other _____		
Wet Ponds and Constructed Wetlands		
<input type="checkbox"/> Wet pond/basin (permanent pool)		
<input type="checkbox"/> Constructed wetland		
Vegetated Swales (LID⁽¹⁾)		
<input type="checkbox"/> Vegetated Swale		
Media Filters		
<input type="checkbox"/> Austin Sand Filter		
<input type="checkbox"/> Delaware Sand Filter		
<input type="checkbox"/> Multi-Chambered Treatment Train (MCTT)		
Higher-rate Biofilters		
<input type="checkbox"/> Tree-pit-style unit		
<input type="checkbox"/> Other _____		
Higher-rate Media Filters		
<input type="checkbox"/> Vault-based filtration unit with replaceable cartridges		
<input type="checkbox"/> Other _____		
Hydrodynamic Separator Systems		
<input type="checkbox"/> Swirl Concentrator		
<input type="checkbox"/> Other _____		
Trash Racks		
<input type="checkbox"/> Catch Basin Insert		
<input type="checkbox"/> Catch Basin Insert w/ Hydrocarbon boom		
<input type="checkbox"/> Other _____		
Self-Retaining Areas (LID)		
<input type="checkbox"/> Permeable Pavements		
<input type="checkbox"/> Self-Retaining		
<input type="checkbox"/> Vegetated Roof		

⁽¹⁾ Must be designed per SUSMP “Vegetated Swales” design criteria for water quality treatment credit (p. 102-103).

For design guidelines and calculations refer to Chapter 4 “Low Impact Development Design Guide” in the SUSMP. Please show all calculations and design sheets for all treatment control BMPs proposed in Attachment D.

- Create a Construction Plan SWMP Checklist for your project.

Instructions on how to fill out table

1. Number and list each measure or BMP you have specified in your SWMP in Columns 1 and Maintenance Category in Column 3 of the table. Leave Column 2 blank.
2. When you submit construction plans, duplicate the table (by photocopy or electronically). Now fill in Column 2, identifying the plan sheets where the BMPs are shown. List all plan sheets on which the BMP appears. **This table must be shown on the front sheet of the grading and improvement plans.**

Treatment Control BMPs ¹			
Description / Type	Sheet	Maintenance Category	Revisions
Bioretention Area		CAT 1	

¹ BMPs designed to treat stormwater (e.g., LID and hydromod) shall be considered TCBMPs.

*BMP's approved as part of Stormwater Management Plan (SWMP) dated xx/xx/xx on file with DPW. Any changes to the above BMP's will require SWMP revision and Plan Change approvals.

- Please describe why the chosen treatment control BMP(s) was selected for this project. For projects utilizing a low performing BMP, please provide a **feasibility analysis** that demonstrates utilization of a treatment control BMP with a high or medium removal efficiency ranking is infeasible.

Bioretention Areas have been chosen for this project due to their relatively high effectiveness of treatment, area available and ease of maintenance.

Porous pavement has also been chosen to minimize the use of impervious surfaces.

Please provide the sizing design calculations for each Drainage Management Area in Attachment D. Guidelines for design calculations are located in Chapter 4 of the County SUSMP. To assist in these calculations a BMP sizing calculator is available for use at the following location: http://www.projectcleanwater.org/html/wg_susmp.html

STEP 8

OPERATION AND MAINTENANCE

- Please check the box that best describes the maintenance mechanism(s) for this project. The recorded maintenance agreement shall be included in the Maintenance Plan for this project (Attachment F).

TABLE 13: PROJECT BMP CATEGORY

CATEGORY	SELECTED		BMP Description
	YES	NO	
First ¹			Bioretention Area
Second ²			
Third ³			
Fourth ⁴			

Note:

1. A maintenance notification will be required.
2. A recorded maintenance agreement and access easement will be required.
3. The project will be required to establish or be included in a watershed specific Community Facility District (CFD) for long-term maintenance.
4. The developer would be required to dedicate the BMP (and the property on which it is located and any necessary access) to the County.

➤ Responsible Party for the Construction Phase:

Identify the parties responsible for maintenance during the construction phase of the BMPs identified above and Source Controls specified in Attachment B.

Developer's Name:	Salim Miro, Managing Partner SCSS Development, LLC				
Address:	2608 West Canyon Avenue				
City	San Diego	State	CA	Zip	92123
Email Address:	pmcassi@yahoo.com				
Phone Number:	619-246-8012				
Engineer of Work:	Larry Walsh, Walsh Engineering & Surveying, Inc.				
Engineer's Phone Number:	619-588-6747				

➤ Responsible Party for Ongoing Maintenance: **SCSS Development, LLC**

Identify the parties responsible for long-term maintenance of the BMPs identified above and Source Controls specified in Attachment B. Include the appropriate written agreement with the entities responsible for O&M in Attachment F. Please see Chapter 5 "Stormwater Facility Maintenance" of the County SUSMP for appropriate maintenance mechanisms.

Owner's Name:	Same as Developer				
Address:					
City		State		Zip	
Email Address:					
Phone Number:					
* Note: If a corporation or LLC, provide information for principal partner or Agent for Service of Process. If an HOA, provide information for the Board or property manager at time of project closeout.					

➤ Funding Source:

Provide the funding source or sources for long-term operation and maintenance of each BMP identified above. Please see Chapter 5 “Stormwater Facility Maintenance” of the County SUSMP for the appropriate funding source options. By certifying the Major SWMP the applicant is certifying that the funding responsibilities have been addressed and will be transferred to future owners.

SCSS Development, LLC will be responsible for all maintenance funding.

ATTACHMENTS

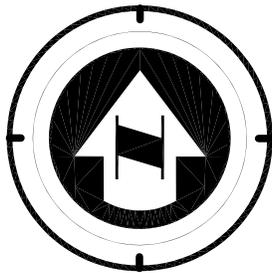
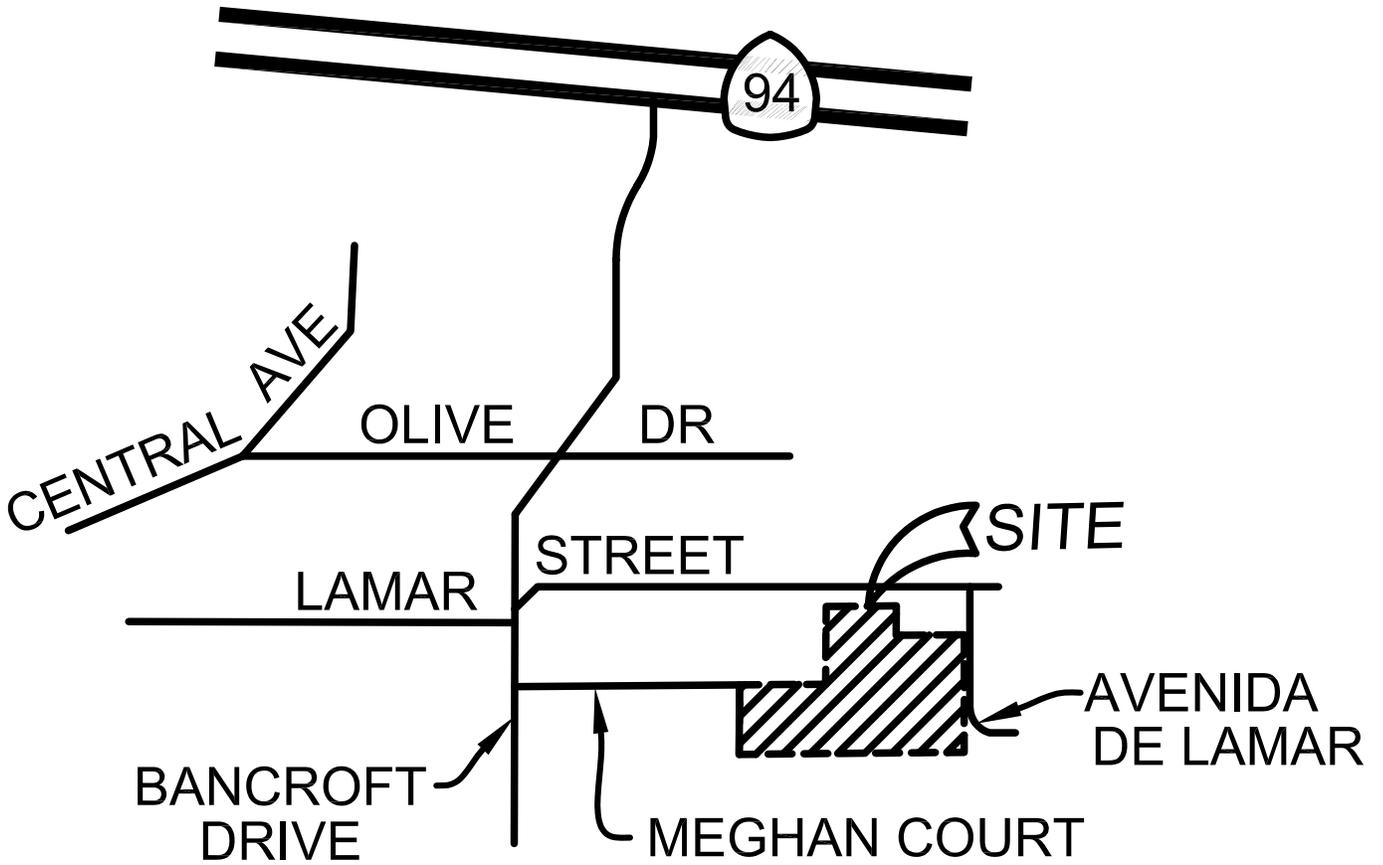
Please include the following attachments.

