

Appendix D

Stormwater Quality Management Plan



County of San Diego

Green Streets PDP Exempt Stormwater Quality Management Plan (SWQMP)

This form must accompany applications for Green Streets PDP-exempt projects such as a) development of new sidewalks, bike lanes, and/or trails, or b) improvements to existing roads, sidewalks, bike lanes, and/or trails as described in Section 1.4.3 of the County BMP Design Manual.

Project Identification	
<u>Project Information</u> <i>Project Name</i> <i>Project Street Address</i> <i>Project City, State, Zip</i> <i>Assessor's Parcel Number</i> <i>Project/Oracle Number</i>	Avenida Encinas Costal Rail Trail and Pedestrian Improvements Carlsbad, CA, 92011
<u>Applicant Information</u> <i>Applicant Name</i> <i>Applicant Phone Number</i> <i>Applicant Email Address</i> <i>Company Name</i> <i>Company Address</i>	Lawrence Paul Thornburgh 858-292-7770 larryt@nasland.com Nasland Engineering 4740 Rufner Street, San Diego, CA 92111
<u>Engineer's Certification</u> <i>Engineer's Signature</i> <i>PE Number</i> <i>State of Licensure</i> <i>I hereby declare that I am the Engineer in Responsible Charge of design of stormwater BMPs for this project. (This item is only required at final submittal).</i>	Lawrence Paul Thornburgh RCE #49795 California
<u>Preparation Date:</u>	12/6/23

Project Description

Describe project intent, existing/proposed drainage patterns, net increase in impervious area, and green street performance strategies.

If the project consists entirely of “routine maintenance” activities as outlined in Table 1 2 of the County BMPDM (i.e. road resurfacing, utility trenching, etc), clearly state so and provide a thorough description of these activities. Routine maintenance projects are not required to complete the rest of this SWQMP form.

The proposed improvements on Avenida Encinas include new pedestrian improvements such as sidewalks, bus stops, curb ramps, parkways with landscaping, as well as new bike lanes. A portion of the roadway on the southern half of the project shall be widened.

The existing drainage pattern within the roadway generally consists of runoff contained by curb and gutter along the shoulders. There are several low points within the corridor that capture the drainage via curb inlets or asphalt spillways. Runoff from all points of connections drain to Encinas Creek which ultimately discharges to the Pacific Ocean.

The proposed improvements encompass the removal and replacement of existing impervious areas such as road pavement sections and existing curb ramps. The project proposes a total of 85,647 square feet of new and replaced impervious areas, with a net increase in impervious areas of 60,589 square feet.

The proposed drainage consists of roadway sheet flow that is collected into the curb and gutter system and discharges directly through curb cuts and curb inlets that enter biofiltration planters for treatment and to comply with the green street design criteria. In order to comply with the County of San Diego Green Streets Design Criteria, the design capture volume of only the net increase in impervious area is need to be treated, which in this case the 60,589 square feet of impervious area minus the existing paved area to be removed of 23,215 square feet gives 62,432 square feet of required treatment area. The final Design Capture Volume is 2,716 cfs and the required surface area for biofiltration planters is 1,700 square feet.

