Storm Water Management Plan
For Priority Projects
(Major SWMP)

Project Name:	LOS COCHES SELF-STORAGE
Permit Number (Land Development Projects):	SO4-009/ER04-14-004
Work Authorization Number (CIP):	
Applicant:	REC CONSULTANTS INC.
Applicant's Address:	2442 Second Ave. San Diego CA.92101
Plan Prepare By (Leave blank if same as	
applicant):	
Date:	August 2, 2006
Revision Date (If applicable):	

The County of San Diego Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) (Ordinance No. 9424) requires all applications for a permit or approval associated with a Land Disturbance Activity must be accompanied by a Storm Water Management Plan (SWMP) (section 67.804.f). 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 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 Review Stage	does the SWMP need revisions?		If YES, Provide:
	YES	NO	Revision Date
TM	YES		October 25, 2006
TM	YES		December 17, 2007

Instructions for a Major SWMP can be downloaded at http://www.co.sandiego.ca.us/dpw/stormwater/susmp.html.

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

PROJECT DESCRIPTION

Los Coches Self-Storage is a 2.0-acre commercial development located on the northwest side of Business Route 8, 0.2-mile south of Los Coches Boulevard in San Diego County just west of the Town of Lakeside. The proposed commercial development includes four structures with a private parking lot and driveway.

PRIORITY PROJECT DETERMINATION

Please check the box that best describes the project. Does the project meet one of the following criteria?

PRIORITY PROJECT	YES	NO
Redevelopment within the County Urban Area that creates or adds at least 5,000 net square feet of additional impervious surface area	X	
Residential development of more than 10 units Commercial developments with a land area for development of greater than 100,000 square feet		X
Automotive repair shops Restaurants, where the land area for development is greater than 5,000 square feet		X
Hillside development, in an area with known erosive soil conditions, where there will be grading on any natural slope that is twenty-five percent or greater, if the development creates 5,000 square feet or more of impervious surface	X	
Environmentally Sensitive Areas: All development and redevelopment located within or directly adjacent to or discharging directly to an environmentally sensitive area (where discharges from the development or redevelopment will enter receiving waters within the environmentally sensitive area), 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.		X
Parking Lots 5,000 square feet or more or with 15 parking spaces or more and potentially exposed to urban runoff		X

Limited Exclusion: Trenching and resurfacing work associated with utility projects are not considered priority projects. Parking lots, buildings and other structures associated with utility projects are subject to SUSMP requirements if one or more of the criteria above are met.
If you answered **NO** to all the questions, then **STOP**. Please complete a Minor SWMP for your project.

If you answered **YES** to any of the questions, please continue.
The following questions provide a guide to collecting information relevant to project stormwater quality issues. Please provide a description of the findings in text box below.

	QUESTIONS	**COMPLETED**	**NA**
1.	Describe the topography of the project area.	X	
2.	Describe the local land use within the project area and adjacent areas.	X	
3.	Evaluate the presence of dry weather flow.		X
4.	Determine the receiving waters that may be affected by the project throughout the project life cycle (i.e., construction, maintenance and operation).	X	
5.	For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.	X	
6.	Determine if there are any High Risk Areas (municipal or domestic water supply reservoirs or groundwater percolation facilities) within the project limits.	X	
7.	Determine the Regional Board special requirements, including TMDLs, effluent limits, etc.		X
8.	Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.		

7.	Determine the Regional Board special requirements, including TMDLs, effluent limits, etc.		X
8.	Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.		
9.	If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater.	X	
10.	Determine contaminated or hazardous soils within the project area.		X

Please provide a description of the findings in the following box. For example:
The project is located in the San Diego Hydrologic unit. The area is characterized by rolling grassy hills and shrubs.
Runoff from the project drains into a MS4 that eventually drains to Los Coches Creek. Within the project limit there are no 303(d) impaired receiving water and no Regional Board special requirements.

1.1 Topography and Land Use
The land was previously graded for structures and trailers that have since been removed. The site is currently clear, disturbed land with sparse vegetation that slopes gently from west to east to the south of the site is a multi-family residential development and to the north is a commercial development. West of the site is an undisturbed hillside that slopes toward the site at 8 to 25 percent. The watershed soil for the area is categorized as "Group B" as shown in the Soil Hydrologic Group Map attached. Some of the surrounding developments are shown on the attached site plan.

Receiving waters
The study area occupies a portion of a 110-acre watershed, which is primarily comprised of the eastern slopes west of Business Route 8. The watershed drains into drainage facilities at the intersection of Business Route 8 and Los Coches Road and eventually into Los Coches Creek. Los Coches Creek flows into nearby San Diego River, which empties into the Pacific Ocean. Overall, the project area represents less than 2.3% of the total watershed.

303(d) list

According to the California 1998 303d list published by the San Diego Regional Water

Site condition	General Climate Lakeside Community	Soil type	Annual Rainfall	Runoff Curve#
Sparse Native Vegetation	Average temperature January-May 90-95◦F May-Sept 95-100◦ F	B This soil is generally not that erosive, under normal rainfall conditions.	13 inches	70

Complete the Checklist below to determine if treatment Best management Practices (BMP) are required for the project.

No.	CRITERIA	YES	NO	INFORMATION
1.	Is this an emergency project		X	If YES, go to 6. If NO, continue to2.
2.	Have TMDLs been established		X	If YES, go to 5.
3. .	Will the project directly discharge to a 303(d) impaired receiving water body?		X	If YES, go to 5. If NO, continue to 4.
4.	Is this project within the urban and environmentally sensitive areas as defined on the maps in Appendix B of the *County of San Diego Standard Urban Storm Water Mitigation Plan for Land Development and Public Improvement Projects*?	X		If YES, continue to 5. If NO, go to 6.
5.	Consider approved Treatment BMPs for the project.	X		If YES, go to 7.
6.	Project is not required to consider Treatment BMPs Document for Project Files by referencing this checklist.			
7.	End	X		

Now that the need for a treatment BMPs has been determined, other information is needed to complete the SWMP.

WATERSHED

Please check the watershed(s) for the project.

San Juan	Santa Margarita	San Luis Rey	Carlsbad
San Dieguito	Penasquitos	X San Diego	Pueblo San Diego
Sweetwater	Otay Tijuana		

Please provide the hydrologic sub-area and number(s)

Number	Name
907.00 907.14	The project lies in the San Diego Watershed in the hydrologic sub-area of Coches with a Hydrologic unit number of 907.14.

Please provide the beneficial uses for Inland Surface Waters and Ground Waters. Beneficial Uses can be obtained from the Water Quality Control Plan For The San Diego Basin, which is available at the Regional Board office or at http://www.swrcb.ca.gov/rwqcb9/programs/basinplan.