ATTACHMENT		COMPLETED	N/A
A	Project Location Map	✓	
B	Source Control Exhibit	✓	
C	Drainage Management Area (DMA) Exhibit	✓	
D	BMP Sizing Design Calculations (Water Quality and Hydromodification) and TCBMP/IMP Design Details	✓	
E	Geotechnical Certification Sheet	✓	
F	Maintenance Plan	✓	
G	Treatment Control BMP Certification (due at project completion)	✓	
H	HMP Study	✓	
I	Geomorphic Assessment		✓
J	HMP Exemption Documentation		✓
K	Addendum		✓

Note: Attachments B and C may be combined.

ATTACHMENT A

Project Location Map



VICINITY MAP

NO SCALE

THOMAS BRO. MAP PG. 1271, B6

PRELIMINARY GRADING PLAN

LEGEND:

EXISTING FEATURES:

- 1 BUILDING TO REMAIN
- 2 POWER POLE TO BE REMOVED
- 3 RETAINING WALL TO REMAIN
- 4 RETAINING WALL TO BE REMOVED
- 5 SEWER LINE
- 6 CONCRETE BROWDITCH
- 7 DIRT ROAD
- 8 ACCESS EASEMENT PER DOC. RECORDED JULY 10, 1969 AS FILE NO. 124021 & SD&E EASEMENT PER DOC. RECORDED AUGUST 12, 1982 AS DOC. NO. 1982-249391
- 9 ROAD EASEMENT PER DOC RECORDED SEPTEMBER 7, 1960 AS FILE NO. 180907
- 10 SPRING VALLEY SANITATION DISTRICT SEWER EASEMENT PER DOC. RECORDED JUNE 2, 1958 AS FILE NO. 87337
- 11 STREET LIGHT
- 12 8' SEWER EASEMENT AS SHOWN ON COUNTY AS-BUILT SV-12-16
- 13 SIDEWALK
- 14 CURB & GUTTER
- 15 CHAINLINK FENCE TO REMAIN
- 16 BUILDING TO BE REMOVED

PROPOSED FEATURES:

- 1 FIRE TURN AROUND - NO PARKING
- 2 2-CAR GARAGE
- 3 DRIVEWAY (POROUS CONCRETE)
- 4 SINGLE FAMILY RESIDENCE
- 5 6' PUBLIC ROAD DEDICATION
- 6 SEWER MANHOLE
- 7 SEWER LINE
- 8 WATER LINE
- 9 BIORETENTION AREA
- 10 SIDEWALK (POROUS CONCRETE)
- 11 ROLLED CURB & GUTTER
- 12 RETAINING WALL
- 13 STORM DRAIN PIPE (RUNOFF FROM ROOF DIRECTED TO BIORETENTION AREA)
- 14 CONNECT TO EXISTING SEWER LINE
- 15 KEYSTONE RETAINING WALL (3' MAX)
- 16 WALKWAY (4") (POROUS CONCRETE) (TYP)
- 17 3" WIDE RIBBON GUTTER
- 18 PARKING SPACE (4 SPACES)
- 19 PCC CURB
- 20 BARRICADE
- 21 STORM DRAIN PIPE (TYP.)
- 22 CATCH BASIN (TYP.)

LEGEND:

EXISTING IMPROVEMENT:

- AC PAVEMENT
- AC / GRAVEL PAVEMENT
- 6" CHAINLINK FENCE
- SEWER MAIN
- SEWER MANHOLE
- WATER MAIN
- STREET LIGHT
- PROPOSED IMPROVEMENT:
- CUT/FILL GRADE SLOPE (1.5:1 CUT / 2:1 FILL)
- PAVEMENT (POROUS CONCRETE)
- DRIVEWAY, SIDEWALK (POROUS CONCRETE)
- PED RAMP PER RSD G-27 & G-31
- MANSONRY RETAINING WALL (8' MAX.)
- HOUSE UNIT NO.
- BUILDING MODEL TYPE
- SEWER MAIN
- SEWER MANHOLE
- WATER MAIN
- RIP RAP
- CONCRETE BROWDITCH
- DRAINAGE CATCH BASIN (GRATE) & 4" PVC DRAIN PIPE
- FIRE HYDRANT
- CATCH BASIN (TYPE-F), HEADWALL & 12" PVC DRAIN PIPE
- BARRICADE

GENERAL NOTES:

- EXISTING HOUSES, GARAGE AND STORAGE SHED ARE NOT SHOWN HEREON FOR CLARITY PURPOSES.
- PROPOSED DRAINAGE SYSTEM (ONSITE CATCH BASINS AND STORM DRAIN PIPES) AROUND THE BUILDINGS ARE NOT SHOWN HEREON FOR CLARITY PURPOSES. THEY WILL BE ADDED AT FINAL ENGINEERING.

NOTE:

THIS PLAN IS PROVIDED TO ALLOW FOR FULL AND ADEQUATE DISCRETIONARY REVIEW OF A PROPOSED DEVELOPMENT PROJECT. THE PROPERTY OWNER ACKNOWLEDGES THAT ACCEPTANCE OR APPROVAL OF THIS PLAN DOES NOT CONSTITUTE AN APPROVAL TO PERFORM ANY GRADING SHOWN HEREON, AND AGREES TO OBTAIN VALID GRADING PERMITS BEFORE COMMENCING SUCH ACTIVITY.

EARTHWORK QUANTITIES:

CUT= 8,200 CY
 FILL= 6,700 CY
 SHRINKAGE (18%)= 1,500 CY
 EXPORT= 0 CY

SOURCE OF TOPOGRAPHY:

PHOTOGEODETTIC AERIAL TOPO SURVEY JOB NO. 283801A
 DATE FLOWN: SEPTEMBER 29, 2001

BASIS OF ELEVATIONS:

DESCRIPTION: 3" BRASS DISK IN 8" SQUARE CONCRETE MONUMENT.
 ELEVATION: 758.08'
 DATUM: NGVD-29
 SOURCE: COUNTY OF SAN DIEGO RUIS MONUMENT DETAIL, POINT NAME "VOLIN" PER ROS 5650
 LOCAL BENCHMARK: 3/4" IRON PIPE WITH DISC STAMPED "LS 4068" LOCATED AT SOUTHWEST CORNER OF SITE (ELEVATION = 370.39)

ASSESSOR'S PARCEL NUMBER:

504-112-36 & 95

OWNER/SUBDIVIDER:

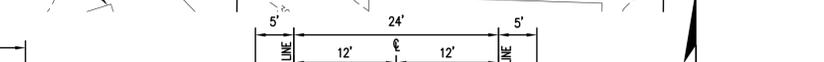
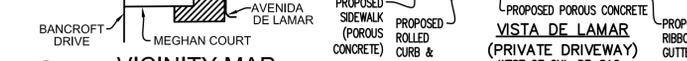
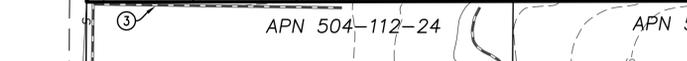
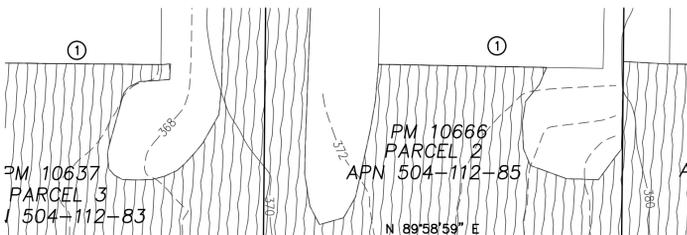
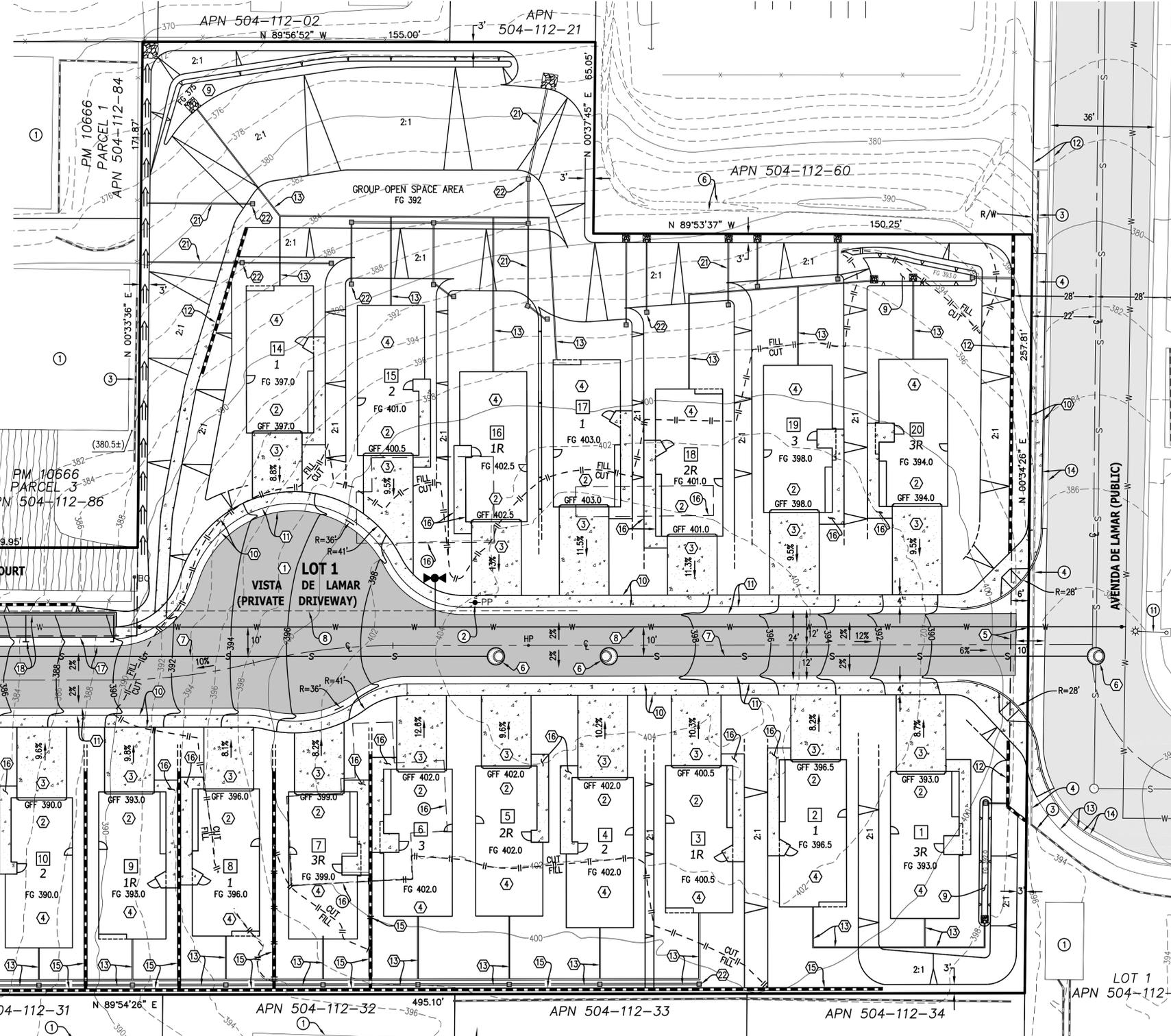
SALIM MIRO, MANAGING PARTNER
 SCSS DEVELOPMENT, LLC
 2608 WEST CANYON AVENUE
 SAN DIEGO, CA 92123
 (619) 246-8012 (CONTACT PERSON: BRIAN TURNER)

PREPARED BY:

LAWRENCE W. WALSH RCE 46316 DATE

Walsh Engineering & Surveying, Inc.

607 Aldwych Road, El Cajon, CA 92020
 (619) 588-6747 (619) 792-1232 Fax



ABBREVIATIONS:

- AC = ASPHALT CONCRETE OR ACRES
- APN = ASSESSOR'S PARCEL NUMBER
- C = CENTERLINE
- FG = FINISH GRADE
- GFF = GARAGE FINISH FLOOR
- HP = HIGH POINT
- MAX = MAXIMUM
- MIN = MINIMUM
- PP = UTILITY POWER POLE
- R = REVERSED
- R/W = RIGHT-OF-WAY
- RSD = REGIONAL STANDARD DRAWINGS
- S = SEWER
- W = WATER