County of San Diego Green Streets PDP Exempt SWQMP

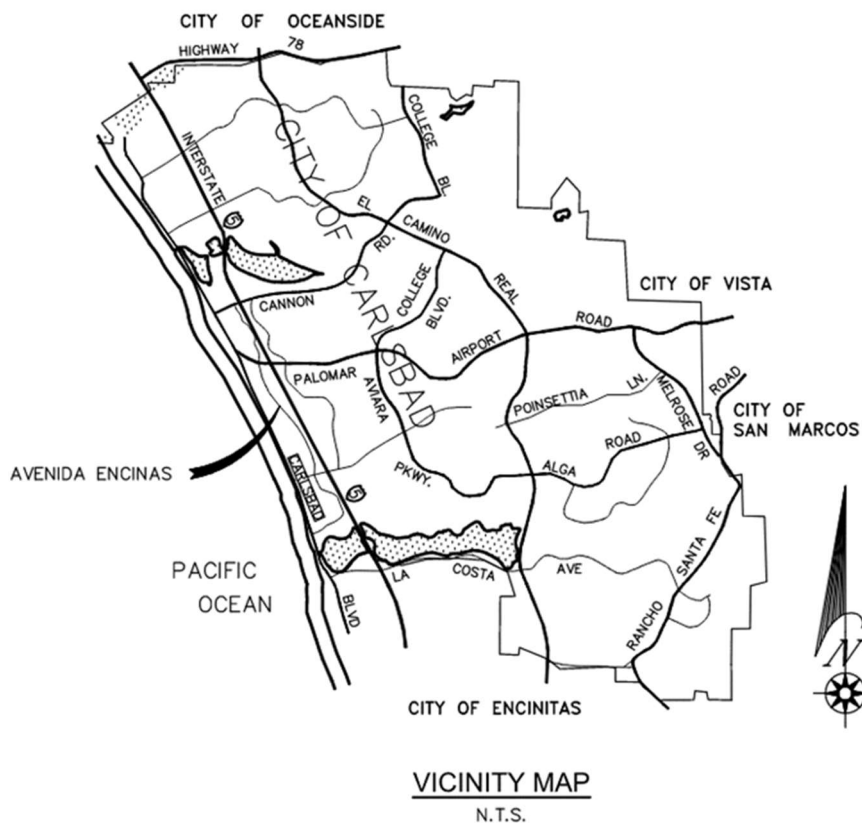
Best Management Practices	
Minimize Impervious Area <i>Project considered use of pervious pavements and constructs all impervious features to the minimum widths necessary.</i>	☒ Yes ☐ No ☐ Not Applicable
Conserve Natural Areas <i>Project preserves soils, vegetation, waterbodies, existing trees, open space, drainage patterns, and drainage features to the maximum extent practicable.</i>	☒ Yes ☐ No ☐ Not Applicable
Construction BMPs <i>Project implements all relevant construction BMPs as depicted in Attachment 1.</i>	☒ Yes ☐ No ☐ Not Applicable
Storm Drain Stenciling <i>Project stencils all new storm drain inlets as depicted in Attachment 1.</i>	☒ Yes ☐ No ☐ Not Applicable
Landscaping <i>Project uses only native and/or drought tolerant species in the landscape palette as depicted in Attachment 1.</i>	☒ Yes ☐ No ☐ Not Applicable
Trash Storage <i>Project designs all trash storage areas to prevent wind and water-based dispersal of trash as depicted in Attachment 1.</i>	☐ Yes ☐ No ☒ Not Applicable
Green Streets BMPs <i>Project implements Green Streets BMPs as depicted in Attachment 2.</i>	☒ Yes ☐ No ☐ Not Applicable
Additional Information <i>Provide a brief explanation for all "No" answers above.</i>	

County of San Diego Green Streets PDP Exempt SWQMP

Attachment 1: Relevant Supporting Information

Include the following supporting information as needed:

- Vicinity maps
- Plans (i.e., grading plans, landscape plans, site plans, details, construction BMPs, permanent BMPs)
- Drainage studies
- Geotechnical studies
- Other



County of San Diego Green Streets PDP Exempt SWQMP

Attachment 2: Green Streets BMP Information

Attachment 2A: Stormwater Pollutant Control Calculations

Include calculations showing that the Green Streets Performance Standard has been met. The performance standard can be found in Section K.2.1 of Appendix K of the County BMPDM. The County's Automated Pollutant Control Worksheet can be found on the Development Resources website:

www.sandiegocounty.gov/stormwater

County of San Diego Automated Stormwater Pollutant Control Worksheets (Version 2.0)

WELCOME:

Welcome to the County of San Diego Automated Stormwater Pollutant Control Worksheets. These worksheets may be used to demonstrate compliance with stormwater pollutant control standards set forth in the 2013 MS4 Permit for Priority Development Projects and Green Street Projects.

INSTRUCTIONS:

General: To use this workbook, navigate to each of the worksheet tabs below and populate all yellow cells with project specific information. Yellow cells require user input, white cells are locked for editing and are automatically calculated, blue cells are also locked for editing and are automatically populated based on results from previous worksheet tabs, grey cells are items that do not require user input because of previous user inputs, orange cells represent warnings where supplemental information and/or revisions may be required for compliance. The worksheets are formatted to accommodate calculations for up to 10 drainage areas and associated BMPs. Each drainage area and BMP is represented as a discrete column with corresponding user inputs and calculations appearing in the rows below. Please note that projects with more than 10 drainage areas may need to use more than one workbook to accommodate the entire project.

