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PRELIMINARY STORMWATER MANAGEMENT PLAN FOR:

**BERNARDO SHORES
IMPERIAL BEACH, CALIFORNIA
PE #2045**

SITE ADDRESS:

500 Highway 75
Imperial Beach, CA 91932

APNs:

625-140-20 & 626-010-18

PREPARED FOR:

Bernardo Shores Project Owner, LLC
c/o Integral Communities
2235 Encinitas Blvd. Suite 216
Encinitas, CA 92024

DATE PREPARED:

AUGUST 21ST, 2014

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



William G. Mack, RCE 73620



8/25/14

Date

The Stormwater Management Plan (SWMP) must be completed in its entirety and accompany applications to the City of Imperial Beach for a permit or approval associated with certain types of development projects.

Project Name:	Bernardo Shores
Project Location/ Address:	500 Highway 75, Imperial Beach, CA 91932
Permit Number (Land Development	
Work Authorization Number (CIP only):	
Applicant:	Bernardo Shores Project Owner, LLC
Applicant's Address:	2235 Encinitas Blvd., Suite 216, Encinitas, CA
Plan Prepared By:	Pasco Laret Suiter & Associates
Preparer's Address:	535 N. Highway 101, Suite A, Solana Beach, CA
Date:	August 21st, 2014

The City of Imperial Beach requires all applications for a permit or approval associated with a Land Disturbance Activity to be accompanied by a Storm Water Management Plan (SWMP). 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 SWMP.

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

Project Stages	Does the SWMP need revisions?		If YES, Provide Revision Date	City Reviewer
	YES	NO		
Tentative Map		X		

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

STEP 1

PRIORITY DEVELOPMENT PROJECT DETERMINATION

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

Yes ✓	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 ✓	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 ✓	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 ✓	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 ✓	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 ✓	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 ✓	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 ✓	No <input 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 ✓	No <input 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 ✓	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..

STEP 2

PROJECT STORMWATER QUALITY DETERMINATION

Total Project Site Area 10.07 (Acres)

Estimated amount of disturbed area: 9.39 +/- (Acres or ft²)

(If >1 acre, you must also provide a WDID number from the SWRCB) WDID: (N/A for tentative map phase)

Complete A through C and the calculations below to determine the amount of impervious surface on your project before and after construction. (Based on Total Drainage Basin Areas)

A. Total size of project site: 8.82 Acres Onsite Basin C

- 0.14 Acres Onsite Basin D

B. Total impervious area (including roof tops) before construction 8.55 Basin C(Acres)

- 0.14 Basin D (Acres)

C. Total impervious area (including roof tops) after construction 6.55 Basin C(Acres)

- 0.10 Basin D (Acres)

Calculate percent impervious before construction: $B/A = 96.9\%$ Basin C

- 100% Basin D

Calculate percent impervious after construction: $C/A = 74.3\%$ Basin C

- 71.4% Basin D

Please provide detailed descriptions regarding the following questions:

TABLE 2: PROJECT SPECIFIC STORMWATER ANALYSIS

1.	Please provide a brief description of the project.		
This project proposes to demolish an existing for-rent recreational vehicle park and redevelop the site for the construction of 193 townhome condominium units. The site redevelopment will include new street, utility, and drainage improvements typical with residential development projects.			
2.	Describe the current and proposed zoning and land use designation.		
The current and proposed zoning and land use designation for the project site is C/MU-1 General Commercial & Mixed Use. 11,270 square feet of site located within R-3000-D Two-Family Detached Residential Zone.			
3.	Describe the pre-project and post-project topography of the project. (Show on Plan)		
The pre-project and post-project topography of the project is sheet flow condition from the alley on the southeast corner of the lot to the northwest, ultimately discharging into Salt Pond 10A. A small portion of the site drains east toward 7 th Street.			
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.		
The Hydrologic Group of this soil type is "D". This soil type has a low infiltration rate. When groundwater was encountered, it was approximately 11 feet below grade. There are no known water table constraints.			
5.	Describe if contaminated or hazardous soils are within the project area. (Show on Plan)		
There are no known hazardous or contaminated soils within the project area.			
6.	Describe the existing site drainage and natural hydrologic features. (Show on Plan).		
In the existing condition, stormwater runoff from the site drains in a sheet flow condition from the alley on the southeast corner of the lot to the northwest, ultimately discharging into Salt Pond 10A. A small portion of the site drains east toward 7 th Street.			
7.	Describe site features and conditions that constrain, or provide opportunities for stormwater control, such as LID features.		
Bioretention BMPs have been incorporated into the site design to capture runoff from the onsite parking areas, driveway, and roof. These areas provide an onsite "priority development" treatment control BMP areas for stormwater prior to leaving the site.			
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> ?		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">Yes</td> <td style="width: 50%; text-align: center;">No</td> </tr> </table>		Yes	No
Yes	No		
9.	Is this an emergency project? If yes, please provide a description below.		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">Yes</td> <td style="width: 50%; text-align: center;">No</td> </tr> </table>		Yes	No
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?		X		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 City 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.

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 type="checkbox"/> Sweetwater 909
<input checked="" 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
910.20	Otay Valley

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
San Diego Bay	910.20	PCBs (Polychlorinated biphenyls)	0.4 Miles

http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r9_06_303d_reqtmls.pdf

GROUND WATERS

Ground Waters	Hydrologic Unit Basin Number	MUN	AGR	IND	PROC	GWR	FRESH
N/A							

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

+ Excepted 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

PDP Categories	General Pollutant Categories								
	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		

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.

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)		
Nutrients	(X)		
Heavy Metals	(X)		
Organic Compounds	(X)		San Diego Bay - Polychlorinated biphenyls
Trash & Debris	(X)		
Oxygen Demanding Substances	(X)		
Oil & Grease	(X)		
Bacteria & Viruses	(X)		
Pesticides	(X)		

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 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 checked="" type="checkbox"/> Other. Description: utilize existing topography to reduce grading quantities.
2.	Minimize Disturbance to Natural Drainages
	<input type="checkbox"/> Set-back development envelope from drainages
	<input type="checkbox"/> Restrict heavy construction equipment access to planned green/ open space areas
	<input checked="" type="checkbox"/> Other. Description: A 50' wetland buffer area is maintained from the edge of Salt Pond 10A.
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 type="checkbox"/> Collect & reuse upper soil layers of development site containing organic materials
	<input checked="" type="checkbox"/> Other. Description: N/A
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: Drain roads to Bioretention Areas

<u>LID Parking Lot Design</u>
<input type="checkbox"/> Permeable Pavements
<input type="checkbox"/> Curb-cuts to landscaping
√ Other. Description: N/A
<u>LID Driveway, Sidewalk, Bike-path Design</u>
<input type="checkbox"/> Permeable Pavements
√ Pitch pavements toward landscaping
<input type="checkbox"/> Other. Description:
<u>LID Building Design</u>
<input type="checkbox"/> Cisterns & Rain Barrels
√ Downspout to swale or landscaping
<input type="checkbox"/> Vegetated Roofs
<input type="checkbox"/> Other. Description:
<u>LID Landscaping Design</u>
√ Soil Amendments
<input type="checkbox"/> Reuse of Native Soils
√ 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
√ Minimize cut and fill areas to reduce slope lengths
<input 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
√ Rounding and shaping slopes to reduce concentrated flow
√ Collect concentrated flows in stabilized drains and channels
√ Other. Description: All slope grading is designed to be contoured and gentle

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.