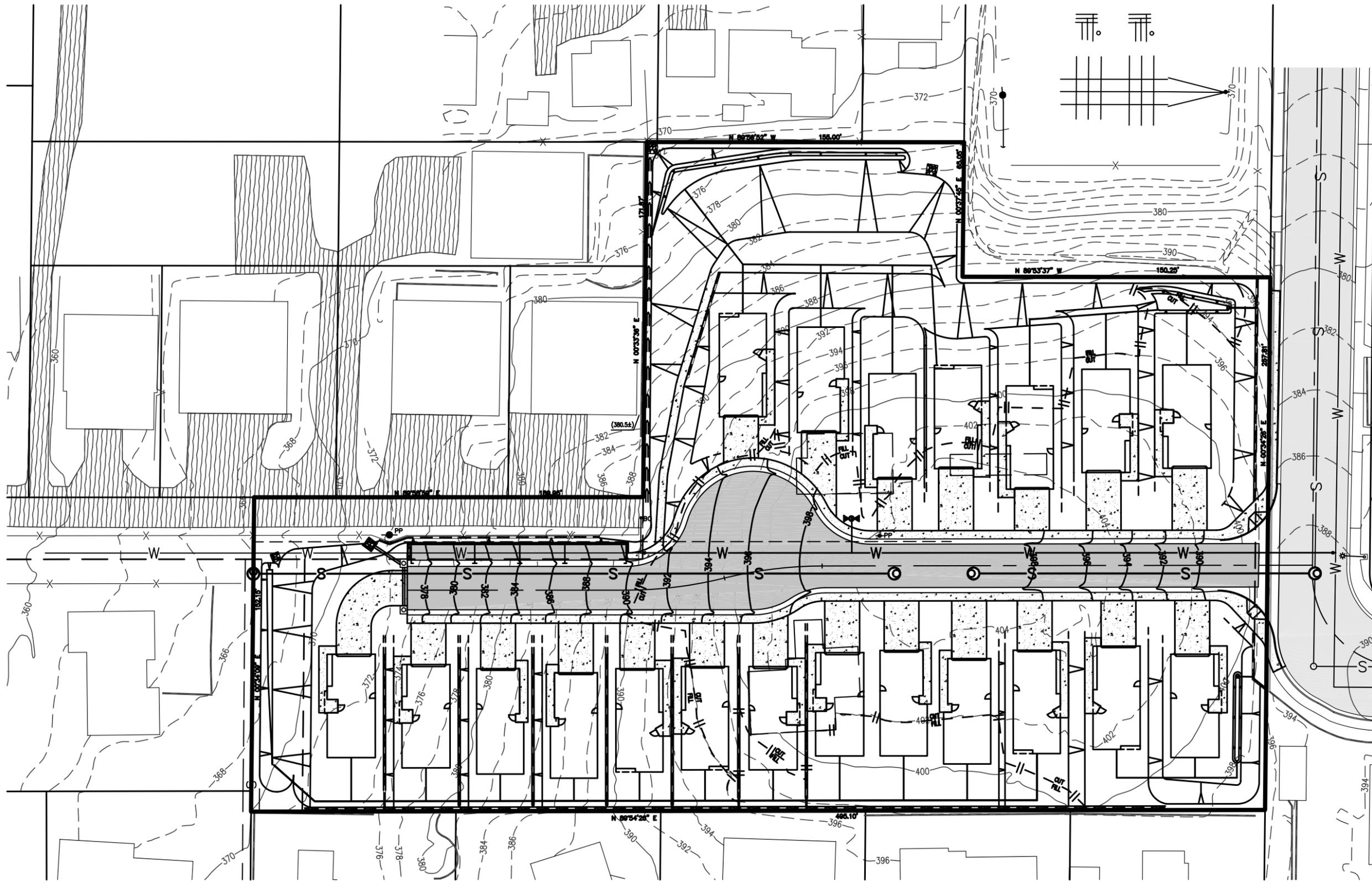


ATTACHMENT B

Source Control Exhibit

SOURCE CONTROL EXHIBIT

VISTA DE LAMAR TENTATIVE MAP



REFUSE AREAS – AREAS SHALL BE KEPT CLEAN AND MAINTAINED. DUMPSTERS SHALL BE COVERED AND ON A PAVED AREA THAT WILL PREVENT CONTACT WITH STORM WATER RUNOFF.

LANDSCAPE AREAS – IRRIGATION SHALL BE MONITORED AND MAINTAINED TO LIMIT OVER WATERING. PESTICIDE USE SHALL BE MINIMAL. RAIN SHUTOFF DEVICES SHALL BE USED TO PREVENT IRRIGATION AFTER PRECIPITATION. FLOW REDUCERS OR SHUTOFF VALVES TRIGGERED BY PRESSURE DROP SHALL BE USED TO CONTROL AFTER LOSS IN EVENT OF BROKEN SPRINKLER HEADS AND LINES.

ATTACHMENT C

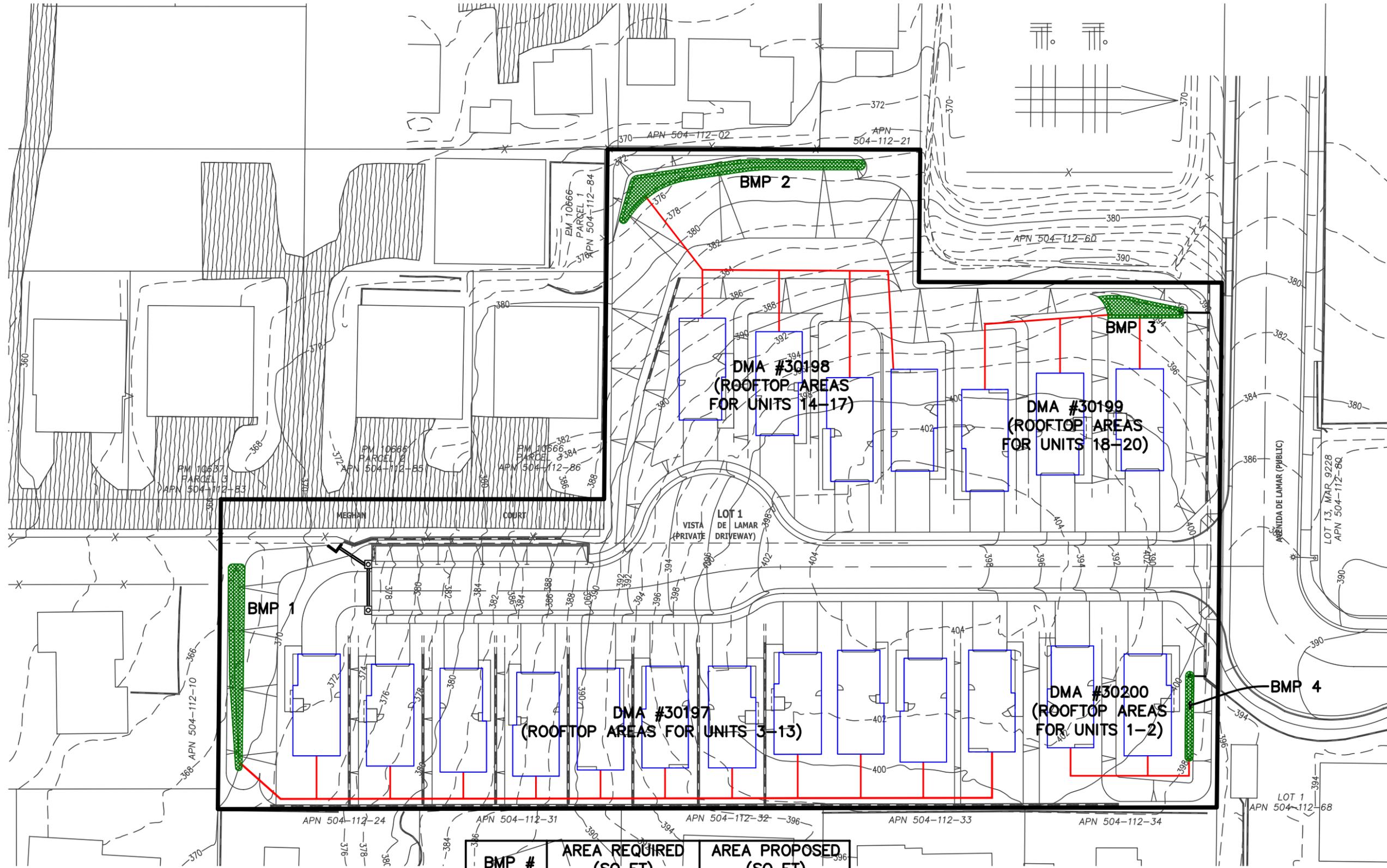
Drainage Management Area (DMA) Exhibit

DRAINAGE MANAGEMENT AREAS

VISTA DE LAMAR TENTATIVE MAP

LEGEND:

-  BIORETENTION AREA
-  STORM DRAIN PIPE (FROM ROOFTOPS)
-  ROOFTOPS



BMP #	AREA REQUIRED (SQ FT)	AREA PROPOSED (SQ FT)
1	661	664
2	236	811
3	188	334
4	141	173

THE BIORETENTION AREAS HAVE BEEN CALCULATED FOR ALL THE ROOFTOPS ONLY SINCE THE PRIVATE DRIVEWAY, PARKING SPACES AND WALKWAYS WILL BE CONSTRUCTED WITH POROUS PAVEMENT.



SCALE: 1"= 50'

ATTACHMENT D

Sizing Design Calculations and TCBMP/LID Design Details

(Provide BMP Sizing Calculator results and/or continuous simulation modeling results, if applicable)

HYDROLOGY & HYDRAULIC BASIN CALCULATION RESULTS:

Vista De Lamar, TM 5576

Existing vs Proposed Condition

For Hydrology and Detention Calculations and Hydrographs refer to the Drainage Study associated with this project. For the Hydromodification Management Plan refer to Attachment H.

Hydrology Results:

Basin #	Flow rate (cfs)	
	Existing Condition	Proposed Condition
1	2.5	3.8*
2	1.6	1.5
3	0.4	0.4
4	0.5	1.2*
5	0.5	1*

* Increase in flow rate will be detained / retained in the proposed Bioretention areas.

Hydraulic Results (Detention Calculations):

The flow rate ifor Basin 2 in the existing condition is 1.6 cfs and in the proposed condition is 1.5 cfs. Therefore, no detention is needed for said basin. However, the runoff from the rooftops within this basin will still be treated.

The flow rate in the existing and proposed condition for Basin 3 is 0.4 cfs and no proposed rooftops are within this basin. Therefore, no detention is needed for said basin.