Step 1. DCV: Provide the required inputs to determine the design capture volume for each PDP drainage area. The calculations in this worksheet determine the initial design capture volume and also apply any applicable reductions associated with site design techniques including dispersion to pervious surfaces, incorporation of tree wells, and incorporation of rain barrels.

Step 2. Retention Requirements: Provide required inputs to determine the minimum retention requirements for each drainage area.

Step 3. BMP Performance: Provide required inputs to determine the portion of the pollutant control performance standards that are satisfied by the proposed BMPs.

Reduced Size BMP Maintenance (optional): If BMPs with a footprint of less than 3% of the effective impervious tributary are proposed, provide required inputs to determine the anticipated frequency for major BMP maintenance activities.

DISCLAIMER:

The County of San Diego has developed this tool in an effort to streamline traditionally complex efforts associated with planning, design, submittal, and review of PDPs that are subject to stormwater pollutant control requirements set forth in the 2013 MS4 Permit. While the calculations performed herein are deemed to be in compliance with Permit requirements, applicants may elect to provide their own calculations. Use of this tool is optional and the County will not be held liable for any errors or other negative impacts associated with its use. In the event that the County performs updates to these worksheets, applicants that have not established reliance on previous versions of the worksheet via discretionary approval may be required to utilize the latest version of the worksheets. A summary of version releases is included below.

QUESTIONS:

-Questions relating to specific projects, submittal requirements, approval process, and/or policy-related issues should be directed your PDS Land Development Project Manager (link below).

[PDS Land Development Project Manager](#)

-General questions/comments on this worksheet may be directed to Charles Mohrlock in the County of San Diego Watershed Protection Program (link below).

charles.mohrlock@sdcounty.ca.gov

Automated Worksheet B.1: Calculation of Design Capture Volume (V2.0)

Category	#	Description	<i>i</i>	<i>ii</i>	<i>iii</i>	<i>iv</i>	<i>v</i>	<i>vi</i>	<i>vii</i>	<i>viii</i>	<i>ix</i>	<i>x</i>	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name											unitless
	2	85th Percentile 24-hr Storm Depth											inches
	3	Impervious Surfaces <u>Not Directed to Dispersion Area</u> (C=0.90)											sq-ft
	4	Semi-Pervious Surfaces <u>Not Serving as Dispersion Area</u> (C=0.30)											sq-ft
	5	Engineered Pervious Surfaces <u>Not Serving as Dispersion Area</u> (C=0.10)											sq-ft
	6	Natural Type A Soil <u>Not Serving as Dispersion Area</u> (C=0.10)											sq-ft
	7	Natural Type B Soil <u>Not Serving as Dispersion Area</u> (C=0.14)											sq-ft
	8	Natural Type C Soil <u>Not Serving as Dispersion Area</u> (C=0.23)											sq-ft
	9	Natural Type D Soil <u>Not Serving as Dispersion Area</u> (C=0.30)											sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	10	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?											yes/no
	11	Impervious Surfaces Directed to Dispersion Area per SD-B (Ci=0.90)											sq-ft
	12	Semi-Pervious Surfaces Serving as Dispersion Area per SD-B (Ci=0.30)											sq-ft
	13	Engineered Pervious Surfaces Serving as Dispersion Area per SD-B (Ci=0.10)											sq-ft
	14	Natural Type A Soil Serving as Dispersion Area per SD-B (Ci=0.10)											sq-ft
	15	Natural Type B Soil Serving as Dispersion Area per SD-B (Ci=0.14)											sq-ft
	16	Natural Type C Soil Serving as Dispersion Area per SD-B (Ci=0.23)											sq-ft
	17	Natural Type D Soil Serving as Dispersion Area per SD-B (Ci=0.30)											sq-ft
	18	Number of Tree Wells Proposed per SD-A											#
	19	Average Mature Tree Canopy Diameter											ft
	20	Number of Rain Barrels Proposed per SD-E											#
21	Average Rain Barrel Size											gal	
Initial Runoff Factor Calculation	22	Total Tributary Area	62,432	0	0	0	0	0	0	0	0	0	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	25	Initial Weighted Runoff Factor	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	26	Initial Design Capture Volume	2,716	0	0	0	0	0	0	0	0	0	cubic-feet
Dispersion Area Adjustments	27	Total Impervious Area Dispersed to Pervious Surface	0	0	0	0	0	0	0	0	0	0	sq-ft
	28	Total Pervious Dispersion Area	0	0	0	0	0	0	0	0	0	0	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	ratio
	31	Runoff Factor After Dispersion Techniques	0.90	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	unitless
	32	Design Capture Volume After Dispersion Techniques	2,716	0	0	0	0	0	0	0	0	0	cubic-feet
Tree & Barrel Adjustments	33	Total Tree Well Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
	34	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
Results	35	Final Adjusted Runoff Factor	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	36	Final Effective Tributary Area	56,189	0	0	0	0	0	0	0	0	0	sq-ft
	37	Initial Design Capture Volume Retained by Site Design Elements	0	0	0	0	0	0	0	0	0	0	cubic-feet
	38	Final Design Capture Volume Tributary to BMP	2,716	0	0	0	0	0	0	0	0	0	cubic-feet
No Warning Messages													