SURFACE WATERS	Hydrologic Unit Basin Number	MUN	AGR	IND	PROC	GWR	FRESH	POW	REC1	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN
Inland Surface Waters	909.14	o		X	X				X	X		X	X	X		
Ground Waters	909.14	X	X	X	o											

X Existing Beneficial Use
0 Potential Beneficial Use
* Excepted from Municipal

POLLUTANTS OF CONCERN

Using Table 1, identify pollutants that are anticipated to be generated from the proposed priority project categories. Pollutants associated with any hazardous material sites that have been remediate or are not threatened by the proposed project are not considered a pollutant of concern.

Table 1. Anticipated and Potential Pollutants Generated by Land Use Type

General Pollutant Categories

Priority Project Categories	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Detached Residential Development									
Attached Residential Development									
Commercial Development >100,000 ft2									
Automotive Repair Shops									
Restaurant									
Hillside Development >5,000 ft2									

General Pollutant Categories

Priority Project Categories	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Parking Lots	X	P(2)	X		X		X	P(2)	P(2)
Streets, Highways & Freeways	X	P(2)	X		X		X	P(2)	P(2)

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.

Note: If other monitoring data that is relevant to the project is available. Please include as Attachment C.

CONSTRUCTION BMPs

Please check the construction BMPs that may be used. The BMPs selected are those that will be implemented during construction of the project. The applicant is responsible for the placement and maintenance of the BMPs selected.

X □Silt Fence
X □Fiber Rolls
□Street Sweeping and Vacuuming
□Storm Drain Inlet Protection
X □Stockpile Management
X □Solid Waste Management
X □Stabilized Construction Entrance/Exit
X □Dewatering Operations
X □Vehicle and Equipment Maintenance
X □Erosion Control Mats and Spray-On Applic.
□Desilting Basin
□Gravel Bag Berm
□Sandbag Barrier
X □Material Delivery and Storage
X □Spill Prevention and Control
X □Concrete Waste Management
X □Water Conservation Practices
□Paving and Grinding Operations
□Permanent Revegetation off all disturbed and uncovered areas

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.

SITE DESIGN

To minimize stormwater impacts, site design measures must be addressed. The following checklist provides options for avoiding or reducing potential impacts during project planning.

If YES is checked, it is assumed that the measure was used for this project. If NO is checked, please provide a brief explanation why the option was not selected in the text box below.

	OPTIONS	YES	NO	N/A
1.	Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions?	X		
2.	Can the project be designed to minimize impervious footprint?	X		
3.	Conserve natural areas where feasible?	X		
4.	Where landscape is proposed, can rooftops, impervious sidewalks, walkways, trails and patios be drained into adjacent landscaping?	X		

5.	For roadway projects, can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts?		X		
6.	Can any of the following methods be utilized to minimize erosion from slopes:				
	6.a.	Disturbing existing slopes only when necessary?	X		
	6.b.	Minimize cut and fill areas to reduce slope lengths?	X		
	6.c.	Incorporating retaining walls to reduce steepness of slopes or to shorten slopes?	X		
	6.d.	Providing benches or terraces on high cut and fill slopes to reduce concentration of flows?	X		
	6.e.	Rounding and shaping slopes to reduce concentrated flow?	X		
	6.f.	Collecting concentrated flows in stabilized drains and channels?	X		

Please provide a brief explanation for each option that was checked N/A or NO in the following box.

N/A

If the project includes work in channels, then complete the following checklist. Information shall be obtained from the project drainage report.

No.	CRITERIA	YES	NO	N/A	COMMENTS
1.	Will the project increase velocity or volume of downstream flow?		X		If YES go to 5.

2.	Will the project discharge to unlined channels?		X		If YES go to 5.
3.	Will the project increase potential sediment load of downstream flow?		X		If YES go to 5.
4.	Will the project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect upstream and/or downstream channel stability?		X		If YES go to 7.
5.	Review channel lining materials and design for stream bank erosion.				Continue to 6.
6.	Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity.				Continue to 7.
7.	Include, where appropriate, energy dissipation devices at culverts	X			Continue to 8.
8.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.	X			
9.	Include, if appropriate, detention facilities to reduce peak discharges.			X	
10.	Hardening" natural downstream areas to prevent erosion is not an acceptable technique for protecting channel slopes, unless predevelopment conditions are determined to be so erosive that hardening would be required even in the absence of the proposed development.			X	Continue to 11.
11.	Provide other design principles that are comparable and equally effective.	X			Continue to 12.
12.	End	X			

SOURCE CONTROL

Please complete the following checklist for Source Control BMPs. If the BMP is not applicable for this project, then check N/A only at the main category.

BMP			YES	NO	N/A
1.	**Provide Storm Drain System Stenciling and Signage**				
	1.a.	All storm drain inlets and catch basins within the project area shall have a stencil or tile placed with prohibitive language (such as: "NO DUMPING – DRAINS TO _____") and/or graphical icons to discourage illegal dumping.	X		
	1.b.	Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks within the project area.	X		
2.	**Design Outdoors Material Storage Areas to Reduce Pollution Introduction**				
	2.a.	This is a detached single-family residential project. Therefore, personal storage areas are exempt from this requirement.		X	
	2.b.	Hazardous materials with the potential to contaminate urban runoff shall either be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.	X		
	2.c.	The storage area shall be paved and sufficiently impervious to contain leaks and spills.	X		
	2.d.	The storage area shall have a roof or awning to minimize direct precipitation within the secondary containment area.	X		
3.	**Design Trash Storage Areas to Reduce Pollution Introduction**				
	3.a.	Paved with an impervious surface, designed not to allow run-on from adjoining areas, screened or walled to prevent off-site transport of trash; or,	X		
	3.b.	Provide attached lids on all trash containers that exclude rain, or roof or awning to minimize direct precipitation.	X		

4.	**Use Efficient Irrigation Systems & Landscape Design**				
	The following methods to reduce excessive irrigation runoff shall be considered, and incorporated and implemented where determined applicable and feasible.		X		
	4.a.	Employing rain shutoff devices to prevent irrigation after precipitation.	X		
	4.b.	Designing irrigation systems to each landscape area's specific water requirements.	X		
	4.c.	Using flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.	X		
	4.d.	Employing other comparable, equally effective, methods to reduce irrigation water runoff.	X		
5.	**Private Roads**				
	The design of private roadway drainage shall use at least one of the following				
	5.a.	Rural swale system: street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings.	X		
	5.b.	Urban curb/swale system: street slopes to curb, periodic swale inlets drain to vegetated swale/biofilter.	X		
	5.c.	Dual drainage system: First flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder, high flows connect directly to storm water conveyance system.	X		
	5.d.	Other methods that are comparable and equally effective within the project.			X
6.	**Residential Driveways & Guest Parking**				
	The design of driveways and private residential parking areas shall use one at least of the following features.				
	6.a.	Design driveways with shared access, flared (single lane at street) or wheelstrips (paving only under tires); or, drain into landscaping prior to discharging to the storm water conveyance system.	X		