Basin #	Increase in flow (cfs)	HMP Sizing Calculator Results (required) (cft)	Detention Calculations 100 Year Storm (required) (cft)	Proposed Bioretention Area Provided (cft)
1	1.3	661	1,190	1,200
2	-0.1	236	N/A	811
4	0.5	188	499	505
5	0.5	141	375	390

ATTACHMENT E

Geotechnical Certification Sheet (if applicable)

The design of stormwater treatment and other control measures proposed in this plan requiring specific soil infiltration characteristics and/or geological conditions has been reviewed and approved by a registered Civil Engineer, Geotechnical Engineer, or Geologist in the State of California.

Name and registration #

Date

ATTACHMENT F

Maintenance Plan

(Use Chapter 5 of the SUSMP as guidance in developing your Maintenance Plan)

--- TO BE COMPLETED DURING CONSTRUCTION PHASE ---

The following is a general outline to create your project specific Maintenance Plan. A Maintenance Plan is a living document and field conditions may require modifications to the Maintenance Plan.

- I. Inspection, Maintenance Log and Self-Verification Forms (Examples are provided in Appendix F of the San Diego County SUSMP)
- II. Updates, Revisions and Errata
- III. Introduction
 - A. Narrative overview describing the site; drainage areas, routing, and discharge points; and treatment facilities.
- IV. Responsibility for Maintenance
 - A. General
 - (1) Name and contact information for responsible individual(s).
 - (2) Organization chart or charts showing organization of the maintenance function and location within the overall organization.
 - (3) Insert a copy of the recorded maintenance agreement.
 - (4) Maintenance Funding
 - (1) Sources of funds for maintenance
 - (2) Budget category or line item
 - (3) Description of procedure and process for ensuring adequate funding for maintenance
 - B. Staff Training Program
 - C. Records
 - D. Safety
- V. Summary of Drainage Areas and Stormwater Facilities
 - A. Drainage Areas

- (1) Drawings showing pervious and impervious areas (copied or adapted from initial SWMP).
- (2) Designation and description of each drainage area and how flow is routed to the corresponding facility.

B. Treatment and Flow-Control Facilities

- (1) Drawings showing location and type of each facility
- (2) General description of each facility (Consider a table if more than two facilities)
 - (1) Area drained and routing of discharge.
 - (2) Facility type and size

VI. Facility Documentation

- A. “As-built” drawings of each facility (design drawings in the draft Plan)
- B. Manufacturer’s data, manuals, and maintenance requirements for pumps, mechanical or electrical equipment, and proprietary facilities (include a “placeholder” in the draft plan for information not yet available).
- C. Specific operation and maintenance concerns and troubleshooting

VII. Maintenance Schedule or Matrix

- A. Maintenance Schedule for each facility with specific requirements for:
 - (1) Routine inspection and maintenance
 - (2) Annual inspection and maintenance
 - (3) Inspection and maintenance after major storms
- B. Service Agreement Information

Assemble and make copies of your maintenance plan. One copy must be submitted to the County, and at least one copy kept on-site. Here are some suggestions for formatting the maintenance plan:

- Format plans to 8½" x 11" to facilitate duplication, filing, and handling.
- Include the revision date in the footer on each page.
- Scan graphics and incorporate with text into a single electronic file. Keep the electronic file backed-up so that copies of the maintenance plan can be made if the hard copy is lost or damaged.

ATTACHMENT G

Treatment Control BMP Certification for DPW Permitted Land Development Projects

After TCBMP construction, complete a TCBMP Certification form to verify with County staff that all constructed TCBMPs on the record plans match the approved TCBMPs in the most current SWMP. TCBMP Certification must be completed and verified for permit closure.



County of San Diego

DEPARTMENT OF PUBLIC WORKS

Treatment Control BMP Certification for DPW Permitted Land Development Projects

Permit Number (e.g. L-grading) _____ HSU Watershed _____

Project Name TM 5576 - Vista De Lamar

Location / Address 3053 & 3055 Bancroft Drive, Spring Valley, CA 91977

Maintenance Notification/Agreement No.: _____

Responsible Party for Construction Phase

Salim Miro, Managing Partner

Developer's Name: SCSS Development, LLC

Address: 2608 West Canyon Avenue

City San Diego State CA Zip 92123

Email Address: pmcassi@yahoo.com

Phone Number: 619-246-8012

Engineer of Work: Larry Walsh, Walsh Engineering & Surveying, Inc.

Engineer's Phone Number: 619-588-6747

Responsible Party for Ongoing Maintenance

Owner's Name(s)* Same as Developer

Address: _____

City _____ State _____ Zip _____

Email Address: _____

Phone Number: _____

* Note: If a corporation or LLC, provide information for principal partner or Agent for Service of Process. If an HOA, provide information for the Board or property manager at time of project closeout.

For Applicant to submit to PDCI:

- Copy of the final accepted SWMP and any accepted addendum.
- Copy of the most current plan showing the Stormwater TCBMP Table, plans/cross-section sheets of the TCBMPs and the location of each verified as-built TCBMP.
- Photograph of each TCBMP.
- Copy of the approved TCBMP maintenance agreement and associated security

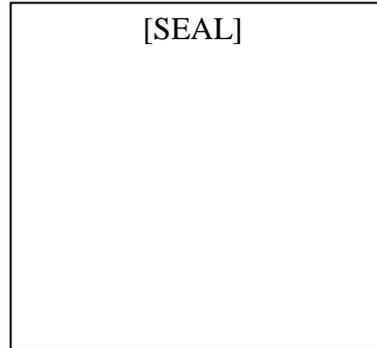
By signing below, I certify that the treatment control BMP(s) for this project have been constructed and all BMPs are in substantial conformance with the approved plans and applicable regulations. I understand the County reserves the right to inspect the above BMPs to verify compliance with the approved plans and Watershed Protection Ordinance. Should it be determined that the BMPs were not constructed to plan or code, corrective actions may be necessary before permits can be closed.

Please sign your name and seal.

Professional Engineer's Printed Name:

Professional Engineer's Signed Name:

Date: _____



ATTACHMENT H

HMP Study

(Contact County staff to determine if this should be a separate report from the Major SWMP)

Hydromodification Management Plan

Tentative Map 5576 Vista De Lamar (PDS2012-TM-5576)

Prepared For:

Salim Miro, Managing Partner
SCSS Development, LLC
2608 West Canyon Avenue
San Diego, CA 92123
619-246-8012

Prepared by:

Walsh Engineering & Surveying, Inc.
607 Aldwych Road
El Cajon, CA 92020
(619) 588-6747 office
(619) 792-1232 fax

The selection, sizing, and preliminary design of stormwater treatment and other control measures in this plan have been prepared under the direction of the above-stated Registered Civil Engineer and meet the requirements of Regional Water Quality Control Board Order R9-2007-0001 and subsequent amendments.

Hydromodification refers to changes in the magnitude and frequency of stream flows as a result of urbanization and the resulting impacts on receiving channels in terms of erosion, sedimentation, and degradation of in-stream habitat. The degree to which a channel will erode is a function of the increase in driving force (shear stress), the resistance of the channel (critical shear stress), the change in sediment delivery, and the geomorphic condition of the channel. Critical shear stress is the stress threshold above which erosion occurs. Not all flows cause erosion -- only those that generate shear stress in excess of the critical shear stress of the bank and bed materials. Urbanization increases the shear stress exerted on the channel by stream flows and can trigger erosion in the form of incision (channel downcutting), widening (bank erosion), or both. Increases in flow below critical shear stress levels have little or no effect on the channel.

The need to address hydromodification and its influence on water quality is included in the San Diego Regional Water Board Order R9-2007-001, Provision D.1.g of California Regional Water Quality Control Board San Diego Region Order R9-2007-0001, which required the San Diego Stormwater Copermittees, i.e. County of San Diego, to implement a Hydromodification Management Plan (HMP) “...to manage increases in runoff discharge rates and durations from all Priority Development Projects (PDPs), where such increased rates and durations are likely to cause increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.” The HMP developed standards to control flows within the geomorphically-significant flow range. Supporting analyses were based on continuous hydrologic simulation modeling. The HMP for all applicable PDPs was implemented on January 14, 2011.