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>
A. On-site storm drain inlets	Mark all inlets with the words “No Dumping! Flows to Bay” or similar where feasible.	Maintain and periodically repaint or replace inlet markings. See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
C. Interior parking garages	State that parking garage floor drains will be plumbed to the sanitary sewer.	Inspect and maintain drains to prevent blockages and overflow
D2. Landscape/ Outdoor Pesticide Use	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>D2. Landscape/ Outdoor Pesticide Use (cont)</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>G. Refuse areas</p>	<p>State how site refuse will be handled and provide supporting detail to what is shown on plans.</p> <p>State that signs will be posted on or near dumpsters with the words “Do not dump hazardous materials here” or similar.</p>	<p>State how the following will be implemented:</p> <p>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</p>
<p>M. Loading Docks</p>		<p>Move loaded and unloaded items indoors as soon as possible.</p> <p>See Fact Sheet SC-30, “Outdoor Loading and Unloading,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com</p>

<p>N. Fire Sprinkler Test Water</p>	<p>Provide a means to drain fire sprinkler test water to the sanitary sewer.</p>	<p>See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com</p>
<p>O. Miscellaneous Drain or Wash Water Condensate drain lines Rooftop equipment</p>	<p>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>	
<p>P. Plazas, sidewalks, and parking lots.</p>		<p>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</p>

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.

For project source control, the following operational BMP's should be implemented in order to be in compliance with this SWMP.

- Onsite storm drain inlets shall be marked "NO DUMPING! FLOWS TO BAY". These markings must be periodically maintained by freshening and repairing the markings as needed on a yearly basis.

- Drainage inlets and pipe systems must be inspected to prevent blockages and overflow.

- The landscape design for the project specifies pest resistant plants to the greatest extent practicable in an effort to reduce the requirement for outdoor pesticide use. When absolutely necessary, outdoor pesticide use for the outdoor landscaping shall be minimized to the greatest extent possible.

- All trash receptacles shall be kept covered and marked "No Hazardous Materials". All trash receptacles shall be checked periodically for leaks and replaced or repaired as necessary.

- The fire sprinkler system test water will be temporarily connected to the sanitary sewer so that it can be discharged as directly as possible to that facility. If a direct connection cannot be made, another feasible solution will be devised to ensure that all the fire sprinkler test water will be disposed of to the sanitary sewer system.

- Any miscellaneous water or wash water from condensate drain lines, rooftop equipment, roofing or gutters can be allowed to discharge into landscaped areas so long as the discharge won't run off. Condensate drain lines cannot be connected to the storm drain system.

- Normal operations and maintenance of the proposed project will include regular sweeping of the plaza areas, sidewalks and parking lots. Any debris collected from power washing operations will be collected and prevented from entering the storm drain system. If any degreasers are used in the washing operations, this too shall be collected and ultimately discharged into the sanitary sewer system.

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 checked="" type="checkbox"/> A. On-site storm drain inlets	<input checked="" type="checkbox"/> Locations of inlets.	<input checked="" type="checkbox"/> Mark all inlets with the words “No Dumping! Flows to Bay” or similar where feasible.	<input checked="" 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 checked="" 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		<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 checked="" type="checkbox"/> C. Interior parking garages		<input checked="" type="checkbox"/> State that parking garage floor drains will be plumbed to the sanitary sewer.	<input checked="" 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		
<p style="text-align: center;">1</p> Potential Sources of Runoff Pollutants - List in Table 9	<p style="text-align: center;">2</p> Permanent Controls—Show on Source Control Exhibit, Attachment B	<p style="text-align: center;">3</p> Permanent Controls—List in Table 9 and Narrative	<p style="text-align: center;">4</p> Operational BMPs—Include in Table 9 and Narrative
<input type="checkbox"/> D1. Need for future indoor & structural pest control		<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><input type="checkbox"/> 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><input type="checkbox"/> 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><input type="checkbox"/> 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 checked="" type="checkbox"/> E. Pools, spas, ponds, decorative fountains, and other water features.	<input checked="" type="checkbox"/> Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet.	<input checked="" 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 checked="" 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	<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 checked="" type="checkbox"/> G. Refuse areas	<input checked="" 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 checked="" type="checkbox"/> State how site refuse will be handled and provide supporting detail to what is shown on plans. <input checked="" type="checkbox"/> State that signs will be posted on or near dumpsters with the words “Do not dump hazardous materials here” or similar.	<input checked="" 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.	<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.)	<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

<input type="checkbox"/> J. Vehicle and Equipment Cleaning	<input type="checkbox"/> Show on drawings as appropriate: (1) Commercial/industrial facilities having vehicle /equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses. (2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use). (3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer. (4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.	<input type="checkbox"/> If a car wash area is not provided, describe measures taken to discourage on-site car washing and explain how these will be enforced.	Describe operational measures to implement the following (if applicable): <input type="checkbox"/> Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system. <input type="checkbox"/> Car dealerships and similar may rinse cars with water only. <input type="checkbox"/> See Fact Sheet SC-21, "Vehicle and Equipment Cleaning," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
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<input type="checkbox"/> K. Vehicle/Equipment Repair and Maintenance	<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.	<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> <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> <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.
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<input type="checkbox"/> L. Fuel Dispensing Areas	<input type="checkbox"/> Fueling areas ¹ 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. <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 area ¹ .] The canopy [or cover] shall not drain onto the fueling area.		<input type="checkbox"/> The property owner shall dry sweep the fueling area routinely. <input type="checkbox"/> See the Business Guide Sheet, "Automotive Service—Service Stations" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
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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.

<input type="checkbox"/> M. Loading Docks	<input type="checkbox"/> Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas should be drained to the sanitary sewer where feasible. Direct connections to storm drains from depressed loading docks are prohibited. <input type="checkbox"/> Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation. <input type="checkbox"/> Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		<input type="checkbox"/> Move loaded and unloaded items indoors as soon as possible. <input type="checkbox"/> See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
<input checked="" type="checkbox"/> N. Fire Sprinkler Test Water		<input checked="" type="checkbox"/> Provide a means to drain fire sprinkler test water to the sanitary sewer.	<input checked="" type="checkbox"/> See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

<p>O. Miscellaneous Drain or Wash Water</p> <ul style="list-style-type: none"> <input type="checkbox"/> Boiler drain lines √ Condensate drain lines √ Rooftop equipment <input type="checkbox"/> Drainage sumps √ Roofing, gutters, and trim. 		<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. √ 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. Rooftop mounted equipment with potential to produce pollutants shall be roofed and/or have secondary containment. √ 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"> √ P. Plazas, sidewalks, and parking lots. 			<ul style="list-style-type: none"> √ 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 County 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 County 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.	
The site utilizes existing topography to optimize the site layout and reduce the need for grading. The proposed building footprint and hardscape layout has been designed to provide a minimum impervious footprint and to maximize onsite landscape areas. Runoff from the hardscape areas will be drained into adjacent landscaping areas. Bioretention BMPs have been incorporated into the site design to capture runoff from the onsite parking areas, driveway, and roof. These areas provide an onsite “priority development” treatment control BMP area for stormwater prior to leaving the site. The total bioretention BMP is 12,000 sf as shown on the project plans	

- 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 POCs	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	X	
Nutrients	X		X	X
Heavy Metals	X		X	
Organic Compounds	X		X	
Trash & Debris	X	X		
Oxygen Demanding	X		X	
Bacteria	X		X	
Oil & Grease	X		X	
Pesticides	X		X	

- 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 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 County SUSMP “Vegetated Swales” design criteria for water quality treatment credit.

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 Basins	2	2	
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.

The proposed Bio-retention BMP areas are ranked as high performing for two of the three performance categories and medium in the third.

Please provide the sizing design calculations for each Drainage Management Area in Attachment D. 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 basins with surface and sub-surface storage.
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 City.