		BMP	YES	NO	N/A
	6.b.	Uncovered temporary or guest parking on private residential lots may be: paved with a permeable surface; or, designed to drain into landscaping prior to discharging to the storm water conveyance system.			X
	6.c.	Other features which are comparable and equally effective.			X
7.	**Dock Areas**				
	Loading/unloading dock areas shall include the following.				X
	7.a.	Cover loading dock areas, or design drainage to preclude urban run-on and runoff.			X
	7.b.	Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.			X
	7.c.	Other features which are comparable and equally effective.			X
8.	**Maintenance Bays**				
	Maintenance bays shall include the following.				X
	8.a.	Repair/maintenance bays shall be indoors; or, designed to preclude urban run-on and runoff.			X
	8.b.	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.			X
	8.c.	Other features which are comparable and equally effective.			X
9.	**Vehicle Wash Areas**				
	Priority projects that include areas for washing/steam cleaning of vehicles shall use the following.				
	9.a.	Self-contained; or covered with a roof or overhang.			X
	9.b.	Equipped with a clarifier or other pretreatment facility.			X
	9.c.	Properly connected to a sanitary sewer.			X
	9.d.	Other features which are comparable and equally effective.			X

10.	**Outdoor Processing Areas**				X
	Outdoor process equipment operations, such as rock grinding or crushing, painting or coating, grinding or sanding, degreasing or parts cleaning, waste piles, and wastewater and solid waste treatment and disposal, and other operations determined to be a potential threat to water quality by the County shall adhere to the following requirements.				X
	10.a.	Cover or enclose areas that would be the most significant source of pollutants; or, slope the area toward a dead-end sump; or, discharge to the sanitary sewer system following appropriate treatment in accordance with conditions established by the applicable sewer agency.			X
	10.b.	Grade or berm area to prevent run-on from surrounding areas.			X
	10.c.	Installation of storm drains in areas of equipment repair is prohibited.			X
	10.d.	Other features which are comparable or equally effective.			X
11.	**Equipment Wash Areas**				
	Outdoor equipment/accessory washing and steam cleaning activities shall be.				
	11.a.	Be self-contained; or covered with a roof or overhang.			X
	11.b.	Be equipped with a clarifier, grease trap or other pretreatment facility, as appropriate.			X
	11.c.	Be properly connected to a sanitary sewer.			X
	11.d.	Other features which are comparable or equally effective.			X
12.	**Parking Areas**				
	The following design concepts shall be considered, and incorporated and implemented where determined applicable and feasible by the County.				
	12.a.	Where landscaping is proposed in parking areas, incorporate landscape areas into the drainage design.			X

BMP			YES	NO	N/A
	12.b.	Overflow parking (parking stalls provided in excess of the County's minimum parking requirements) may be constructed with permeable paving.			X
	12.c.	Other design concepts that are comparable and equally effective.			X
13.	**Fueling Area**				
	Non-retail fuel dispensing areas shall contain the following.				
	13.a.	Overhanging roof structure or canopy. The cover's minimum dimensions must be equal to or greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area shall drain to the project's treatment control BMP(s) prior to discharging to the storm water conveyance system.			X
	13.b.	Paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete shall be prohibited.			X
	13.c.	Have an appropriate slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of urban runoff.			X
	13.d.	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.			X

Please list other project specific Source Control BMPs in the following box. Write **N/A** if there are none and briefly explain.