Hydromodification management analysis must adhere to the following criteria:

- For flow rates between the pre-project lower flow threshold (see below) and the pre-project 10-year runoff event, the post-project discharge rates, and durations may not deviate above the pre-project discharge rates and durations by more than 10 percent over more than 10 percent of the length of the flow duration curve.
- Lower flow thresholds may be determined using the HMP Decision Matrix (located in Chapter 6) along with a critical flow calculator and channel screening tools developed by the Southern California Coastal Water Research Project (SCCWRP), detailed in Chapter 5. These methods identify lower flow thresholds for a range of channel conditions. The critical flow calculator recommends a lower flow value of 0.1Q₂, 0.3Q₂, or 0.5Q₂ dependent on the receiving channel material and dimensions. This value will be compared to the channel susceptibility rating (High, Medium, or Low) as determined from the SCCWRP screening tools located in Appendix B to determine the final lower flow threshold.
- The lower flow threshold may alternately be determined as 10 percent of the pre-project 2-year runoff event, or 0.1Q₂. This approach, which is outlined in the HMP Decision Matrix, is available if the project applicant chooses not to complete the channel screening analysis.

This Hydromodification Management Plan is prepared for the Vista De Lamar Tentative Map 5576 project. The project is located at 3053 & 3055 Bancroft Drive in the Community of Spring Valley, an incorporated area of the County of San Diego. The gross area of the site is approximately 2.8 acres. The owner proposes to construct twenty (20) new single-family

residences, access walkways and a common shared driveway. Reference is hereby made to the Tentative Map 5576, the Preliminary Grading Plan as well as the Drainage Study and Storm Water Management Plan for the proposed development.

This Hydromodification Management Plan analyzes the proposed development which includes the 20 single-family-residences. The developer proposes to use pervious pavement for the proposed private road to minimize the use of impervious surfaces. The only Drainage Management Areas (DMA) is for the roof areas of the proposed residences which is the only proposed impervious surface.

The project contains Type D soil as mapped in the Brown and Caldwell San Diego BMP Sizing Calculator. Soil type D is used for all calculations herein.

Because the project is located on a hillside, there are five (5) small drainage basins, refer to the Drainage Study, that contribute to the project. The developer proposes to keep the flow patterns the same and use flow control and retention to maintain or reduce pre-construction downstream conditions.

The San Diego Hydrodmodification (HMP) Sizing Calculator was used to size Low Impact Development (LID) facilities that meet both HMP and treatment-control requirements. See the attached **LID Facility Calculations** for the sizing for the bioretention areas.

Bioretention basins were selected to manage increases in runoff discharge rates and durations in order to mitigate potential hydromodification impacts due to the proposed development. All stormwater runoff from the proposed development will be routed to bioretention basins. Bioretention basins consist of a surface ponding layer, an 18" growing medium, and a storage layer (with an 40% void ratio average). Each of the basins will have an overflow catchment for purposes of routing flows from larger storm events. See the attached **Bioretention Area Exhibit** for details.

Maintenance of the proposed LIDs will be the responsibility of the HOA Management Company. All facilities are proposed in common areas of the site.

A specific plan, design, and maintenance of the LIDs will be implemented during the final engineering phase of the development.

Reference(s):

- Final Hydromodification Management Plan dated January 13, 2011 prepared by Brown and Caldwell

Project Summary

Project Name	VISTA DE LAMAR
Project Applicant	Salim Miro
Jurisdiction	County of San Diego
Parcel (APN)	504-112-36 & 95
Hydrologic Unit	Sweetwater

Compliance Basin Summary

Basin Name:	Bioretention Area #4
Receiving Water:	
Rainfall Basin	Oceanside
Mean Annual Precipitation (inches)	13.3
Project Basin Area (acres):	0.06
Watershed Area (acres):	0.00
SCCWRP Lateral Channel Susceptibility (H, M, L):	
SCCWRP Vertical Channel Susceptibility (H, M, L):	
Overall Channel Susceptibility (H, M, L):	HIGH
Lower Flow Threshold (% of 2-Year Flow):	0.1

Drainage Management Area Summary

ID	Type	BMP ID	Description	Area (ac)	Pre-Project Cover	Post Surface Type	Drainage Soil	Slope
30197	Drains to LID	BMP 1	Rooftops for Units 3-13	0.28	Pervious (Pre)	Roofs	Type D (high runoff - clay soi...	Steep (greater 10%)
30198	Drains to LID	BMP 2	Rooftops for Units 14-17	0.1	Pervious (Pre)	Roofs	Type D (high runoff - clay soi...	Steep (greater 10%)
30199	Drains to LID	BMP 3	Rooftops for Units 18-20	0.08	Pervious (Pre)	Roofs	Type D (high runoff - clay soi...	Steep (greater 10%)
30200	Drains to LID	BMP 4	Rooftops for Units 1-2	0.06	Pervious (Pre)	Roofs	Type D (high runoff - clay soi...	Steep (greater 10%)

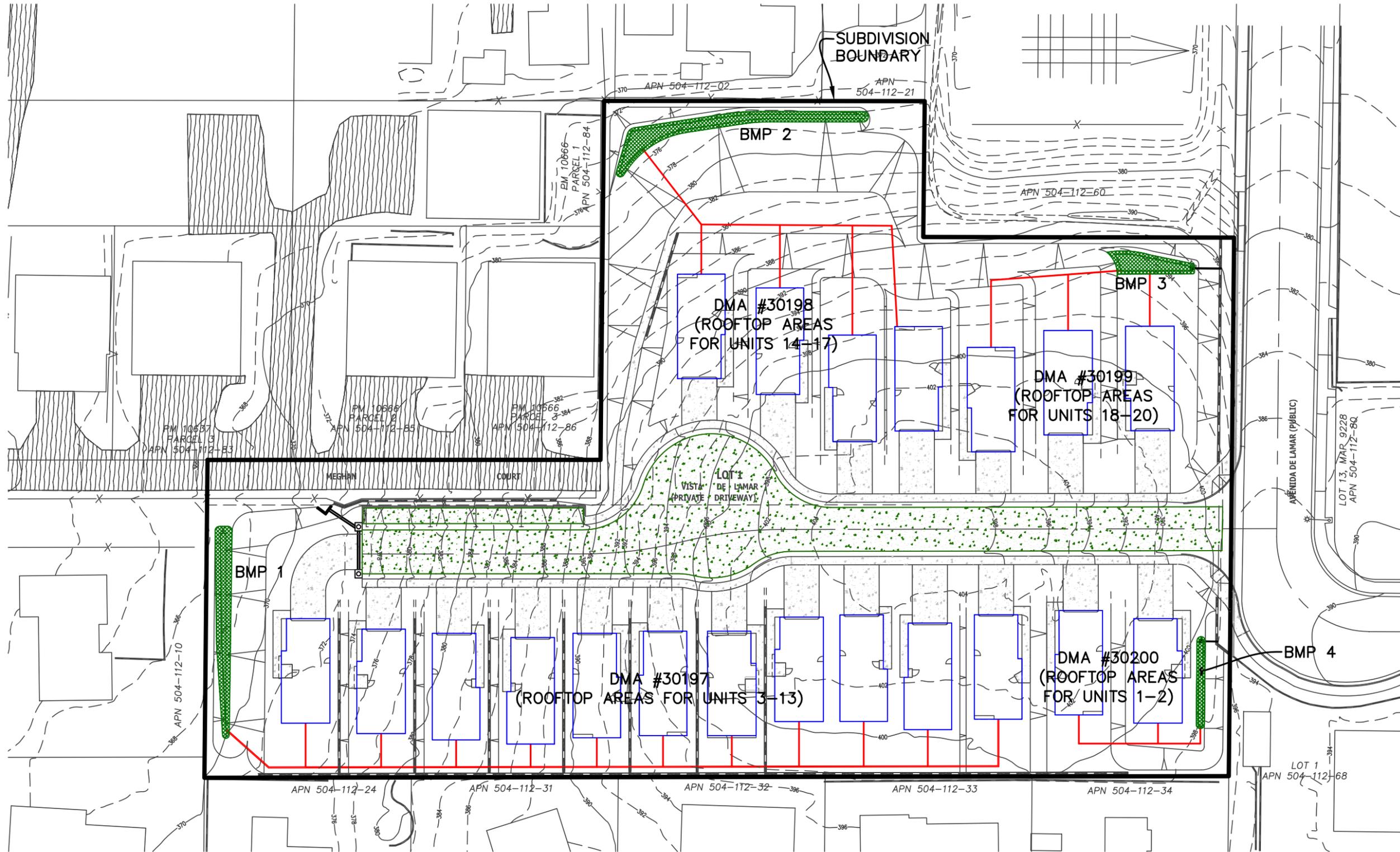
LID Facility Summary

BMP ID	Type	Description	Plan Area (sqft)	Volume 1(cft)	Volume 2(cft)	Orifice Flow (cfs)	Orifice Size (inch)