- Please list all individual Treatment Control BMPs (TCBMPs) incorporated into the project. Please attach the record plan sheets upon completion of project and amend the SWMP where appropriate. For each type of TCBMP provide an inspection sheet in Attachment F “Maintenance Plan”. Replicate Table 14 in Attachment G once the TCBMP has been constructed.

TABLE 14: PROJECT SPECIFIC LID AND TCBMPS

Treatment Control BMPs (TCBMPs)^{1,2} (List all from SWMP)		
Lot Number Or Location	Description/Type	Sheet
Northwest side or property	Bioretention Basin	2
Eastern most portion of the site, near 7 th Street access point	Bioretention Basin	2
¹ All Priority Development Projects (PDPs) require a TCBMP. ² BMPs designed to treat stormwater (e.g. LID and hydromod) shall be considered TCBMPs.		

Responsible Party for Ongoing Maintenance:

The onsite landscape BMP areas will be maintained as necessary by the future Home Owner's Association (HOA). The HOA is to preserve existing vegetation and maintain stabilizing vegetation in order to reduce the potential for onsite erosion. Stabilizing vegetation must be installed, irrigated and established prior to October 1. If stabilizing vegetation is not established by October 1, physical stabilization in the form of silt fences, gravel bags, or fiber rolls must be implemented to prevent erosion until stabilizing vegetation is established. Onsite BMP's are not to be modified without permission from the City of Imperial Beach. See attachment F for further information.

Funding Source:

Provide the funding source or sources for long-term operation and maintenance of each BMP identified above. By certifying the SWMP the applicant is certifying that the funding responsibilities have been addressed and will be transferred to future owners.

All proposed Treatment Control BMP's are Category 2 BMP's and per the City of Imperial Beach SUSMP, The Home Owner's Association will be the Funding Source for the maintenance of the Storm Water Treatment Systems.

ATTACHMENTS

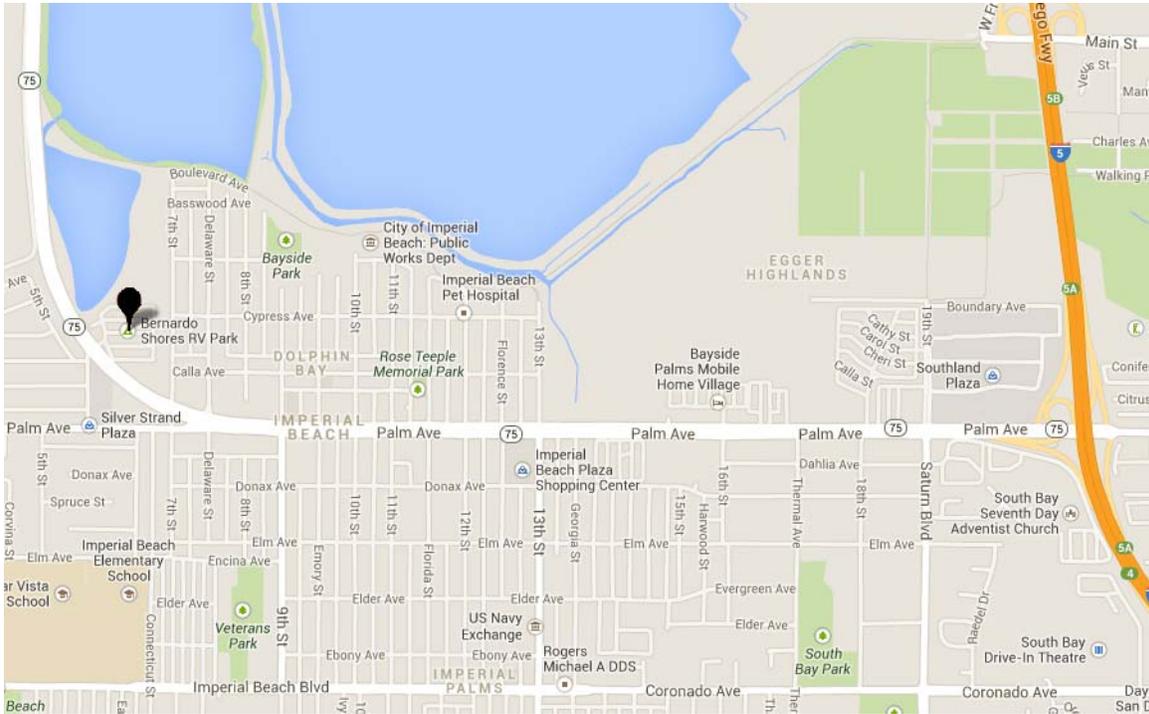
Please include the following attachments.

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

Note: Attachments B and C may be combined.

ATTACHMENT A

Project Location Map



ATTACHMENT B/C

Source Control and Drainage Management Area (DMA) Exhibit

STORM WATER MANAGEMENT PLAN / WATER QUALITY MANAGEMENT PLAN EXHIBIT FOR: BERNARDO SHORES, IMPERIAL BEACH, CA

SWMP ATTACHMENT B/C



LEGEND

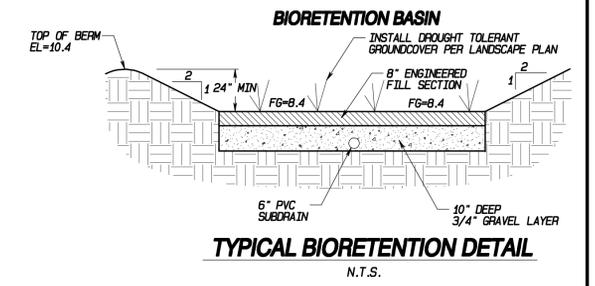
- SITE BOUNDARY
- PUBLIC RIGHT-OF-WAY
- OFFSITE LOTLINE
- RIGHT-OF-WAY CENTERLINE
- WETLAND BUFFER
- NEW BUILDING FOOTPRINT
- LIMIT OF DRAINAGE BASIN
- LIMIT OF DRAINAGE SUB-BASIN
- DRAINAGE MANAGEMENT AREA (DMA)
- POC NAME
POC AREA (SF)
- TRIBUTARY DMA AREA
- DRAINAGE DIRECTION
- POC PAVERS

TREATMENT BMPs

- BIORETENTION AREAS
- IMPERVIOUS SURFACE
- LANDSCAPE AREA
- POOL

ABBREVIATION KEY

- L LANDSCAPE AREA
- PP POC PAVERS
- IP IMPERVIOUS PAVEMENT
- B BMP TREATMENT AREAS
- R ROOF
- SRA SELF RETAINING AREA
- DMA DRAINAGE MANAGEMENT AREA
- BMP BEST MANAGEMENT PRACTICE



PREPARED BY:

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ATTACHMENT D

Sizing Design Calculations (Water Quality) and TCBMP/LID Design Details

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

The sizing criterion for the LID BMP's comes from the County of San Diego SUSMP manual Chapter 4. For bioretention facilities, a sizing factor of 0.04 is applied to the impervious area to obtain a minimum IMP area.

