STORMWATER CONTROL PLAN (SWCP)
FOR
COTTAGES AT POINT SAN LUIS

February 8, 2018
Updated March 20, 2018

PREPARED FOR:

SCM Avila Beach Partners, LLC
115 W. Canon Perdido Street
Santa Barbara, CA 93101

PREPARED BY:

Flowers & Associates, Inc.
201 N. Calle Cesar Chavez, Suite 100
Santa Barbara, CA 93103

Wesley C. Barber, P.E., & Robert A. Schmidt, P.E.
W.O. 1689

Sign-off Sheet

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Prepared by _____

(signature)

Wesley C. Barber, P.E.

Reviewed by _____

(signature)

Robert A. Schmidt, P.E.

Preliminary Drainage and
Stormwater Quality Report
March 20, 2018

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I. PROJECT OVERVIEW

Table 1. Project Overview

Table 1. Project Data

Project Name/Permit Number	Cottages at Point San Luis, Permit # TBD
Project Location	APN #076-174-009,
Project Phase No.	NA
Project Type and Description	Commercial Resort Building, Bungalows and Site Improvements
Total Project Site Area (acres)	Approx. 19.1 ac.
Total New Impervious Surface Area	Approx. 147,317
Total Replaced Impervious Surface Area	Approx.0 sf.
Total Pre-Project Impervious Surface Area	Approx. 0 sf.
Total Post-Project Impervious Surface Area	Approx. 147,317 sf.
Net Impervious Area	Approx. 147,317 sf.
Design Storm Frequency and Depth	95th percentile/24 hr. storm (1.8 inches)

II. Site Stormwater Assessment

a. Project Description

The Cottages at Point San Luis project proposes to construct a hotel resort facility including a main lodge with a check-in and guest services area, a restaurant and bar, a pool, underground valet parking, and offices for the resort staff. The project also proposes to construct 50 cottages ranging from 515 to 935 sf, a gate house at the site entrance, roadways and parking for vehicle access and associated infrastructure.

It is also proposed to reconstruct an existing gravel access road to meet fire department requirements.

b. Existing Site Features and Conditions

No development is proposed in the central and easterly portion of the property. The project is located primarily on the westerly portion of a hillside vegetated with mostly grasses and brush. There is an existing gravel access road which runs in an east to west direction and aside from an existing drainage inlet and storm drain at the easterly end of

the site which conveys runoff beneath Ana Bay Drive to the Pacific Ocean via San Luis Obispo Creek, there is no existing on-site stormwater drainage infrastructure.

Current drainage patterns on the undeveloped project site can be characterized as flowing in three (3) general directions based on the topography of the site: 1) as noted above, storm flows on the eastern portion of the project site flow towards and are collected by a storm drain and conveyed beneath Ana Bay Drive to San Luis Obispo Creek and then to the Pacific Ocean; 2) storm flows in the central and southern portion of the property south of the gravel road sheet flow in a southerly direction toward the coastal bluff face and Avila Beach Drive at the toe of the bluff, continuing to the Pacific Ocean. The portion north of the road drains to the existing gravel roadway. There is also an existing drainage swale in the central portion of the project site which collects and conveys some of the storm flows to a pipe which is routed beneath the existing access road and down the bluff face to Avila Beach Road, continuing to the Pacific Ocean; and 3) storm flows in the western portion of the property sheet flows across the westerly property line and down the existing slope toward Wild Cherry Canyon.

The entire project site is located in hydrologic soil group D and drainage run on from offsite areas is considered negligible. The site is also locate in watershed management zone 10.

The property is undeveloped except for the existing gravel access road and consequently and there is no storm drainage infrastructure except for a drainage inlet and stormdrain at the easterly end of the site which conveys runoff from the immediate undeveloped tributary beneath Ana Bay Drive to the shoreline.

Drainage generated in the portion of the property to be developed with the main lodge and cottages sheetflows across the westerly property line and down the existing slope toward Wild Cherry Canyon.

c. Opportunities and Constraints for Stormwater Control

The majority of the project parcel is to remain undeveloped and continue to be covered with natural vegetation. The majority of the site is also characterized with steep slopes. The existing bluff face is considered relatively unstable, however, there is large setback as determined by the geotechnical investigation.