Category	#	Description	<i>i</i>	<i>ii</i>	<i>iii</i>	<i>iv</i>	<i>v</i>	<i>vi</i>	<i>vii</i>	<i>viii</i>	<i>ix</i>	<i>x</i>	Units
Basic Analysis	1	Drainage Basin ID or Name	A	-	-	-	-	-	-	-	-	-	unitless
	2	85th Percentile Rainfall Depth	0.58	-	-	-	-	-	-	-	-	-	inches
	3	Predominant NRCS Soil Type Within BMP Location	D										unitless
	4	Is proposed BMP location Restricted or Unrestricted for Infiltration Activities?	Restricted										unitless
	5	Nature of Restriction	n/a										unitless
	6	Do Minimum Retention Requirements Apply to this Project?	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes/no
	7	Are Habitable Structures Greater than 9 Stories Proposed?	No										yes/no
Advanced Analysis	8	Has Geotechnical Engineer Performed an Infiltration Analysis?	No										yes/no
	9	Design Infiltration Rate Recommended by Geotechnical Engineer											in/hr
Result	10	Design Infiltration Rate Used To Determine Retention Requirements	0.000	-	-	-	-	-	-	-	-	-	in/hr
	11	Percent of Average Annual Runoff that Must be Retained within DMA	0.0%	-	-	-	-	-	-	-	-	-	percentage
	12	Fraction of DCV Requiring Retention	0.00	-	-	-	-	-	-	-	-	-	ratio
	13	Required Retention Volume	0	-	-	-	-	-	-	-	-	-	cubic-feet
Attention! -Retention requirements have been omitted in these calculations. Such an omission is only be acceptable for Green Street projects or projects that submit supplemental calculations demonstrating retention requirements are satisfied at the project-level.													

Automated Worksheet B.3: BMP Performance (V2.0)