Sizing Factor for LID facilities = 0.04

Runoff Factor for Impervious areas = 1.0

Runoff Factor for landscape areas = 0.1

Runoff Factor for Pervious Paver areas = 0.2

Required Treatment Area for LID = 0.4 x Runoff Factor x Area

DMA Name	DMA Area (square feet)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:		IMP Name	
					D	BMP1		
R1	141,124	R	1.0	141,124	IMP Sizing factor	Minimum Area	Proposed Area	IMP Area
IP1	138,646	IP	1.0	138,646				
PP1	6,539	PP	1.0	6,539				
L1	86,017	L	0.1	8,602				
BMP1	12,000	BMP	0.1	1,200				
Total				296,111	0.04	11,844	12,000	IMP Area

DMA Name	DMA Area (square feet)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:		IMP Name	
					D	BMP2		
R2	1,885	R	1.0	1,885	IMP Sizing factor	Minimum Area	Proposed Area	IMP Area
IP2	2,143	IP	1.0	2,143				
PP2	392	PP	1.0	392				
L2	1,690	L	0.1	169				
BMP2	188	BMP	0.1	19				
Total				4,608	0.04	184	188	IMP Area

Abbreviations:

- R = Roof
- IP = Impervious Pavement
- PP = PCC Pavers
- L = Landscape Area

BMP = Best Management Practice

Treatment Control BMP Sizing Calculations

Parameters

Vwq= Water Quality Volume

P85TH= 85TH percentile rainfall (inches) = 0.55 in

Total Impervious Area = 6.66 acres

Total Pervious Area = 2.31 acres

C= Runoff Coefficient = 0.71

Priority Treatment Control BMP sizing

Required Vwq=CP_{85th}A per equation 6-1 of the San Diego County Hydrology Manual

Required Vwq= 0.71 x 0.55 in x 8.97 acres x 1 ft / 12 in x 43,560 sf / acres

Vwq = 12,715 cf

The proposed basin provides 2' of surface storage and 18" of subsurface storage. Based on surface storage only, the proposed basin provides (12,000 sf)(2 ft) = 24,000 cf of storage > required Vwq.

The proposed bioretention basin will draw down in less than 48 hours per Drawdown Calculation in The Preliminary Hydrology and Hydraulic Study for Bernardo Shores, prepared by Pasco, Laret, Suiter and Associates in August 2014.

ATTACHMENT E

Geotechnical Certification Sheet

N/A for Tentative Map Phase

ATTACHMENT F

Maintenance Plan

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
- 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 City, 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.

OPERATION AND MAINTENANCE PROGRAM

5.1 Bio-Filters, Bioretention, and Detention Basins

The operational and maintenance needs of a Bio-filter Swale are:

- Vegetation management to maintain adequate hydraulic functioning and to limit habitat for disease-carrying animals.
- Animal and vector control.
- Periodic sediment removal to optimize performance.
- Trash, debris, grass trimmings, tree pruning, and leaf collection and removal to prevent obstruction of a Swale and monitoring equipment.
- Erosion and structural maintenance to prevent the loss of soil and maintain the performance of the Swale.

The operational and maintenance needs of a Bioretention Area are:

The primary maintenance requirement for bioretention areas is that of inspection and repair or replacement of the treatment area's components. Generally, this involves nothing more than the routine periodic maintenance that is required of any landscaped area. Plants that are appropriate for the site, climatic, and watering conditions should be selected for use in the bioretention cell. Appropriately selected plants will aid in reducing fertilizer, pesticide, water, and overall maintenance requirements. Bioretention system components should blend over time through plant and root growth, organic decomposition, and the development of a natural soil horizon. These biologic and physical processes over time will lengthen the facility's life span and reduce the need for extensive maintenance.

Routine maintenance should include a biannual health evaluation of the trees and shrubs and subsequent removal of any dead or diseased vegetation (EPA, 1999). Diseased vegetation should be treated as needed using preventative and low-toxic measures to the extent possible.

BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water. Routine inspections for areas of standing water within the BMP and corrective measures to restore proper infiltration rates are necessary to prevent creating mosquito and other vector habitat. In addition, bioretention BMPs are susceptible to invasion by aggressive plant species such as cattails, which increase the chances of water standing and subsequent vector production if not routinely maintained.

In order to maintain the treatment area's appearance it may be necessary to prune and weed.

Furthermore, mulch replacement is suggested when erosion is evident or when the site begins to look unattractive. Specifically, the entire area may require mulch replacement every two to three years, although spot mulching may be sufficient when there are random void areas. Mulch replacement should be done prior to the start of the wet season. New Jersey's Department of Environmental Protection states in their bioretention systems standards that accumulated sediment and debris removal (especially at the inflow point) will normally be the primary

maintenance function. Other potential tasks include replacement of dead vegetation, soil pH regulation, erosion repair at inflow points, mulch replenishment, unclogging the underdrain, and repairing overflow structures. There is also the possibility that the cation exchange capacity of the soils in the cell will be significantly reduced over time. Depending on pollutant loads, soils may need to be replaced within 5-10 years of construction.

BMP – FLOW THROUGH PLANTER MAINTENANCE ACTIVITIES

ROUTINE ACTION	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	Frequency (# of times per year)	Hours per Event	Average Labor Crew Size
Vegetation Management for Aesthetics (optional)	Average vegetation height greater than 12-inches, emergence of trees or woody vegetation,	Visual observation and random measurements through out the side slope area	Annually, prior to start of wet season	Cut vegetation to an average height of 6-inches and remove trimmings. Remove any trees, or woody vegetation.	1.0	2.0	2
Standing Water	Standing water for more than 96 hrs	Visual observation	Annually, 96 hours after a target storm (0.60 in) event	Drain facility. Corrective action prior to wet season. Consult engineers if immediate solution is not evident.	1.0	1.0	2
Trash and Debris	Trash and Debris present	Visual observation	Annually, prior to start of wet season	Remove and dispose of trash and debris	1.0	2.0	2
Sediment Management	Sediment depth exceeds 10% of the facility design	Measure depth at apparent maximum and minimum accumulation of sediment. Calculate average depth	Annually, prior to start of wet season	Remove and properly dispose of sediment. Regrade if necessary. (expected every 2 years)	0.5	8.0	2
Underdrains	Evidence of Clogging	Visual Observation	Annually, prior to start of wet season	Corrective action prior to wet season. Consult engineers if immediate solution is not evident.	1.0	0.5	2
General Maintenance Inspection	Inlet structures, outlet structures, side slopes or other features damaged, significant erosion, burrows, emergence of trees or woody vegetation, graffiti or vandalism, fence damage, etc.	Visual observation	Annually, prior to start of wet season	Corrective action prior to wet season. Consult engineers if immediate solution is not evident.	1.0	1.0	2
Reporting					1.0	3.0	1

ANNUAL COST OF MAINTENANCE

Annual Cost Estimate:

Flow Through Planter Maintenance:

POC 1 (large).....	\$2,882
POC 2 (medium).....	\$3,781
Total:	\$6,663

Two Year Cost Estimate:\$13,326

Ten Year Cost Estimate:.....\$66,630

ATTACHMENT G

Treatment Control BMP Certification for DPW Permitted Land Development Projects

N/A for Tentative Map Phase

ATTACHMENT H

HMP Study

N/A See attachment J

ATTACHMENT I
Geomorphic Assessment

N/A

ATTACHMENT J

HMP Exemption Documentation

Since this project discharges directly to Salt Pond 10A which is a tidally influenced water body connected to San Diego Bay, it is exempt from Hydromodification Management Plan (HMP) requirements per the current City of Imperial Beach Standard Urban Stormwater Mitigation Plan, section 8.32.100. No hydromodification management measures are proposed for the project site.

ATTACHMENT K

Addendum

ATTACHMENT L

Attachments

City of Imperial Beach Storm Water Management Plan



Section 1: Required Informaion

Location/Address of Proposed Project		Permit Type (Building, Grading, or Encroachment)	
500 HIGHWAY 75 IMPERIAL BEACH, CA		TENTATIVE MAP	
		Property Owner Name	Phone Number
		BERNARDO SHORES PROJECT OWNER, LLC	LANCE WAITE 760 944 7511
Projected Start Date:	Projected End Date:	Contractor	Phone Number
TBD	TBD	TBD	

Overview of Storm Water Pollution Prevention requirements

The City reviews all proposed development and redevelopment projects, including Public Works Capital Improvement Projects, to ensure that construction activities are in compliance with the federal Clean Water Act, the State Water Code, and local storm water ordinances. Proposed projects must complete a Storm Water Management Plan prior to issuance of any Construction, Grading, or Encroachment Permit.