N/A

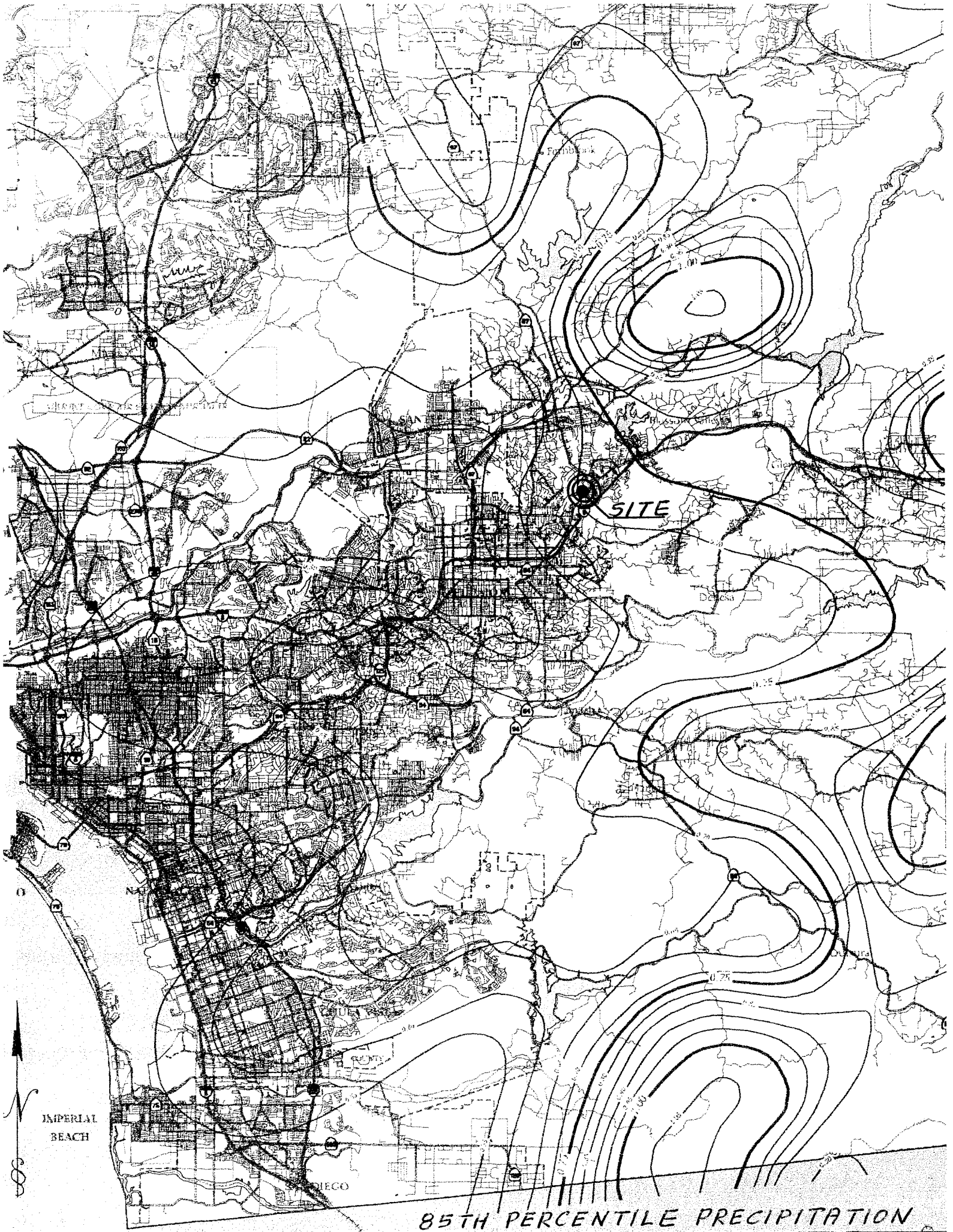
TREATMENT CONTROL

To select a structural treatment BMP using Treatment Control BMP Selection Matrix (Table 2), each priority project shall compare the list of pollutants for which the downstream receiving waters are impaired (if any), with the pollutants anticipated to be generated by the project (as identified in Table 1). Any pollutants identified by Table 1, which are also causing a Clean Water Act section 303(d) impairment of the receiving waters of the project, shall be considered primary pollutants of concern. Priority projects that are anticipated to generate a primary pollutant of concern shall select a single or combination of stormwater BMPs from Table 2, which **maximizes pollutant removal** for the particular primary pollutant(s) of concern. Priority projects that are **not** anticipated to generate a pollutant for which the receiving water is Clean Water Act Section 303(d) impaired shall select a single or combination of stormwater BMPs from Table 2, which are effective for pollutant removal of the identified secondary pollutants of concern, consistent with the "maximum extent practicable" standard.

Table 2. Treatment Control BMP Selection Matrix

Pollutant of Concern	***Treatment Control BMP Categories***						
	Biofilters	Detention Basins	Infiltration Basins(2)	Wet Ponds or Wetlands	Drainage Inserts	Filtration	Hydrodynamic Separator Systems(3)
Sediment	M						
Nutrients	L						
Heavy Metals	M						
Organic Compounds	U						
Trash & Debris	L						
Oxygen Demanding Substances	L						
Bacteria	U						
Oil & Grease	M						
Pesticides	U						

(1) Copermittees are encouraged to periodically assess the performance characteristics of many of these BMPs to update this table.
(2) Including trenches and porous pavement.
(3) Also known as hydrodynamic devices and baffle boxes.
L: Low removal efficiency:
M: Medium removal efficiency:
H: High removal efficiency:
U: Unknown removal efficiency
Sources: *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (1993), *National Stormwater Best Management Practices Database* (2001), *Guide for BMP Selection in Urban Developed Areas* (2001), *and Caltrans New Technology Report (2001).*



85TH PERCENTILE PRECIPITATION

A Treatment BMP must address runoff from developed areas. Please provide the post construction water quality values for the project. Label outfalls on the BMP map. Q_{WQ} is dependent on the type of treatment BMP selected for the project.

Post-Construction Drainage

Summaries of the post-construction water quality flows are included in Table 3.1. Water quality flows were developed using the 85th Percentile Precipitation Map developed by the County, which was obtained from the website http://www.co.san-diego.ca.us/dpw/land/flood.htm.

"C" Using Undeveloped Characteristics, Soil Type B

Table 3.1 Rational Method Data for Water Quality Flows

NODE/BASIN	C	I	AREA	Q_{WQ}
		(in/hr)	(acres)	(cfs)
A	0.87	.2	1.79	0.31

"C" Using Commercial characteristics, Soil Type B

"I" Using San Diego County 0.2 in/hr for BMP's

Table 3.2 100-Year Flows and Water Quality Flows

Basin	Q_{100} Pre-Const (cfs)	Q_{100} Post-Const (cfs)	Q_{WQ} (cfs)
A	2.60	6.10	0.31

Please check the box(s) that best describes the Treatment BMP(s) selected for this project.

Biofilters

X Grass swale
Grass strip
Wetland vegetation swale
Bioretention

Detention Basins

Extended/dry detention basin with grass lining
Extended/dry detention basin with impervious lining

Infiltration Basins

Infiltration basin
Infiltration trench
Porous asphalt
Porous concrete
Porous modular concrete block

Wet Ponds or Wetlands

Wet pond/basin (permanent pool)
Constructed wetland

Drainage Inserts (See note below)

Oil/Water separator
Catch basin insert
Storm drain inserts
Catch basin screens

Filtration

Media filtration
Sand filtration

Hydrodynamic Separator Systems

Swirl Concentrator
Cyclone Separator
Baffle Separator
Gross Solids Removal Device
Linear Radial Device

Note: Catch basin inserts and storm drain inserts are excluded from use on County maintained right-of-way and easements.

Include Treatment Datasheet as Attachment E. The datasheet should include the following:	**COMPLETED** X	**NO**
1. Description of how treatment BMP was designed. Provide a description for each type of treatment BMP.	X	
2. Engineering calculations for the BMP(s)	X	

Please describe why the selected treatment BMP(s) was selected for this project. For projects utilizing a low performing BMP, please provide a detailed explanation and justification.

Selected treatment BMP's 1.Grass swales 2. Rip-rap structures

MAINTENANCE

Please check the box that best describes the maintenance mechanism(s) for this project.

CATEGORY	**SELECTED**	
	YES	**NO**
First		X
Second	X	
Third		X
Fourth		X

Please briefly describe the long-term fiscal resources for the selected maintenance mechanism(s).

After the installation of the BMP's, the developer would like to assure maintenance of post-construction BMP's through a private maintenance agreement. See attachment 'C' for approximate cost of acquisition and maintenance of all site development BMP's.