BMP 1	Bioretention	Bioretention Area #1	792	661	475	0.006	0.4
BMP 2	Bioretention	Bioretention Area #2	283	236	169	0.002	0.2
BMP 3	Bioretention	Bioretention Area #3	226	188	135	0.002	0.2
BMP 4	Bioretention	Bioretention Area #4	169	141	101	0.001	0.2

HYDROMODIFICATION PLAN

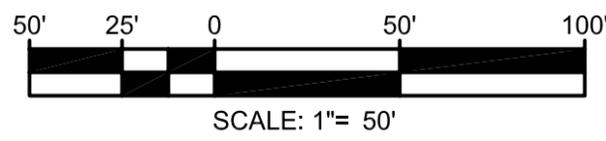
TENTATIVE MAP 5576 - VISTA DE LAMAR



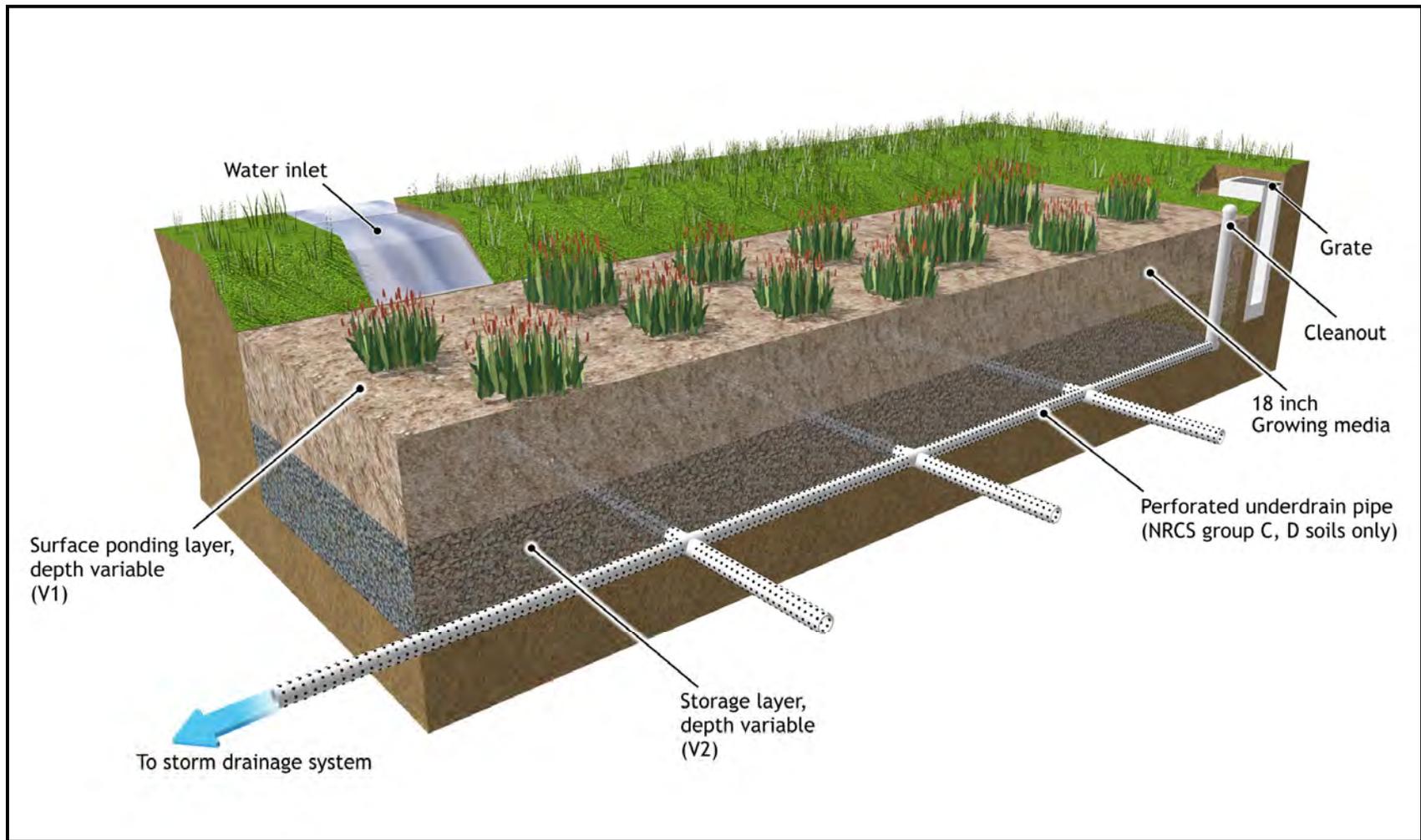
LEGEND:

- BIORETENTION AREA
- STORM DRAIN PIPE (FROM ROOF TOPS)
- HYDROMODIFICATION BASIN BOUNDARY
- POROUS PAVEMENT (ACCESS DRIVEWAY)
- POROUS PAVEMENT (PRIVATE DRIVEWAYS & WALKWAYS)

NOTE:
 THE BIORETENTION AREAS HAVE BEEN CALCULATED FOR ALL THE ROOFTOPS ONLY SINCE THE PRIVATE DRIVEWAY, PARKING SPACES AND WALKWAYS WILL BE CONSTRUCTED WITH POROUS PAVEMENT.



DMA #	BMP #	VOLUME REQUIRED (CU FT)	VOLUME PROPOSED (CU FT)
30197	1	661	664
30198	2	236	811
30199	3	188	334
30200	4	141	173



Bioretention Area Exhibit (typical)

4.1 Bioretention

The bioretention facility consists of a surface ponding layer, a growing medium layer, and a below ground storage layer (Figure 6). The bioretention BMP captures water in the ponding layer, filters it through a growing medium that consists of soil and plant roots, percolates water from the growing medium into a storage layer, and then slowly discharges treated stormwater via exfiltration to surrounding native soils and regulated discharge through an underdrain pipe to the local stormwater drainage system. For applications with well-draining native soils (e.g., NRCS hydrologic group A or B soils), an underdrain pipe would not be included.

For the HMP, we will simulate the bioretention BMP using separate a) ponding layer, b) growing medium, and c) storage layer components. We will assume the following depths for each layer:

- **Ponding layer:** 10-inches active storage, 2-inches of freeboard above overflow relief
- **Growing medium:** 18-inches of soil at 40 percent porosity
- **Storage layer:** 30-inches of gravel at 40 percent porosity

As described above in Section 3.1.2, the plan area of the BMP will be iteratively sized until the BMP controls limit outflows to levels that are less than or equal to pre-project conditions across flow rates ranging from the lower flow control limit ($0.1Q_2$, $0.3Q_2$ or $0.5Q_2$) to the upper flow control limit (Q_{10}). The sizes of the ponding layer and storage layer will be converted into volumes, so that the project designer can flexibly configure the ponding layer and storage layer to meet site constraints. For example, the design engineer could configure the ponding layer with half the depth but twice the plan area called for by the sizing factor if this fits the project site. Additionally, the designer could use commercially-available storage vessels to meet the volume requirements instead of using gravel.