The purpose of the Storm Water Management Plan is to document the Best Management Practices (BMPs) that will be implemented in order to prevent pollutants (e.g., sediment and other wastes) caused by land disturbance and construction from entering storm water conveyances and receiving waters. It also certifies that the project proponent will maintain construction site BMPs to ensure their continued effectiveness. Upon City approval, the Storm Water Management Plan becomes an important part of the Construction, Grading, or Encroachment Permit, and is subject to enforcement by City of Imperial Beach inspectors and others.

Determine if the project meets the category of "Priority" or "Standard" Development Project

Most projects in the City that require a building, grading, or encroachment permit fall under the category of Standard Development Project. However, larger projects that meet the following criteria are considered Priority Development Projects and require the preparation of a Standard Urban Storm Water Mitigation Plan (SUSMP) as part of the project design submittals:

1. Housing development of 10 or more units that adds or replaces 5,000 ft² of impervious area
2. Commercial development greater than 5,000 ft²
3. Automotive repair shop
4. Retail Gasoline Outlet
5. Restaurant
6. Parking lot greater than 5,000 ft²
7. Street, road, or highway that add or replace 5,000 ft²
8. Project discharging directly to or adjacent to an Environmentally Sensitive Area (ESA)

Select one box below that identifies the project category

<input checked="" type="checkbox"/> Priority Development Project <i>(SUSMP and Storm Water Management Plan required)</i>	<input type="checkbox"/> Standard Development Project <i>(Storm Water Management Plan required)</i>
--	---

Priority Development Projects over 1 acre in size

Priority Development Projects that disturb one or more acres of soil also need to have coverage under the State Water Resource Control Board General Construction Permit (Order No. 20009-009-DWQ), which requires the development of a Storm Water Pollution Prevention Plan (SWPPP) that is prepared by a qualified SWPPP developer (QSD). The SWPPP can substitute for the Storm Water Management Plan requirements in Section 2 of this application.

Projects equal to or greater than 1 acre must provide a WDID number from the SWRCB.

WDID (if applicable): N/A FOR DISCRETIONARY APPLICATIONS

Identify construction storm water site inspection prioritization

Construction site inspections are conducted as necessary throughout the year to verify the proper implementation of storm water BMPs. Additional inspections during the rainy season (October 1 - April 30) are required for project sites that have an increased potential to cause or contribute to storm water pollution. Inspection frequencies are based on a prioritization ranking of High, Medium, or Low.

High priority sites will be subject to weekly construction-phase storm water BMP inspections during the rainy season, Medium priority sites will be subject to monthly construction-phase storm water BMP inspections during the rainy season, and Low priority sites will continue to receive inspections as needed and not subject to increased inspections during the rainy season.

Select one box from below that best identifies the inspection priority

High Priority

Project is greater than one acre and includes grading, excavation, or outside demolition.

Medium Priority

Project is less than one acre and includes grading, excavation, or outside demolition.

Low Priority

No grading, excavation, or outside demolition will occur.

Determine if the project is exempt from completing Section 2

Projects that meet one of the criteria below may be exempt from completing a detailed Storm Water Management Plan outlined in Section 2 of this application. Please note that if your project is exempt from Section 2 you are still required to adhere to the Imperial Beach storm water ordinance in Municipal Code 8.30 and implement good housekeeping BMPs to prevent storm water pollution from your project site. Projects that meet one of the following categories can skip Section 2 of this Storm Water Management Plan:

1. The project has already prepared a SWPPP under the Construction General Permit.
2. The project is not a construction or redevelopment project.
3. Project involves the construction of underground or overhead linear utility lines less than one acre in total area.
4. Project does not disturb soil and involves construction inside an existing building.
5. The project qualifies as routine maintenance that replaces or renews existing materials because of failed or deteriorating condition:
 - Roof, deck, or fence replacement
 - Spot repair for pavement, asphalt, pedestrian ramps, or sidewalk

Project not required to complete Section 2 of Storm Water Management Plan document

(Check box if applicable and sign the Certification Statement in Section 3)

Indicate which exemption applies: _____

Section 2: Additional Project Information and Best Management Practices

Estimated amount of disturbed project area: 10.0 acre(s)

Project Description:

(Include project site description information on location, watershed drainage, 303(d) listed pollutants, potential contaminates generated from project, and references to applicable drawings or plans.)*

The project site is approximately 10.07 acres in area and is located along the northerly edge of Imperial Beach between the Silver Strand (Highway 75) and the southerly limit of San Diego Bay. The site is within the Otay Hydrologic Unit and more specifically the Otay Valley Hydrologic Area 910.20. The 2010 California Clean Water Act 303d list identifies the Poggi Canyon Creek as an impaired waterbody for DDT within the Otay Valley Hydrologic Area. The site is bounded by Highway 75 to the west, a Commercially Zoned vacant site to the south, residential development to the east and an existing wetland known as Salt Pond 10A to the north. The project site is currently being used as a for rent recreational vehicle park. Existing onsite improvements onsite include PCC paving for drive aisles and RV parking, facility buildings, utility hookups, and a stormdrain system that collects onsite runoff and discharges to Salt Pond 10A. The existing site topography can be described as gently sloping terrain and generally slopes in the northerly direction, away from Highway 75 toward Salt Pond 10A. Per the Soils Classification Map contained in the San Diego County Hydrology Manual June 2003 Revision, the general vicinity of the project site contains Type D soils.

The intent of the proposed project is to remove the existing onsite improvements and redevelop the site for the construction of 175 townhome condominium units. The site redevelopment will include new street, utility, and drainage improvements typical to residential development projects. The site grading will not significantly alter the drainage patterns of the site, and onsite runoff will continue to flow north and discharge to Salt Pond 10A as it does in the existing condition. Primary pollutants of concern for high density residential developments include sediments, nutrients, trash, debris, oxygen demanding substances, bacteria, viruses, and pesticides.

*303(d) Listed Pollutants: **Pacific Shoreline:** PCBs, Bacteria; **Tijuana River and Estuary:** Bacteria, Nutrients, Metals, Pesticides, Trash, Sediment

Construction / Grading Plan BMP Checklist

The following information shall be shown on plans:

- The project boundaries
- The footprint of any existing structures and facilities
- The footprint of all structures and facilities to be constructed
- The limits of grading
- The existing and proposed grades of the site
- The location(s) where runoff from the site may enter storm drain(s), channel(s), and/or receiving waters
- Location of proposed storm water BMPs

Best Management Practices	CASQA Storm Water BMP Fact Sheet	✓ BMP Selected	Comments
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Select each of the BMP fact sheets that apply. Include selected BMPs on Plans and/or provide sufficient explanation as comments.