ATTACHMENTS

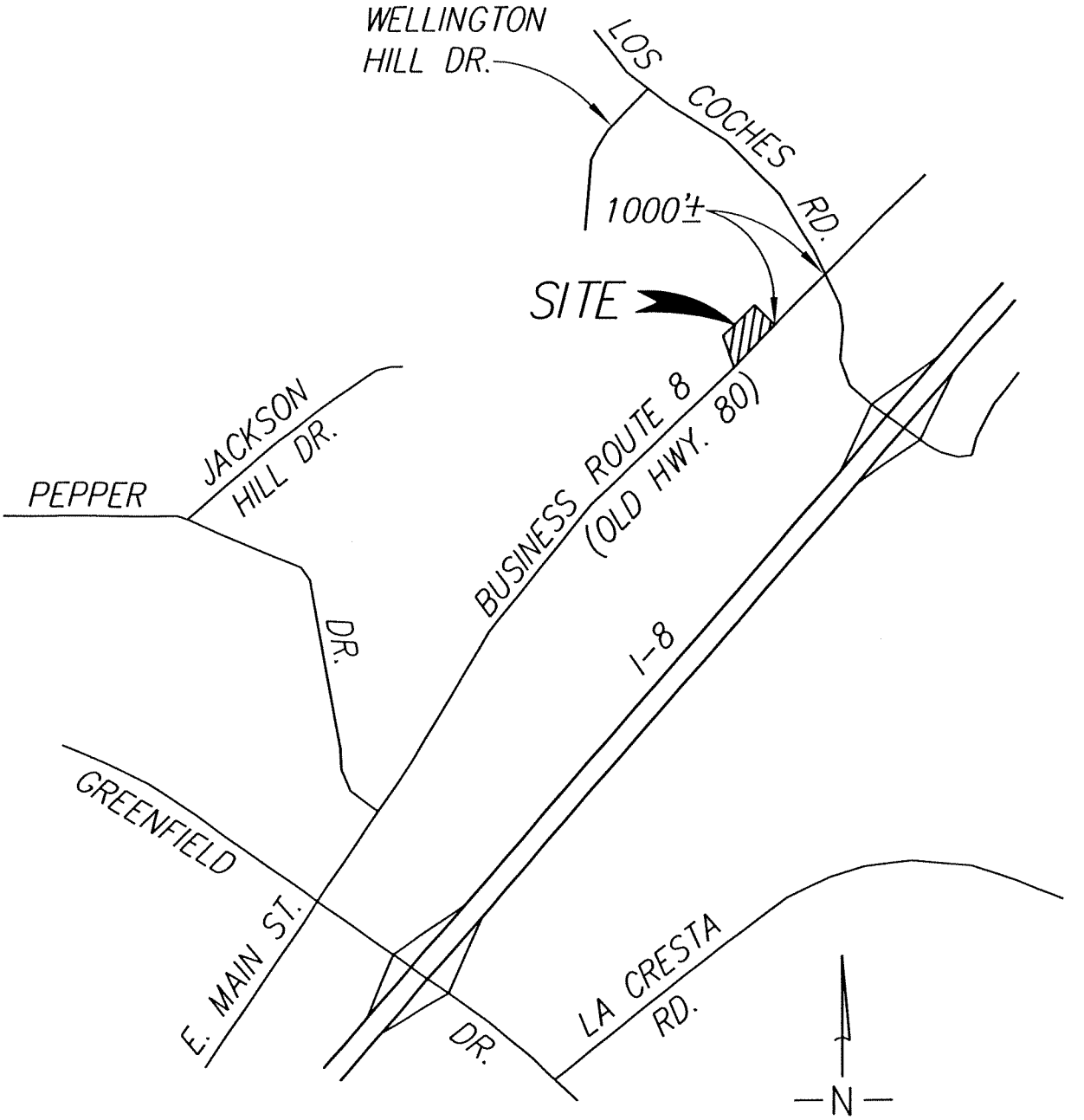
Please include the following attachments.

ATTACHMENT		COMPLETED	N/A
A	Vicinity Map		
B	Treatment BMP Location Maps		
C	Treatment BMP Datasheets		
D	Operation and Maintenance Program for Treatment BMPs		
E	Engineer's Certification Sheet		

Note: Attachments A and B may be combined.

ATTACHMENT A

VICINITY MAP



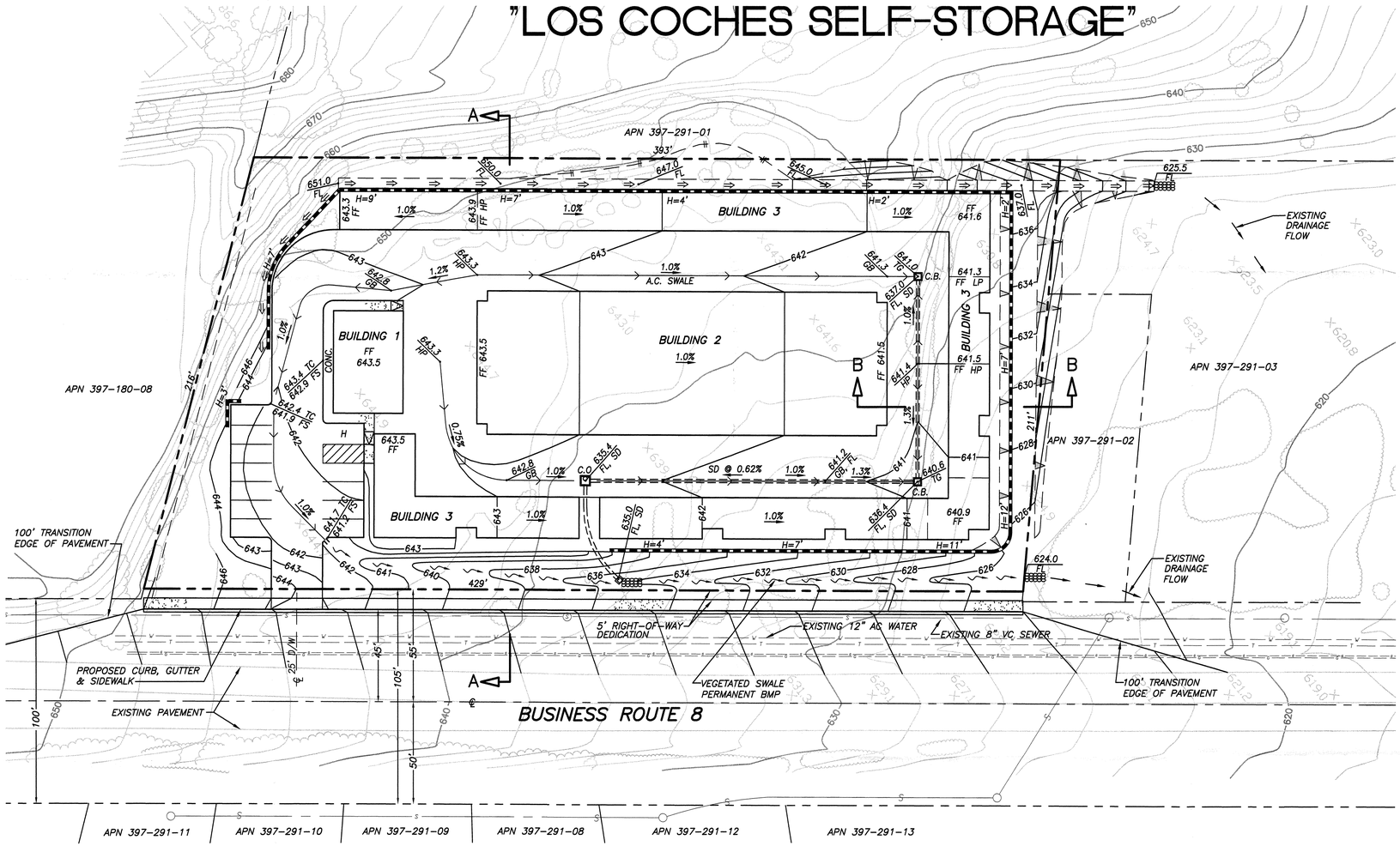
VICINITY MAP
NO SCALE

ATTACHMENT B

TREATMENT BMP LOCATION MAPS

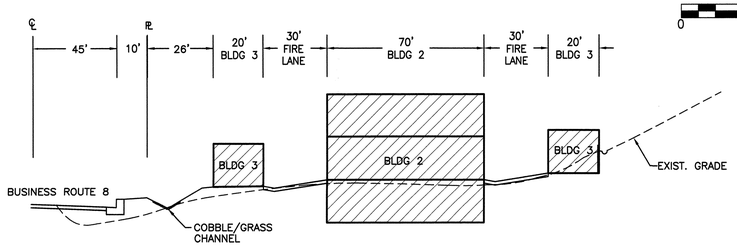
PRELIMINARY GRADING PLAN FOR:

COUNTY OF SAN DIEGO TRACT NO. S04-009/ER04-14-004
"LOS COCHES SELF-STORAGE"

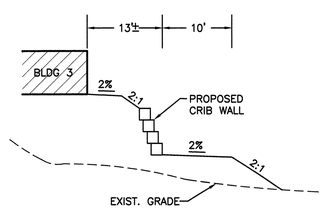


SCALE 1"=30'

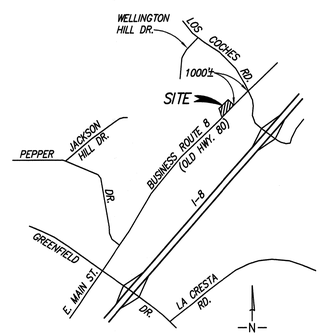
0 30' 60' 90'



SECTION A–A
NO SCALE



SECTION B–B
NO SCALE



VICINITY MAP
NO SCALE

LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
G G	EXISTING GAS
T T	EXISTING TELEPHONE
W W	EXISTING WATER
S S	EXISTING SEWER
	PROJECT BOUNDARY
	ASSESSORS PARCEL LINE/RIGHT-OF-WAY
2%	GRADE
	STORM DRAIN (C.B.=CATCH BASIN, C.O.= CLEANOUT)
	BROW DITCH
	COBBLE AND GRASS CHANNEL SEE LANDSCAPE PLANS
H=7'	RETAINING WALL (W/HEIGHT OF RET.)
	A.C. SWALE
	DAYLIGHT LINE
CUT FILL	2:1 SLOPE
	RIP-RAP ENERGY DISSIPATER
641.3 / TG	FINISH ELEVATIONS

FF=FINISHED FLOOR
FL=FLOW LINE
FS=FINISHED SURFACE
GB=GRADE BREAK
HP=HIGH POINT
LP=LOW POINT
SD=STORM DRAIN
TC=TOP OF CURB
TG=TOP OF GRATE

APPROXIMATE EARTHWORK QUANTITIES:

CUT: 9,400 C.Y.

FILL: 5,900 C.Y.

EXPORT: 3,500 C.Y.

APN:

397-291-01

LEGAL DESCRIPTION

A PORTION OF LOT 16 OF BLOCK 17 OF THE "S" TRACT OF RANCHO EL CAJON PER DEED BOOK 170, PAGE 71

TOPOGRAPHY

PROJECT DESIGN CONSULTANTS
PHOTOGRAMMETRY DEPARTMENT
PROJECT NUMBER/PHASE: 2862.00
DATE OF PHOTOGRAPHY: 11/17/04
CONTOUR INTERVAL=2 FT.

BENCH MARK: A STANDARD U.S.C. & G.S. DISC STAMPED "L 302 1935" SET IN TOP OF A CONC. POST 30' RT. OF STA 57+85 OF R.S. 454
RECORD FROM: CO. OF SAN DIEGO VERT. CNTRL. DATA
ELEV.: 564.07 DATUM: U.S.C. & G.S. M.S.L.

OWNER/APPLICANT

TOM AND RUTH ODOM
1440 RENWICK ROAD
SAN DIMAS, CA 91773
TEL: (909) 592-8344

ENGINEER OF WORK

REC CONSULTANTS, INC.
2442 SECOND AVENUE
SAN DIEGO, CALIFORNIA 92101
TEL: (619) 232-9200

REGISTERED PROFESSIONAL ENGINEER BRUCE A. ROBERTSON NO.48529 EXP. 6/30/08 CIVIL STATE OF CALIFORNIA

BRUCE A. ROBERTSON, RCE 48529 DATE

PRELIMINARY GRADING PLAN 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 A VALID GRADING PERMIT BEFORE COMMENCING SUCH ACTIVITY.

COUNTY OF SAN DIEGO
DEPARTMENT OF ENVIRONMENTAL HEALTH
APPROVED BY: DATE

R·E·C Consultants, Inc.
Civil Engineering-Environmental Land Surveying
2442 Second Avenue
San Diego, CA 92101
(619)232-9200 (619)232-9210 Fax

REVISIONS		
BY	DATE	DESCRIPTION

JOB NO. 03-495

PRELIMINARY GRADING PLAN FOR:
LOS COCHES SELF-STORAGE
COUNTY OF SAN DIEGO
TRACT NO. S04-009/ER04-14-004

SHEET NO.
1 OF 1

P:\Acad\Los_Coches_SS\SITE\PGP.dwg 12/13/2007 1:01:02 PM PST

ATTACHMENT C

TREATMENT BMP DATASHEET

Attachment C Estimated O & M Costs for BMP Project

Estimated vlaues derived from Caltrans Pilot BMP Study. This spreadsheet will change as additional data becomes available.

					Labor			Equipment				Materials		Total
					Per. Hrs	Rate	Cost	Type	Days	rate	Cost	Item	Cost	Cost
BIOFILTER SYSTEMS-Infiltration Swales and Grass-Lined Swales														
Preventive Maintenance and Routine Inspections														
ROUTINE ACTIONS	**MAINTENANCE INDICATOR**	**FIELD MEASUREMENT**	**MEASUREMENT FREQUENCY**	**MAINTENANCE ACTIVITY**										
Monitor height of vegetation	Average vegetation height exceeds 12 inches, emergence of trees, or woody vegetation	Visual inspection of vegetation throughout project	Once during wet season, once during dry season.(depending on growth)	Cut vegetation to an average height of 6 inches	8	50	$ 400.00	one-ton truck & hydroseeder	1	300	$ 300.00	string trimmer, rake, fork, bags, safety equipment	50	$ 750.00
Assess adequate vegetative cover	Less than 90 percent coverage in strip invert/swale or less than 70 percent on swale side slope	Visual inspection of swale. Prepare a site schematic to record location and distribution of barren or browning spots to be restored. File the schematic for assessment of persistent problems.	Assess quantity needed in May each year late wet season and late dry season.	Reseed/revegetate barren spots by Nov. Scarify area to be restored, to a depth of 2-inches. Restore side slope coverage with hydroseed mixture.	2	43.63	$ 87.26	one-ton truck & hydroseeder	1	48.15	$ 48.15	seed	150	$ 285.41
				If after 2 applications (2 seasons) of reseeding/revegetating and growth is unsuccessful both times, an erosion blanket or equivalent protection will be installed over eroding areas	0	43.63	$ -		0	26.84	$ -		0	$ -
Inspect for debris accumulation	Debris or litter present	Visual observation	During routine trashing, per Districts schedule.	Remove litter, and debris.	0	0	$ -	one-ton truck & hydroseeder	0	0	$ -			$ -
Inspect for accumulated sediment	Sediment at or near vegetation height, channeling of flow, inhibited flow due to change in slope.	Visual observation	Annually	Remove sediment. If flow is channeled, determine cause and take corrective action. If sediment becomes deep enough to change the flow gradient, remove sediment during dry season, characterize and properly dispose of sediment, and revegetate.	6	43.63	$ 261.78	one-ton truck & hydroseeder	1	48.15	$ 48.15	seed, testing and disposal of sediment	300	$ 609.93