Category	#	Description	<i>i</i>	<i>ii</i>	<i>iii</i>	<i>iv</i>	<i>v</i>	<i>vi</i>	<i>vii</i>	<i>viii</i>	<i>ix</i>	<i>x</i>	Units
BMP Inputs	1	Drainage Basin ID or Name											sq-ft
	2	Design Infiltration Rate Recommended											in/hr
	3	Design Capture Volume Tributary to BMP	2,716	-	-	-	-	-	-	-	-	-	cubic-feet
	4	Is BMP Vegetated or Unvegetated?											unitless
	5	Is BMP Impermeably Lined or Unlined?											unitless
	6	Does BMP Have an Underdrain?											unitless
	7	Does BMP Utilize Standard or Specialized Media?											unitless
	8	Provided Surface Area											sq-ft
	9	Provided Surface Ponding Depth											inches
	10	Provided Soil Media Thickness											inches
	11	Provided Gravel Thickness (Total Thickness)											inches
	12	Underdrain Offset											inches
	13	Diameter of Underdrain or Hydromod Orifice (Select Smallest)											inches
	14	Specialized Soil Media Filtration Rate											in/hr
	15	Specialized Soil Media Pore Space for Retention											unitless
	16	Specialized Soil Media Pore Space for Biofiltration											unitless
	17	Specialized Gravel Media Pore Space											unitless
Retention Calculations	18	Volume Infiltrated Over 6 Hour Storm	0	0	0	0	0	0	0	0	0	0	cubic-feet
	19	Ponding Pore Space Available for Retention	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	unitless
	20	Soil Media Pore Space Available for Retention	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	unitless
	21	Gravel Pore Space Available for Retention (Above Underdrain)	0.00	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	22	Gravel Pore Space Available for Retention (Below Underdrain)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	23	Effective Retention Depth	2.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	24	Fraction of DCV Retained (Independent of Drawdown Time)	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	25	Calculated Retention Storage Drawdown Time	120	0	0	0	0	0	0	0	0	0	hours
	26	Efficacy of Retention Processes	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	27	Volume Retained by BMP (Considering Drawdown Time)	355	0	0	0	0	0	0	0	0	0	cubic-feet
28	Design Capture Volume Remaining for Biofiltration	2,361	0	0	0	0	0	0	0	0	0	cubic-feet	
Biofiltration Calculations	29	Max Hydromod Flow Rate through Underdrain	2.6128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	cfs
	30	Max Soil Filtration Rate Allowed by Underdrain Orifice	66.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	in/hr
	31	Soil Media Filtration Rate per Specifications	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	in/hr
	32	Soil Media Filtration Rate to be used for Sizing	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	in/hr
	33	Depth Biofiltered Over 6 Hour Storm	30.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	34	Ponding Pore Space Available for Biofiltration	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	35	Soil Media Pore Space Available for Biofiltration	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	unitless
	36	Gravel Pore Space Available for Biofiltration (Above Underdrain)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	37	Effective Depth of Biofiltration Storage	13.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	38	Drawdown Time for Surface Ponding	1	0	0	0	0	0	0	0	0	0	hours
	39	Drawdown Time for Effective Biofiltration Depth	3	0	0	0	0	0	0	0	0	0	hours
	40	Total Depth Biofiltered	43.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	41	Option 1 - Biofilter 1.50 DCV: Target Volume	3,541	0	0	0	0	0	0	0	0	0	cubic-feet
	42	Option 1 - Provided Biofiltration Volume	3,541	0	0	0	0	0	0	0	0	0	cubic-feet
	43	Option 2 - Store 0.75 DCV: Target Volume	1,771	0	0	0	0	0	0	0	0	0	cubic-feet
	44	Option 2 - Provided Storage Volume	1,771	0	0	0	0	0	0	0	0	0	cubic-feet
	45	Portion of Biofiltration Performance Standard Satisfied	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
Result	46	Do Site Design Elements and BMPs Satisfy Annual Retention Requirements?	Yes	-	-	-	-	-	-	-	-	-	yes/no
	47	Overall Portion of Performance Standard Satisfied (BMP Efficacy Factor)	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	48	Deficit of Effectively Treated Stormwater		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	cubic-feet