Erosion Control BMPs

<p>Geotextiles, Plastic Covers, or Erosion Control Blankets</p> <p><i>This BMP consists of using plastic, visqueen, or other materials to cover disturbed soil and/or dirt stockpiles to reduce erosion from rainfall impact. The material used for cover must be firmly held in place with sandbags or otherwise keyed into the soil as described in BMP specifications.</i></p>	EC-7		
<p>Mulch, Straw, Wood Chips, Soil Binders, Compost</p> <p><i>This BMP consists of applying mulch or other binding material to temporarily protect exposed soils from erosion by rainfall impact or wind. These are temporary methods of protection that must be inspected and maintained.</i></p>	EC-3, EC-5, EC-6, EC-8, EC-14, EC-16		

Perimeter Control BMPs

<p>Silt Fence</p> <p><i>Silt fences are made of filter fabric that has been entrenched, attached to supporting poles, and is sometimes backed by a plastic or wire mesh for support. The silt fence detains sediment-laden water, promoting sedimentation behind the fence. It is primarily used as a perimeter control and is not effective unless trenched and keyed into the soil.</i></p>	SE-1		
<p>Fiber Roll / Straw Waddle</p> <p><i>Fiber rolls consist of straw, flax, or other similar materials bound into a tight, tubular roll. They are often used on the face of slopes to intercept runoff. They may also be effective as perimeter controls for sites with little to no slope. Fiber rolls are not effective unless properly installed (trenched and staked into the soil per specifications).</i></p>	SE-5		
<p>Gravel Bag / Sandbag Barrier</p> <p><i>This BMP consists of placing a series of gravel- or sand-filled bags on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out, and release runoff slowly as sheet flow. Sandbags also pond sheet flow runoff, but allow little if any runoff to be released. These BMPs are often used around stockpiles or as a perimeter control.</i></p>	SE-6, SE-8, SE-9		

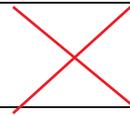
Wind Erosion Control BMP

<p>Wind Erosion Control</p> <p><i>This BMP consists of applying water or other dust palliatives as necessary to prevent or alleviate dust nuisance generated by construction activities. Care should be taken so that water used for dust control is not allowed to move off site.</i></p>	WE-1		
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Storm Drain Inlet Protection

<p>Storm Drain Inlet Protection</p> <p><i>Storm drain inlet protection consists of filter fabric covering the opening of the storm drain, drop inlet, or curb inlet. The fabric must be held in place securely with either sandbags or gravel bags. Frequent inspection and maintenance is required.</i></p>	SE-10		
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Tracking Control BMPs			
Stabilized Construction Entrance <i>This BMP consists of a pad of aggregate underlain with filter cloth at the entrance of a construction site where traffic will be entering and leaving to or from a public right of way. The purpose is to reduce the tracking of sediment onto streets. A stabilized construction entrance is unlikely to be 100% effective, and must be used in conjunction with sweeping and good housekeeping practices to ensure that sediment tracked off-site does not enter the storm drain system.</i>	TC-1		
Entrance/Outlet Tire Wash <i>A tire wash is an area located at stabilized construction access points to remove sediment from tires and under carriages and to prevent sediment from being transported onto public roadways.</i>	TC-3		
Street Sweeping and Vacuuming <i>Street sweeping and vacuuming includes use of self-propelled and walk-behind equipment to remove sediment from streets and roadways, and to clean paved surfaces in preparation for final paving. Sweeping and vacuuming prevents sediment from the project site from entering storm drains or receiving waters.</i>	SC-7		

General Site Management BMPs			
Good Housekeeping <i>Good housekeeping ensures that the construction site is kept tidy and free of excessive debris. It also includes ensuring that any sediment or trash tracked from the site onto the public right of way (through whatever means) is swept up or otherwise collected at the end of the business day.</i>	-		
Employee & Sub-contractor Training <i>All employees and sub-contractors working on site shall be trained with regard to applicable storm water management requirements. Training shall also be provided on proper techniques for installing and maintaining BMPs.</i>	-		
Material Delivery, Storage, & Use <i>Minimize the storage and use of hazardous materials on site, and store materials in a designated area with secondary containment if appropriate.</i>	WM-1, WM-2		
Stockpile Management <i>Stockpiles of soil, asphalt, concrete rubble, "cold mix", and wood pressure-treated with metallic products should be covered with plastic or a comparable material at all times during the rainy season, and prior to the onset of precipitation during the dry season.</i>	WM-3		
Spill Prevention & Control <i>Reduce the chance for spills, cleanup leaks and spills immediately, and report spills to City personnel.</i>	WM-4, NS-6		
Waste Management <i>These are a series of BMPs that address the appropriate management of solid wastes, hazardous wastes, contaminated soils, concrete wastes, sanitary wastes, and liquid wastes as specified in the BMP specifications listed to the right.</i>	WM-5, WM-6, WM-7, WM-8, WM-9, WM-10		
Water Conservation <i>Avoid using water in a way that is likely to cause erosion and/or the transport of pollutants off site.</i>	NS-1		
Vehicle & Equipment Cleaning, Fueling & Maintenance <i>On-site cleaning, fueling, and maintenance of vehicles is discouraged.</i>	NS-8, NS-9, NS-10		
Concrete Paving Activities <i>Prevent or reduce the discharge of pollutants from paving operations, using measures to prevent runoff and runoff pollution, properly disposing of wastes, and training employees and subcontractors.</i>	NS-3		

Additional Storm Water BMPs (please describe):
1. PERMANENT BMP'S INCLUDE AN 12,000 SF BIORETENTION BASIN AND A 188 SF BIORETENTION BASIN
2.
3.
4.

(Attach storm water BMP fact sheets as an appendix to your Storm Water Management Plan)

Storm Water BMP Narrative:

(Identify the schedule for deployment of BMPs. BMPs must be implemented, modified, and maintained to reflect the phase of construction and weather conditions. Include a statement about BMP inspection and maintenance on site.)

All construction BMP's identified in the schedule below shall be inspected weekly and after all significant rain events by qualified personnel. Inspection records for construction BMP's shall be maintained and kept on site by the Contractor. Any BMP deficiencies or failures noted during inspection shall be corrected immediately. All BMP's shall be modified as appropriate to accommodate the current phase of construction.

BMP INSTALLATION SCHEDULE

Prior to Demolition:

- Install Stabilized Construction Entrance per Caltrans TC-1
- Install Entrance-Outlet tire wash per Caltrans TC-3
- Install Silt Fence Perimeter Protection around construction area per Caltrans SC-01
- Prepare for Solid Waste Management Procedures per Caltrans WM-5
- Prepare for Concrete Waste Management Procedures per Caltrans WM-08

Prior to Rough Grading Operations:

- Inspect & maintain all previously installed BMP's
- Install Sanitary and septic waste management measures per Caltrans WM-09
- Prepare and stock material for Fiber Roll installation per Caltrans SC-05
- Prepare and stock material for storm drain inlet protection per Caltrans SC-10
- Prepare and stock material for check dam installation per Caltrans SC-4
- Prepare and stock material for outlet protection devices per Caltrans SS-10

During Rough Grading Operations:

- Implement above BMP's as necessary
- Inspect & maintain all previously installed BMP's
- Install hydroseeding to graded areas per SS-04
- Perform all vehicle and equipment maintenance per Caltrans NS-10

During finish grading, paving, and building construction:

- Inspect & maintain all previously installed BMP's
- Perform Paving & Grinding Operations per Caltrans NS-3
- Install wood mulching to disturbed areas per Caltrans SS-08

Section 3: Certification Statement

The following certification must be signed before a Construction, Grading, or Encroachment Permit will be issued.

I have read and understand that the City of Imperial Beach has adopted minimum requirements for prohibiting non-storm water discharges of urban runoff and for managing storm water runoff from sites associated with construction and other land disturbance activities. I certify that the BMPs proposed in this Storm Water Management Plan will be implemented to effectively prevent off-site runoff as well as any of this project's potentially negative impacts on the environment. I further agree to install, monitor, maintain, or revise the selected BMPs to ensure their effectiveness throughout the life of the project.

I also understand that non-compliance with the City's Storm Water and Construction / Grading Ordinances may result in enforcement by the City, including fines, citations, stop-work orders, cease and desist orders, or other actions.