Attachment C Estimated O & M Costs for BMP Project

Estimated vlaues derived from Caltrans Pilot BMP Study. This spreadsheet will change as additional data becomes available.

					Labor			Equipment				Materials		Total
					Per. Hrs	Rate	Cost	Type	Days	rate	Cost	Item	Cost	Cost
				Notify engineer to determine if regrading is necessary. If necessary, regrade to design specification and revegetate swale/strip. If regrading is necessary, the process should start in May. Revegetate strip/swale in Nov. Target completion prior to wet season.	2	43.63	$ 87.26				$ -			$ 87.26
Inspect for burrows	Burrows, holes, mounds	Visual observation	Annually and after vegetation trimming.	Where burrows cause seepage, erosion and leakage, backfill firmly.	0	0	$ -	one-ton truck & hydroseeder	0	26.84	$ -			$ -
General Maintenance Inspection	Inlet structures, outlet structures, side slopes or other features damaged, significant erosion,emergence woody vegetation, fence damage, etc.	Visual observation	Semi-Annually, late wet season and late dry season.	Corrective action prior to wet season. Consult engineer if an immediate solution is not evident.	6	43.63	$ 261.78	one-ton truck & hydroseeder	1	26.84	$ 26.84			$ 288.62
TOTAL BIO-FILTER MAINTENANCE					**24**		**$ 1,098.08**				**$ 423.14**		**500**	**$ 2,021.22**
Drain Inlet Inserts														
Preventive Maintenance and Routine Inspections														
ROUTINE ACTIONS	**MAINTENANCE INDICATOR**	**FIELD MEASUREMENT**	**MEASUREMENT FREQUENCY**	**MAINTENANCE ACTIVITY**										
Inspect for debris / trash and remove debris, trash and sediment	Sufficient debris / trash that could interfer with proper functioning of insert	Visual Observation	During wet season. Before and once during each target event (@	Remove and properly dispose of debris / trash. Target completion period while condutcting on site inspection	3	50	$ 150.00	light truck	1	500	$ 500.00	none		$ 650.00
Medium Replacement	Schedule replacement or damaged medium.		Medium replacement once a year (April 30)	Remove, characterize and properly dispose of medium	2	50	$ 100.00		0	21.28	$ -		0	$ 100.00
TOTAL DRAIN INLET INSERTS MAINTENANCE					5		$ 250.00				$ 500.00		500	$ 750.00
Rip-Rap Energy Dissipators							$ -				$ -			$ -
Preventive Maintenance and Routine Inspections														
ROUTINE ACTIONS	**MAINTENANCE INDICATOR**	**FIELD MEASUREMENT**	**MEASUREMENT FREQUENCY**	**MAINTENANCE ACTIVITY**										
Inspect for debris / trash	Sufficient debris / trash that could interfer with proper functioning of insert	Visual Observation	Once during wet season.	Remove and properly dispose of debris / trash. Target completion period while condutcting on site inspection	1	50	$ 50.00	light truck	0	500	$ -	none		$ 50.00
Sediment Removal	Sufficient sediment that could interfer with proper functioning of the dissipator.	Visual Observation	Once during wet season.	Remove and properly dispose of sediment. Target completion period while condutcting on site inspection	1	43.63	$ 43.63	light truck	0	0	$ -			$ 43.63

Odom Residence

Attachment C Estimated O & M Costs for BMP Project

Estimated vlaues derived from Caltrans Pilot BMP Study. This spreadsheet will change as additional data becomes available.

					Labor			Equipment				Materials		Total
					Per. Hrs	Rate	Cost	Type	Days	rate	Cost	Item	Cost	Cost
BIOFILTER SYSTEMS- Infiltration Swales and Grass-Lined Swales														
Preventive Maintenance and Routine Inspections														
ROUTINE ACTIONS	**MAINTENANCE INDICATOR**	**FIELD MEASUREMENT**	**MEASUREMENT FREQUENCY**	**MAINTENANCE ACTIVITY**										
Monitor height of vegetation	Average vegetation height exceeds 12 inches, emergence of trees, or woody vegetation	Visual inspection of vegetation throughout project	Once during wet season, once during dry season.(depending on growth)	Cut vegetation to an average height of 6 inches	8	50	$ 400.00	one-ton truck & hydroseeder	1	300	$ 300.00	string trimmer, rake, fork, bags, safety equipment	50	$ 750.00
Assess adequate vegetative cover	Less than 90 percent coverage in strip invert/swale or less than 70 percent on swale side slope	Visual inspection of swale. Prepare a site schematic to record location and distribution of barren or browning spots to be restored. File the schematic for assessment of persistent problems.	Assess quantity needed in May each year late wet season and late dry season.	Reseed/revegetate barren spots by Nov. Scarify area to be restored, to a depth of 2-inches. Restore side slope coverage with hydroseed mixture.	2	43.63	$ 87.26	one-ton truck & hydroseeder	1	48.15	$ 48.15	seed	150	$ 285.41
				If after 2 applications (2 seasons) of reseeding/revegetating and growth is unsuccessful both times, an erosion blanket or equivalent protection will be installed over eroding areas	0	43.63	$ -		0	26.84	$ -		0	$ -
Inspect for debris accumulation	Debris or litter present	Visual observation	During routine trashing, per Districts schedule.	Remove litter, and debris.	0	0	$ -	one-ton truck & hydroseeder	0	0	$ -			$ -
Inspect for accumulated sediment	Sediment at or near vegetation height, channeling of flow, inhibited flow due to change in slope.	Visual observation	Annually	Remove sediment. If flow is channeled, determine cause and take corrective action. If sediment becomes deep enough to change the flow gradient, remove sediment during dry season, characterize and properly dispose of sediment, and revegetate.	6	43.63	$ 261.78	one-ton truck & hydroseeder	1	48.15	$ 48.15	seed, testing and disposal of sediment	300	$ 609.93

Attachment C Estimated O & M Costs for BMP Project

Estimated vlaues derived from Caltrans Pilot BMP Study. This spreadsheet will change as additional data becomes available.