No Warning Messages

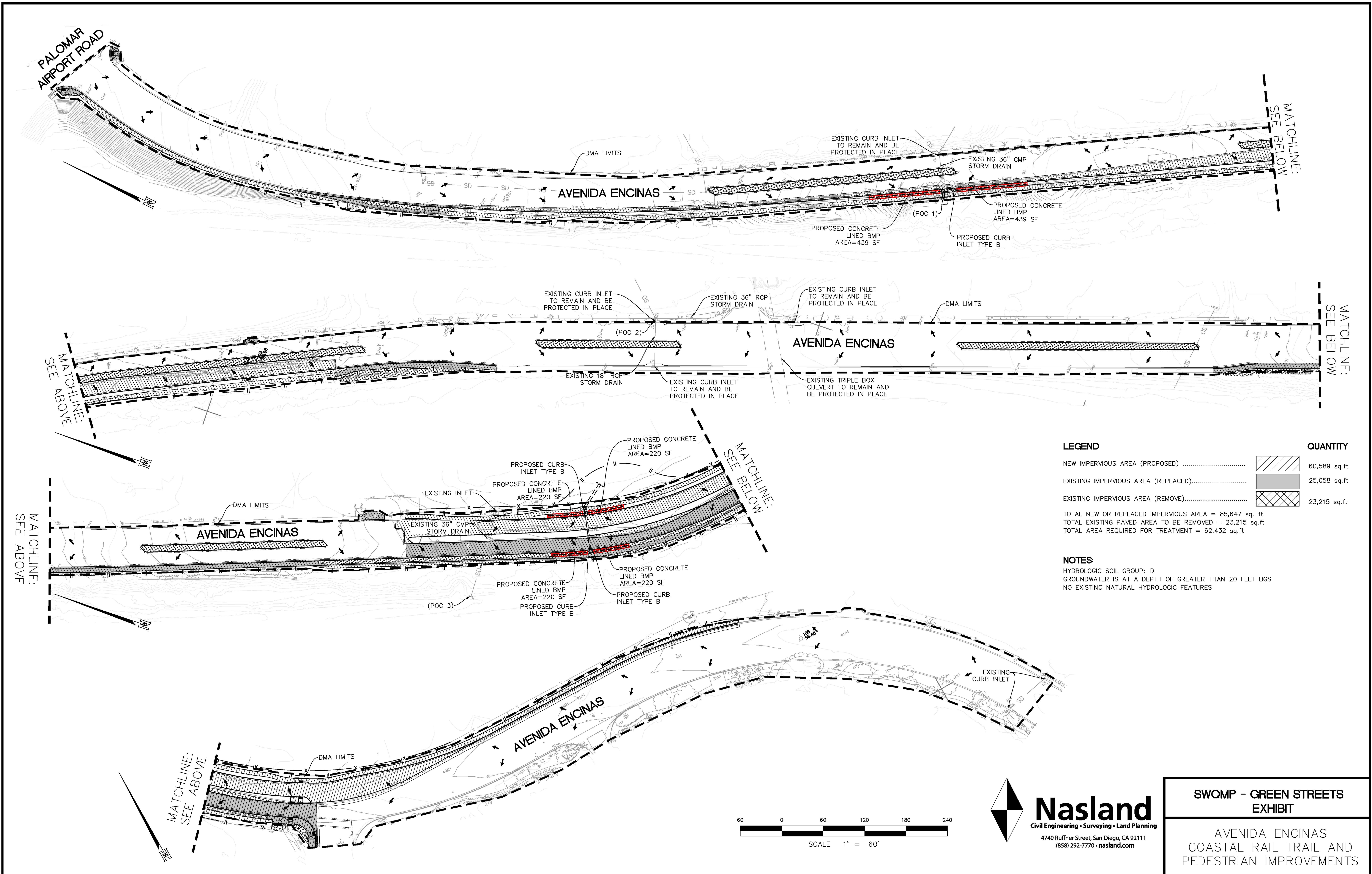
Item			Value
Required Treatment Volume	1	Land Use of new Impervious Area	Transportation
	2	Total New Impervious Area	62,432
	3	85th Percentile Rainfall Depth	0.58
	4	Runoff Coefficient	0.9
	5	Required Treatment Volume	2,716
Provided Treatment Volume	6	Land Use of Treated Area	Transportation
	7	Land Use Factor	1.00
	8	Conventional Treatment Volume	2,716
	9	Alternative Treatment Volume	0
	10	Final Treatment Volume	2,716
Result	11	Is Project Green Street Compliant?	Compliant
	12	Optional Credit	0

County of San Diego Green Streets PDP Exempt SWQMP

Attachment 2B: Stormwater Pollutant Control DMA Exhibits

The attached exhibits must identify:

- Underlying hydrologic soil group
- Approximate depth to groundwater if less than 10 ft
- Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
- Existing topography and impervious areas
- Existing and proposed site drainage network and connections to drainage offsite
- Proposed demolition
- Proposed grading
- Proposed impervious features
- Proposed design features and surface treatments used to minimize imperviousness
- Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
- Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Step 3.5)
- Green Streets BMPs (identify location, BMP ID #, type of BMP, and size/detail)
- Relevant plans: site, grading, improvement, profile, detail, construction BMP



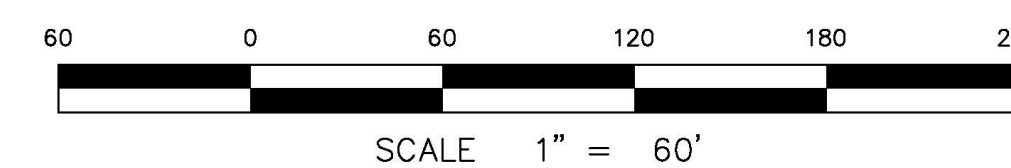
LEGEND

	QUANTITY
NEW IMPERVIOUS AREA (PROPOSED)	60,589 sq.ft
EXISTING IMPERVIOUS AREA (REPLACED).....	25,058 sq.ft
EXISTING IMPERVIOUS AREA (REMOVE).....	23,215 sq.ft