Figure 6. Bioretention BMP Example Illustration

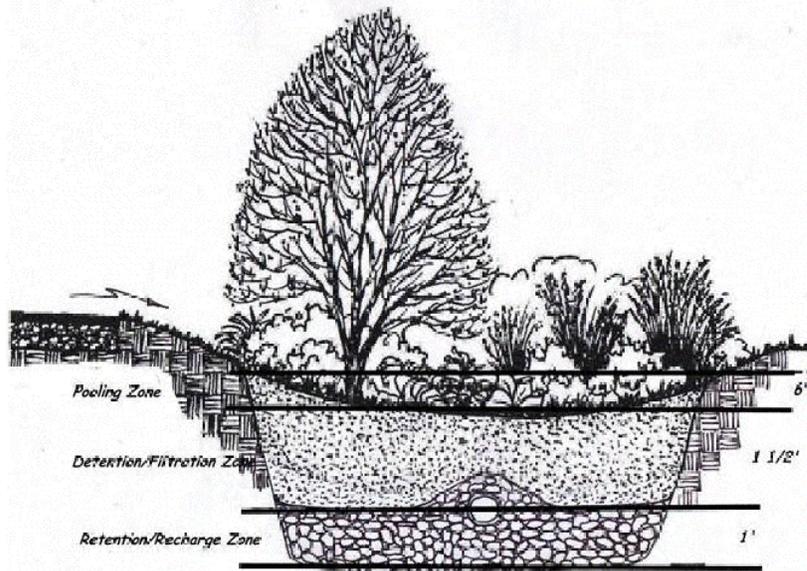
Stormwater Facility Operation and Maintenance Fact Sheet

► **BIORETENTION FACILITIES**

These facilities remove pollutants primarily by filtering runoff slowly through aerobic, biologically active soil. Routine maintenance is needed to ensure that flow is unobstructed, that erosion is prevented, and that soils are held together by plant roots and are biologically active. Typical maintenance consists of the following:

- Inspect **inlets** for channels, exposure of soils, or other evidence of erosion. Clear any obstructions and remove any accumulation of sediment. Examine rock or other material used as a splash pad and replenish if necessary.
- Inspect **outlets** for erosion or plugging.
- Inspect **side slopes** for evidence of instability or erosion and correct as necessary.
- Observe the surface of bioretention facility soil for uniform **percolation** throughout. If portions of the bioretention facility do not drain within 24 hours after the end of a storm, the soil should be tilled and replanted. Remove any debris or accumulations of sediment.
- Confirm that **check dams** and **flow spreaders** are in place and level and that rivulets and channelization are effectively prevented.
- Examine the **vegetation** to ensure that it is healthy and dense enough to provide filtering and to protect soils from erosion. Replenish mulch as necessary, remove fallen leaves and debris, prune large shrubs or trees, and mow turf areas. When mowing, remove no more than $\frac{1}{3}$ height of grasses. Confirm that irrigation is adequate and not excessive and that sprays do not directly enter overflow grates. Replace dead plants and remove noxious and invasive vegetation.
- Abate any potential **vectors** by filling holes in the ground in and around the bioretention facility and by insuring that there are no areas where water stands longer than 48 hours following a storm. If mosquito larvae are present and persistent, contact the San Diego County Vector Control Program for information and advice. Mosquito larvicides should be applied only when absolutely necessary and then only by a licensed individual or contractor.

Fact Sheet 7. Bioretention Systems



Typical Bioretention cross section, *Anatomy of a Rain Garden*, n.d.

Bioretention systems are essentially a surface and sub-surface water filtration system. In function they are similar to sand filters. Bioretention systems incorporate both plants and underlying filter soils for removal of contaminants. These facilities normally consist of a treatment train approach: filter strip, sand bed, ponding area, organic layer, planting soil, and plants.

CHARACTERISTICS

- Effective in removing sediments and attached pollutants by filtration through surface vegetation, ground cover and underlying filter media layer
- Delay runoff peaks by providing retention capacity and reducing flow velocities.
- Vegetation increases aesthetic value while also enhancing filtration capacity and helping to maintain the porosity of the filter media.
- Can be constructed as either large or small scale devices, with native or amended soils.
- Small scale units are usually located in a residential planter box that filters collected stormwater through the filter media and to an outlet.
- Larger scale devices work on the same methodology, however are generally located along the streetscapes and retarding basins over large open areas.
- In addition, there are two main types of bioretention system: Non-conveyance systems, which generally pond runoff volume, and Conveyance, which generally convey minor storm events along longitudinal channels. Such conveyance systems generally include an amended soil layer under the surface for additional storage and filtration

APPLICATION

- Effective in removing medium to fine size sediments and attached pollutants (such as nutrients, free oils/grease and metals), but typically have higher pollutant

- removal efficiencies for a wider range of contaminants due to enhanced filtration/biological processes associated with the surface vegetation.
- Best suited to small residential, commercial, and industrial developments with high percentages of impervious areas, including parking lots, high density residential housing, and roadways.
 - Aesthetic benefits due to the surface vegetation make bioretention systems appealing for incorporation into streetscape and general landscape features.

DESIGN

- Provide a gentle slope for overland flow and adequate water storage. No water should be allowed to pond in the bioretention system for longer than 72 hours.
- Usually designed in conjunction with swales and other devices upstream so as to reduce filter clogging and provide water treatment (treatment train).
- Filter media employed is usually the plant growing material, which may comprise soil, sand and peat mixtures.
- “Planting box” type systems should be restricted to very small catchment areas.
- A subdrain system should be included in urban areas along with associated cleanout to facilitate maintenance.
- For more precise design techniques, see: CASQA (2003, January) California Stormwater BMP Handbook: New Development and Redevelopment

MAINTENANCE

- Generally, only routine periodic maintenance typical of any landscaped area (mulching, plant replacement, pruning, weeding) is necessary.
- Regular inspections and maintenance are particularly important during the vegetation establishment period.
- Routine maintenance should include a biannual health evaluation of the trees and shrubs and subsequent removal of any dead or diseased vegetation.
- Other potential tasks include soil pH regulation, erosion repair at inflow points, mulch replenishment, unclogging the under-drain, and repairing overflow structures.

LIMITATIONS

- Adequate sunlight is required for vegetation growth.
- The use of irrigation may not meet State water conservation goals. Appropriate drought-tolerant plants should be considered.
- Placement may be limited by the need for upstream pre-treatment so as to avoid filter clogging (treatment train).
- Contributing drainage area should be less than 1 acre for small-scale, on-lot devices
- Bioretention (a BMP with incidental infiltration) is not an appropriate BMP when:
 - the seasonal high groundwater table is within 6 feet of the ground surface (US EPA 1999)
 - at locations where or where surrounding soil stratum is unstable
- exceptions to the 6 foot separation can be made when:
 - the BMP is designed with an under-drain and approved by a qualified licensed professional, or when:

- written approval of a separation in the interval of 4-6 feet has been obtained by the Regional Water Quality Control Board and the Department of Environmental Health.
- Site must contain sufficient elevation relief so that subdrain system may discharge to receiving swale, curb or storm drain system.

ECONOMICS

- Construction cost estimates for a bioretention area are slightly greater than those for the required landscaping for a new development (EPA, 1999).
- The operation and maintenance costs for a bioretention facility will be comparable to those of typical landscaping required for a site. (CASQA, 2003)
- Maintenance costs are projected at 5-7% of the construction cost annually.

REFERENCES

- California Stormwater Quality Association. (2003, January) California Stormwater BMP Handbook: New Development and Redevelopment.
- URS Australia Pty Ltd, (2004, May), Water Sensitive Urban Design: Technical Guidelines for Western Sydney, Upper Parramatta River Catchment Trust.
- US EPA (1999, September) BMP Fact Sheet 832-F-99-012.
<http://www.epa.gov/owm/mtb/biortn.pdf>
- US EPA (1999, August) Preliminary Studies: Preliminary Data Summary of Urban Stormwater Best Management Practices. EPA-821-R-99-012 Part D.
- For additional information pertaining to Bioretention Systems, see the works cited in the San Diego County LID Literature Index.

ATTACHMENT I

Geomorphic Assessment

(Contact County staff immediately if you are planning to conduct a Geomorphic Assessment. A Geomorphic Assessment must be performed if the project is using a “Medium” low flow threshold of $0.3Q_2$ or a “High” low flow threshold of $0.5Q_2$.)

N/A

ATTACHMENT J

HMP Exemption Documentation (if applicable)

N/A

ATTACHMENT K

Addendum

N/A