<i>Property owner</i>	<i>Date</i>
<i>Applicant</i> _____	_____
<i>Contractor</i>	<i>Date</i>
_____	_____



Maintenance Concerns, Objectives, and Goals

- Clogged Soil or Outlet Structures
- Invasive Species
- Vegetation/Landscape Maintenance
- Erosion
- Channelization of Flow
- Aesthetics

General Description

The bioretention best management practice (BMP) functions as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. These facilities normally consist of a grass buffer strip, sand bed, ponding area, organic layer or mulch layer, planting soil, and plants. The runoff's velocity is reduced by passing over or through a sand bed and is subsequently distributed evenly along a ponding area. Exfiltration of the stored water in the bioretention area planting soil into the underlying soils occurs over a period of days.

Inspection/Maintenance Considerations

Bioretention requires frequent landscaping maintenance, including measures to ensure that the area is functioning properly, as well as maintenance of the landscaping on the practice. In many cases, bioretention areas initially require intense maintenance, but less maintenance is needed over time. In many cases, maintenance tasks can be completed by a landscaping contractor, who may already be hired at the site. In cold climates the soil may freeze, preventing runoff from infiltrating into the planting soil.

Targeted Constituents

✓ Sediment	■
✓ Nutrients	▲
✓ Trash	■
✓ Metals	■
✓ Bacteria	■
✓ Oil and Grease	■
✓ Organics	■

Legend (Removal Effectiveness)

- Low
- High
- ▲ Medium



Inspection Activities	Suggested Frequency
<ul style="list-style-type: none"> ■ Inspect soil and repair eroded areas. 	Monthly
<ul style="list-style-type: none"> ■ Inspect for erosion or damage to vegetation, preferably at the end of the wet season to schedule summer maintenance and before major fall runoff to be sure the strips are ready for winter. However, additional inspection after periods of heavy runoff is desirable. 	Semi-annual inspection
<ul style="list-style-type: none"> ■ Inspect to ensure grass is well established. If not, either prepare soil and reseed or replace with alternative species. Install erosion control blanket. 	
<ul style="list-style-type: none"> ■ Check for debris and litter, and areas of sediment accumulation. ■ Inspect health of trees and shrubs. 	
Maintenance Activities	Suggested Frequency
<ul style="list-style-type: none"> ■ Water plants daily for 2 weeks. 	At project completion
<ul style="list-style-type: none"> ■ Remove litter and debris. 	Monthly
<ul style="list-style-type: none"> ■ Remove sediment. ■ Remulch void areas. ■ Treat diseased trees and shrubs. ■ Mow turf areas. ■ Repair erosion at inflow points. ■ Repair outflow structures. ■ Unclog underdrain. ■ Regulate soil pH regulation. 	As needed
<ul style="list-style-type: none"> ■ Remove and replace dead and diseased vegetation. 	Semi-annual
<ul style="list-style-type: none"> ■ Add mulch. 	Annual
<ul style="list-style-type: none"> ■ Replace tree stakes and wires. 	Every 2-3 years, or as needed
<ul style="list-style-type: none"> ■ Mulch should be replaced every 2 to 3 years or when bare spots appear. Remulch prior to the wet season. 	

Additional Information

Landscaping is critical to the function and aesthetic value of bioretention areas. It is preferable to plant the area with native vegetation, or plants that provide habitat value, where possible. Another important design feature is to select species that can withstand the hydrologic regime they will experience. At the bottom of the bioretention facility, plants that tolerate both wet and dry conditions are preferable. At the edges, which will remain primarily dry, upland species will be the most resilient. It is best to select a combination of trees, shrubs, and herbaceous materials.

References

Metropolitan Council, Urban Small Sites Best Management Practices Manual. Available at: <http://www.metrocouncil.org/environment/Watershed/BMP/manual.htm>

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July, 1998, revised February, 2002.

U.S. Environmental Protection Agency, Post-Construction Stormwater Management in New Development & Redevelopment BMP Factsheets. Available at:
cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp_files.cfm

Ventura Countywide Stormwater Quality Management Program, Technical Guidance Manual for Stormwater Quality Control Measures. July, 2002.

**Table 3-1
RUNOFF COEFFICIENTS FOR URBAN AREAS**

Land Use		Runoff Coefficient "C"	Soil Type			
NRCS Elements	County Elements		% IMPER.	A	B	C
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.20	0.25	0.30	0.35
Low Density Residential (LDR)	Residential, 1.0 DU/A or less	10	0.27	0.32	0.36	0.41
Low Density Residential (LDR)	Residential, 2.0 DU/A or less	20	0.34	0.38	0.42	0.46
Low Density Residential (LDR)	Residential, 2.9 DU/A or less	25	0.38	0.41	0.45	0.49
Medium Density Residential (MDR)	Residential, 4.3 DU/A or less	30	0.41	0.45	0.48	0.52
Medium Density Residential (MDR)	Residential, 7.3 DU/A or less	40	0.48	0.51	0.54	0.57
Medium Density Residential (MDR)	Residential, 10.9 DU/A or less	45	0.52	0.54	0.57	0.60
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.60	0.63
High Density Residential (HDR)	Residential, 24.0 DU/A or less	65	0.66	0.67	0.69	0.71
High Density Residential (HDR)	Residential, 43.0 DU/A or less	80	0.76	0.77	0.78	0.79
Commercial/Industrial (N. Com)	Neighborhood Commercial	80	0.76	0.77	0.78	0.79
Commercial/Industrial (G. Com)	General Commercial	85	0.80	0.80	0.81	0.82
Commercial/Industrial (O.P. Com)	Office Professional/Commercial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (Limited I.)	Limited Industrial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (General I.)	General Industrial	95	0.87	0.87	0.87	0.87