III. Design Strategy Narrative

a. Optimization of Site Layout

I. Limitation of development envelope

The site was designed to minimize development to the westerly portion of the property and to minimize development within the development window while also maximizing the view aesthetics from the proposed guest cottages on the hillside terrain.

II. Preservation of natural drainage features

The only natural drainage feature, other than existing slopes with sheetflow drainage, is the depression in mid portion of the site, which collects and conveys drainage from a relatively small tributary to a pipe which is routed down the bluff face to Avila Beach Road. The natural drainage is to remain and a bridge will be built to conduct traffic over it.

III. Setbacks from creeks, wetlands, and riparian habitats

There are no creeks, wetlands or riparian habitats identified on the site.

IV. Minimization of imperviousness

Placement of the guest cottages has been done such each is mostly surrounded by vegetated areas, thus minimized connected impervious areas. The proposed roadways have been design with the minimum widths to accommodate fire department design standards.

b. Use of Permeable Pavements

Permeable pavers are to be utilized for surface level parking adjacent to access roads. Walkways shall utilize decomposed granite to maintain permeability.

c. Low Impact Development Measures Used

Each proposed cottage shall be designed with LID measures, including directing of stormwater to vegetated areas for indirect pre-treatment prior to treatment by non-retention based treatment measures.

IV. Documentation of Drainage Design

a. List of Performance Requirements that Apply to the Project

Performance requirements related to the project include PR-2 Water Treatment.

Because the project is located in Watershed Management Zone 10, the project is exempt from PR-3 Runoff Retention and PR-4 Peak Performance requirements per the County of San Luis Obispo Post Construction Requirements Handbook (page 3-7).

b. Description of each Drainage Management Area

All of the cottages are contained in drainage management areas (DMA) 1 and 3-7. Each will roof drainage system that will discharge stormwater vegetated area for indirect pre-treatment and then into the storm drain collection system. Collected stormwater will then treated by a non-retention based treatment system (Filterra systems, Hydro Vaults or equivalent).

The remaining DMA's include the main lodge area and roadway with respective tributaries which have been separated into three distinct DMA's, described at DMA 2, DMA 8 and DMA 9.

Table 1. Drainage Management Areas (DMAs)

DMA NAME	SURFACE TYPE	AREA (S.F.)	DRAINS	DRAINS TO	NOTABLE CONDITIONS
1	Asphalt Conc. / Roof	65,111	Westerly Street	Hydro Vault	Steep slopes, non infiltrative soils
2	Roof	21,700	Main Lodge	Hydro Vault	Steep slopes, non infiltrative soils
3	Asphalt Conc. / Roof	64,666	Central Street / Cottage Roofs	Filterra Vault	Steep slopes, non infiltrative soils
4	Asphalt Conc. / Roof	31,977	Eastelry Street / Cottage Roofs	Filterra Vault	Steep slopes, non infiltrative soils
5	Asphalt Conc. / Roof	21,161	Central Street / Cottage Roofs	Filterra Vault	Steep slopes, non infiltrative soils
6	Asphalt Conc. / Roof	33,370	Central Street / Cottage Roofs	Filterra Vault	Steep slopes, non infiltrative soils
7	Asphalt Conc. / Roof	53,556	Central Street / Cottage Roofs	Filterra Vault	Steep slopes, non infiltrative soils
8	Asphalt Conc.	110,223	Entrance Road	Inlet Filters	Steep slopes, non infiltrative soils
9	Asphalt Conc.	432,121	Entrance Road	Inlet Filters	Steep slopes, non infiltrative soils

c. Summary of Runoff Reduction Measures (PR 1) and Structural Control Measures, by DMA

Each DMA uses minimization of disturbance to native vegetation, minimization of impervious surface, direct roof runoff to vegetated areas, incorporation of permeable parking areas to minimize runoff.

d. Summary of Calculations meeting Water Treatment Requirements (PR 2). Runoff Retention and Peak Performance (PR 3 and PR 4) exempt due to project location in Watershed Management Zone 10.

i. Water Treatment

The project shall utilize non-retention based treatment due to steep slopes, non-infiltrative soils and potential non-vertical subsurface water migration and consequent area and bluff instability.