					Labor			Equipment				Materials		Total
					Per. Hrs	Rate	Cost	Type	Days	rate	Cost	Item	Cost	Cost
Rip-Rap Intergrity Inspection	Washed out Rip-rap.	Visual Observation	Once during wet season.	Replace relocated Rock in dissipator.	1	43.63	$ 43.63	light truck	0	21.28	$ -	testing & disposal costs	0	$ 43.63
TOTAL RIP-RAP ENERGY DISSIPATOR MAINTENANCE					3		$ 137.26		0		$ -		$ -	$ 137.26
TOTAL MAINTENANCE					32		$1,485.34				$923.14		1000	$2,908.48

1. The design storm event is a storm that has a one year, 24 hour recurrence frequency.
2. A target storm event is a storm greater than 0.7525 inches of rainfall. For drain inlet inserts, a target storm event is a storm with a prediction of greater than 0.25 inches of rainfall.
3. Woody wetland vegetation consists of: willows (Salix spp), mule fat (baccharis salicifolia), cottonwood (populus fremontii), and western sycamore (plantanus racemosa). Note, this criterion is not applicable to the wet basin.
4. Zone 1, open water area of the basin, average depth is about 3 feet. Zone 2, shallow water bench, depth of water 0 –12 inches. Zone 3, periodic inundation is the temporary water storage volume impounded between the permanent pool and the overflow weir, i.e. the water quality storage. (See attachments for zone locations.) Zone A is the remaining upland slope between Zone 3 and the maintenance road.

This Maintenance Indicator Document has been developed using site-specific information gathered by specialists trained in the identification of threatened and endangered species and their habitat. Information contained in this document includes guidance for inspection for possible threatened and endangered species harborage. Further, some of the maintenance recommendations are based on the requirements of specific plant species used in this Pilot Program. The recommendations provided in this document must be reassessed with respect to species and plant materials if the guidance contained herein is to be used for a separate project in another area.

ATTACHMENT D

OPERATION AND MAINTENANCE PROGRAM FOR TREATMENT BMP

Grass swales

The operational and maintenance needs of on-site grass swale are:

- Vegetation management to maintain adequate hydraulic functioning and to limit habitat for disease-carrying animals.
- Periodic sediment removal to optimize performance.
- Trash, debris and grass trimmings to prevent obstruction of a Swale and monitoring equipment.
- Removal of standing water, which may contribute to the development of aquatic plant communities or mosquito breeding areas.

Aesthetic and Functional Maintenance

Functional maintenance is important for performance and safety reasons. Aesthetic maintenance is important for public acceptance of stormwater facilities.

Aesthetic Maintenance

The following activities will be included in the aesthetic maintenance program:

- Grass Trimming. Trimming of grass will be done on the swale, around fences, at the inlet and outlet structures, and sampling structures.
- Weed Control. Weeds will be removed through mechanical means. Herbicide will not be used because these chemicals may impact the water quality monitoring.

Functional Maintenance

Functional maintenance has two components: Preventive maintenance and Corrective maintenance.

Preventive Maintenance

Preventive maintenance activities to be instituted at a Swale are:

- Grass Mowing. Vegetation seed mix (Bermuda grass or similar) within the Swale is designed to be kept short to maintain adequate hydraulic functioning and to limit the development of faunal habitats.
- Trash and Debris. During each inspection and maintenance visit to the site, debris and trash removal will be conducted to reduce the potential for inlet and outlet structures and other components from becoming clogged and inoperable during storm events.

- Sediment Removal. Sediment accumulation, as part of the operation and maintenance program at a Swale, will be monitored once a month during the dry season, after every large storm (0.50 inch), and monthly during the wet season. Specifically, if sediment reaches a level at or near plant height, or could interfere with flow or operation, the sediment will be removed. If

accumulation of debris or sediment is determined to be the cause of decline in design performance, prompt action (i.e., within ten working days) will be taken to restore the Swale to design performance standards. Actions will include using additional fill and vegetation and/or removing accumulated sediment to correct channeling or ponding. Characterization and Appropriate disposal of sediment will comply with applicable local, county, state, or federal requirements. The swale will be regraded, if the flow gradient has changed, and then replanted with sod.

- Removal of Standing Water. Standing water must be removed if it contributes to the development of aquatic plant communities or mosquito breeding areas.
- Fertilization and Irrigation. The vegetation seed mix (Bermuda grass or similar) has been designed so that fertilization and irrigation is not necessary. Fertilizers and irrigation will not be used to maintain the vegetation.
- Elimination of Mosquito Breeding Habitats. The most effective mosquito control program is one that eliminates potential breeding habitats.

Corrective Maintenance

Corrective maintenance is required on an emergency or non-routine basis to correct problems and to restore the intended operation and safe function of a Swale. Corrective maintenance activities include:

- Removal of Debris and Sediment. Sediment, debris, and trash, which impede the hydraulic functioning of a Swale and prevent vegetative growth, will be removed and properly disposed. Temporary arrangements will be made for handling the sediments until a permanent arrangement is made. Vegetation will be re-established after sediment removal.
- Structural Repairs. Once deemed necessary, repairs to structural components of a Swale and its inlet and outlet structures will be done within 10 working days. Qualified individuals (i.e., the designers or contractors) will conduct repairs where structural damage has occurred.
- Embankment and Slope Repairs. Once deemed necessary, damage to the embankments and slopes of Swales will be repaired within 10 working days).
- Erosion Repair. Where a reseeding program has been ineffective, or where other factors have created erosive conditions (i.e., pedestrian traffic, concentrated flow, etc.), corrective steps will be taken to prevent loss of soil and any subsequent danger to the performance of a Swale. There are a number of corrective actions than can be taken. These include erosion control blankets, riprap, sodding, or reduced flow through the area. Designers or contractors will be consulted to address erosion problems if the solution is not evident.
- General Facility Maintenance. In addition to the above elements of corrective maintenance, general corrective maintenance will address the overall facility and its associated components. If corrective maintenance is being done to one component, other components will be inspected to see if maintenance is needed.

Maintenance Frequency

Maintenance of grass swales primarily involves maintenance of the grass cover. Slopes should be inspected for erosion or rills or gullies on an annual basis (semi-annual first year). The maintenance program can be part of the regular landscape maintenance of the site, administered by the responsible party.

ATTACHMENT E

CERTIFICATION SHEET

This Stormwater Management Plan has been prepared under the direction of the following Registered Civil Engineer. The Registered Civil Engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

~~Frank Florez~~ *REGISTERED CIVIL ENGINEER*	*DATE*