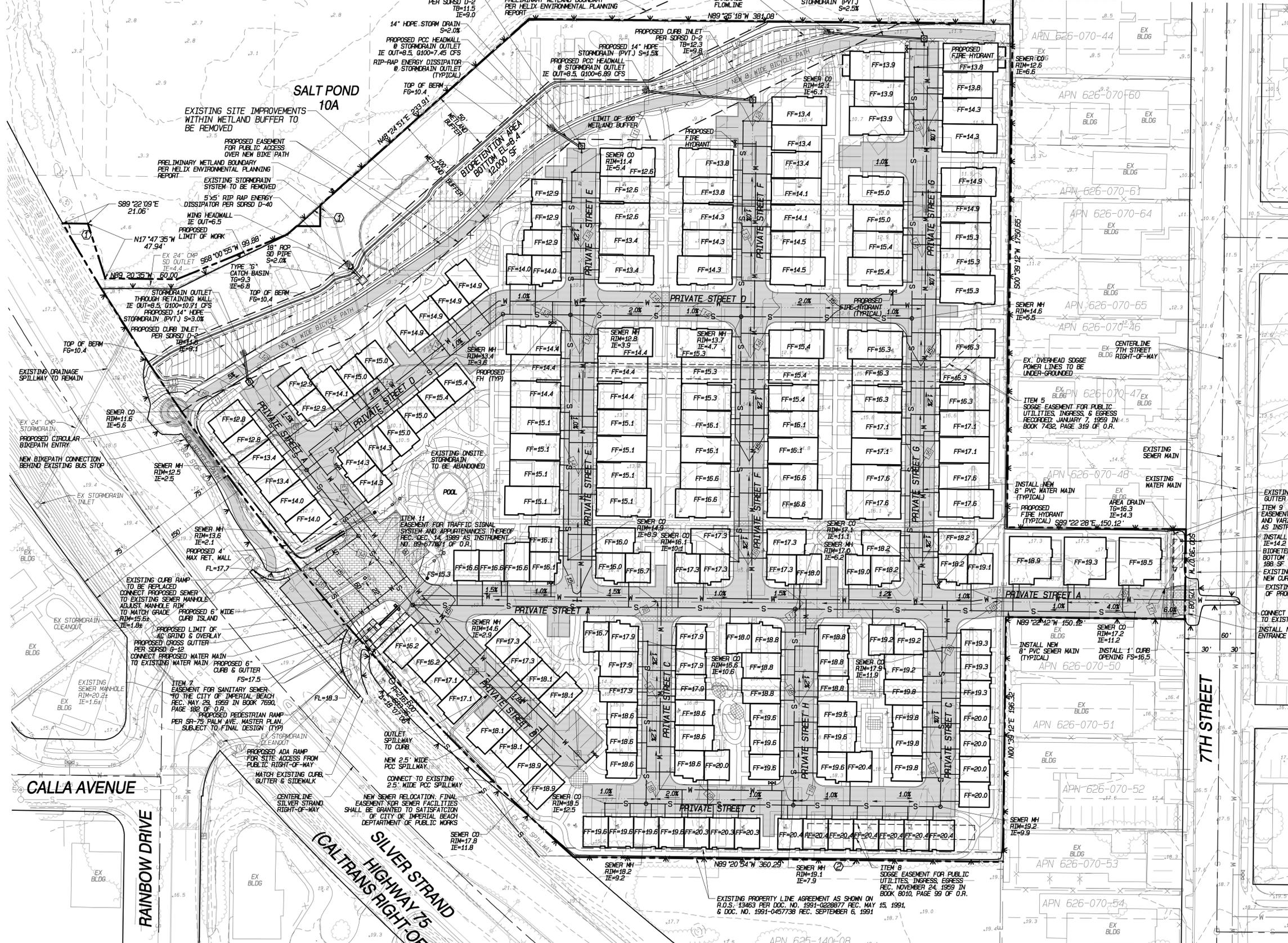
*The values associated with 0% impervious may be used for direct calculation of the runoff coefficient as described in Section 3.1.2 (representing the pervious runoff coefficient, Cp, for the soil type), or for areas that will remain undisturbed in perpetuity. Justification must be given that the area will remain natural forever (e.g., the area is located in Cleveland National Forest).

DU/A = dwelling units per acre

NRCS = National Resources Conservation Service

TENTATIVE MAP & COASTAL DEVELOPMENT PERMIT FOR:
BERNARDO SHORES, IMPERIAL BEACH, CA
PHASE 1

SEE SHEET 3 FOR
PHASE 2 BIKE PATH EXTENSION



NOTE: PUBLIC IMPROVEMENTS SHOWN HEREON ALONG HWY 75 ARE CONCEPTUAL PER SR-75 PALM AVENUE MASTER PLAN AND ARE SUBJECT TO FINAL DESIGN.



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DATE PREPARED: 8-25-14 PLSA 2045

PHASE 1 SITE DEVELOPMENT
SCALE 1"=40'



ORANGE COUNTY

RIVERSIDE COUNTY

IMPERIAL COUNTY

**85th Percentile Precipitation
Isopluvial Map
Rainfall in Inches**

**DRAFT
6/27/01**

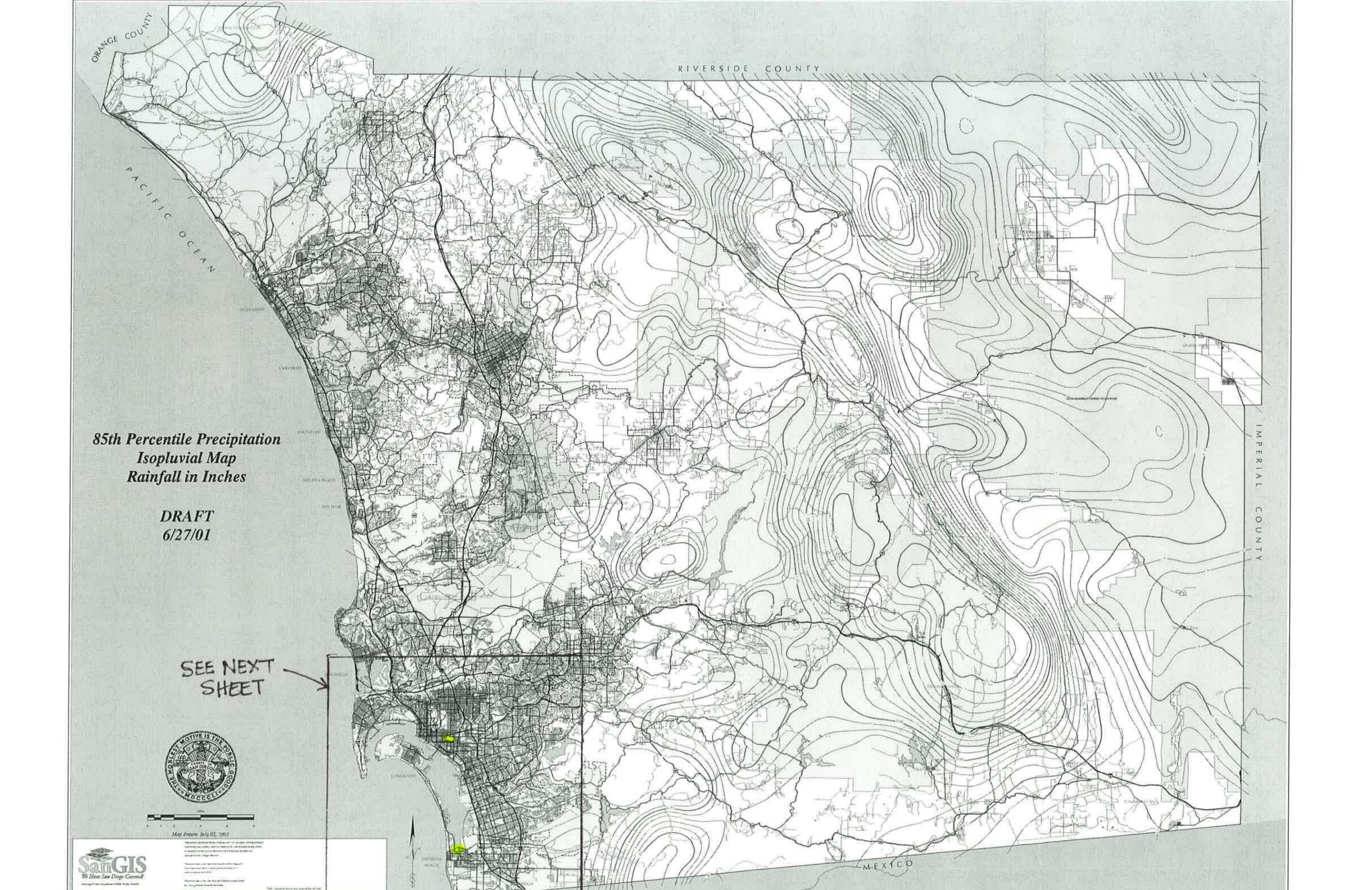
SEE NEXT
SHEET

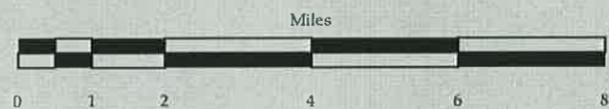


Map Approved July 02, 2001



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Map drawn: July 02, 2001

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IMPERIAL BEACH

SAN DIEGO



San Diego County, Department of Public Works - SanGIS

For more information about this map contact County of San Diego, Department of Public Works, SanGIS at (858)495-5775.