Storm water treatment will consist of cottage roof drainage being discharged to vegetated areas. Street drainage, along with filtered cottage roof runoff, will be routed through on line Filterra treatment vaults. Drainage from the main lodge will be routed through a Hydro International vault for treatment.

ii. Runoff Retention

Not applicable for project in Watershed Management Zone 10

iii. Peak Performance

Not applicable for project in Watershed Management Zone 10

V. Source Control Measures

a. Site activities and identification of potential sources of pollutants

Site activities include those generally associated with hotel and leisure resort operations including light duty vehicular access to and from the property as well pedestrian and other recreational activities.

Potential pollutants sources include motor vehicles, hotel guests, local wildlife and airborne particles.

b. Pollutant Source and Source Control Table.

Potential Source of runoff pollutants (note DMA	Permanent source control BMP proposed	Operational source control BMPs proposed
Roads and parking areas – Hydrocarbons	Drainage inlets with hydrocarbon filters, permeable parking areas, treatment vaults	NA
Resort guests	Trash cans	”No littering” signage

VI. Stormwater Facilities Operation and Maintenance.

a. Narrative and Summary of Maintenance Requirements of each Stormwater Facility

Drainage inlets and treatment vaults will be inspected and cleaned by resort grounds staff at regular intervals.

Pervious Parking Areas
Pervious parking areas require regular maintenance in order to retain permeability and percolate rain water for storm events up to and including the 1.2 inch/24 hour storm event. Pervious areas should be kept free of debris, sediment, or other objects that can cause damage to the pavement or obstruct the flow of stormwater through the surface of the pavement.

The pervious areas should be vacuumed annually at a minimum, or when sediment appears to accumulate in the voids of the surface. If sediment accumulation is visually evident, site personnel shall test infiltration capacity by discharging a gallon of water in the test area. If the discharged water does not infiltrate within 2 minutes, the area where sediment accumulation is observed shall be vacuumed. Vacuum sweepers are commonly used to clean the surface and the voids of the pavement. It is recommended to apply a high pressure nozzle to the area after vacuuming the surface followed by a final inspection of the pavement to ensure that the surface and the voids are clean

Filterra Bioretention Systems and Hydro Vault Maintenance:
After the first year after construction, the owner is responsible for ongoing maintenance of the "Filterra" system. The Filterra system should be inspected at least twice per year and after any 1.2 inch or greater storm event. A more frequent routine can be established over time, as indicated from regular inspections after rain events. Maintenance activities can be integrated with regular landscaping and consist of the following:

- Lift the tree grate and remove trash and debris

- Replace mulch to 2 inches depth using double-shredded hardwood
- If needed, replace engineered soil media (contact the manufacturer)
- Evaluate plan health; prune or replace as needed
- If excess sediment is present, inspect the area for the source of material and remove/correct the source
- Inspect the 4" PVC pipe underdrain system through the built-in cleanout port. If excess sediment is present, flush or vacuum sediment from the pipe.

Please refer to manufacturer for bioretention systems maintenance procedures. For maintenance questions or troubleshooting, contact Contech Engineered Solutions at 1-800-338-1122.

VII. Certification Statement Forms

TABLES

TABLE 1: PROJECT DATA

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TABLE 2: DRAINAGE MANAGEMENT AREAS

DMA NAME	SURFACE TYPE	AREA (S.F.)	DRAINS	DRAINS TO	NOTABLE CONDITIONS
1	Asphalt Conc. / Roof	65,111	Westerly Street	Hydro Vault	Steep slopes, non infiltrative soils
2	Roof	21,700	MainLodge	Hydro Vault	Steep slopes, non infiltrative soils
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TABLE 3: RUNOFF REDUCTION AND STRUCTURAL CONTROL MEASURES