TOTAL NEW OR REPLACED IMPERVIOUS AREA = 85,647 sq. ft
TOTAL EXISTING PAVED AREA TO BE REMOVED = 23,215 sq.ft
TOTAL AREA REQUIRED FOR TREATMENT = 62,432 sq.ft

NOTES:

HYDROLOGIC SOIL GROUP: D
GROUNDWATER IS AT A DEPTH OF GREATER THAN 20 FEET BGS
NO EXISTING NATURAL HYDROLOGIC FEATURES



SWOMP - GREEN STREETS
EXHIBIT

AVENIDA ENCINAS
COASTAL RAIL TRAIL AND
PEDESTRIAN IMPROVEMENTS

County of San Diego Green Streets PDP Exempt SWQMP

Attachment 2C: BMP Maintenance Plan

Include a maintenance plan for each Green Streets BMP type. Fill out the BMP Maintenance table below. BMP maintenance guidelines can be found in Appendix E and K of the County BMP Design Manual.

[illegible]

Summary of Standard Inspection and Maintenance

The property owner is responsible to ensure inspection, operation and maintenance of permanent BMPs on their property unless responsibility has been formally transferred to an agency, community facilities district, homeowners association, property owners association, or other special district.

Maintenance frequencies listed in this table are average/typical frequencies. Actual maintenance needs are site-specific, and maintenance may be required more frequently. Maintenance must be performed whenever needed, based on maintenance indicators presented in this table. The BMP owner is responsible for conducting regular inspections to see when maintenance is needed based on the maintenance indicators. During the first year of operation of a structural BMP, inspection is recommended at least once prior to August 31 and then monthly from September through May. Inspection during a storm event is also recommended. After the initial period of frequent inspections, the minimum inspection and maintenance frequency can be determined based on the results of the first year inspections.

Threshold/Indicator	Maintenance Action	Inspection and Maintenance Frequency
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials, without damage to the vegetation or compaction of the media layer.	• Inspect monthly. If the BMP is 25% full* or more in one month, increase inspection frequency to monthly plus after every 0.1-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Obstructed inlet or outlet structure	Clear blockage.	• Inspect monthly and after every 0.5-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable	• Inspect annually. • Maintain when needed.

Threshold/Indicator	Maintenance Action	Inspection and Maintenance Frequency
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintain when needed.
Dead or diseased vegetation	Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintain when needed.
Overgrown vegetation	Mow or trim as appropriate.	• Inspect monthly. • Maintain when needed.
2/3 of mulch has decomposed, or mulch has been removed	Remove decomposed fraction and top off with fresh mulch to a total depth of 3 inches.	• Inspect monthly. • Replenish mulch annually, or more frequently when needed based on inspection.
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system.	• Inspect monthly. • Maintain when needed.

Threshold/Indicator	Maintenance Action	Inspection and Maintenance Frequency
Erosion due to concentrated storm water runoff flow	Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the County reviewer shall be contacted prior to any additional repairs or reconstruction.	• Inspect after every 0.5-inch or larger storm event. If erosion due to storm water flow has been observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintain when needed. If the issue is not corrected by restoring the BMP to the original plan and grade, the County reviewer shall be contacted prior to any additional repairs or reconstruction.
Standing water in BMP for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains, or repairing/replacing clogged or compacted soils.	• Inspect monthly and after every 0.5-inch or larger storm event. If standing water is observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintain when needed.

Threshold/Indicator	Maintenance Action	Inspection and Maintenance Frequency
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology	If mosquitos/larvae are observed: first, immediately remove any standing water by dispersing to nearby landscaping; second, make corrective measures as applicable to restore BMP drainage to prevent standing water. If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria due to release rates controlled by an orifice installed on the underdrain, the County reviewer shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.	• Inspect monthly and after every 0.5-inch or larger storm event. If mosquitos are observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintain when needed.
Underdrain clogged	Clear blockage.	Inspect if standing water is observed for longer than 24-96 hours following a storm event. Maintain when needed.

“25% full” is defined as $\frac{1}{4}$ of the depth from the design bottom elevation to the crest of the outflow structure (e.g., if the height to the outflow opening is 12 inches from the bottom elevation, then the materials must be removed when there is 3 inches of accumulation – this should be marked on the outflow structure).