WO 1782: COTTAGES AT POINT SAN LUIS 2/8/2018

RUNOFF REDUCTION AND STRUCTURAL CONTROL MEASURES

DMA NAME	RUNOFF REDUCTION MEASURES	STRUCTURAL CONTROL MEASURES
1	Minimize disturbance to natural vegetation, minimize impervious surface, direct roof runoff to vegetated areas	Storm Drain collection / conveyance components with drain inlet filters. Hydro International First Defense treatment vault
2	Main Resort Building	Storm Drain collection / conveyance components with drain inlet filters. Hydro International First Defense treatment vault
3	Minimize disturbance to natural vegetation, minimize impervious surface, direct roof runoff to vegetated areas	Storm Drain collection / conveyance components with drain inlet filters.Filterra Bioretention treatment vault
4	Minimize disturbance to natural vegetation, minimize impervious surface, direct roof runoff to vegetated areas	Storm Drain collection / conveyance components with drain inlet filters.Filterra Bioretention treatment vault
5	Minimize disturbance to natural vegetation, minimize impervious surface, direct roof runoff to vegetated areas	Storm Drain collection / conveyance components with drain inlet filters.Filterra Bioretention treatment vault
6	Minimize disturbance to natural vegetation, minimize impervious surface, direct roof runoff to vegetated areas	Storm Drain collection / conveyance components with drain inlet filters.Filterra Bioretention treatment vault
7	Minimize disturbance to natural vegetation, minimize impervious surface, direct roof runoff to vegetated areas	Storm Drain collection / conveyance components with drain inlet filters.Filterra Bioretention treatment vault
8	Minimize disturbance to natural vegetation, minimize impervious surface,	Storm Drain collection / conveyance components with drain inlet filters.
9	Minimize disturbance to natural vegetation, minimize impervious surface,	Storm Drain collection / conveyance components with drain inlet filters.

ATTACHMENT A: SUPPORT CALCULATIONS

First Defense® High Capacity

A Simple Solution for your Trickiest Sites

Verified by NJCAT and NJDEP

Product Profile

The First Defense® High Capacity is an enhanced vortex separator that combines an effective stormwater treatment chamber with an integral peak flow bypass. It efficiently removes sediment total suspended solids (TSS), trash and hydrocarbons from stormwater runoff without washing out previously captured pollutants. The First Defense® High Capacity is available in several model configurations to accommodate a wide range of pipe sizes, peak flows and depth constraints (**Table 1**, next page).

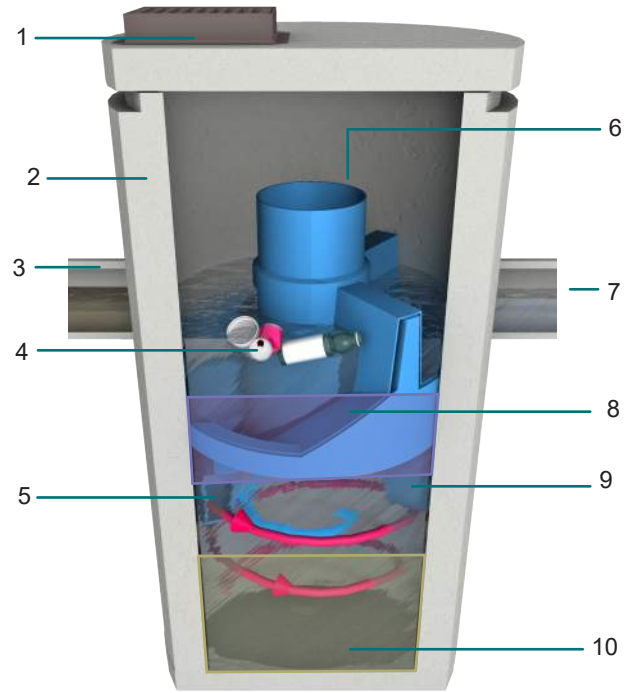
Applications

- Stormwater treatment at the point of entry into the drainage line
- Sites constrained by space, topography or drainage profiles with limited slope and depth of cover
- Retrofit installations where stormwater treatment is placed on or tied into an existing storm drain line
- Pretreatment for filters, infiltration and storage

Advantages

- Inlet options include surface grate or multiple inlet pipes
- Integral high capacity bypass conveys large peak flows without the need for "offline" arrangements using separate junction manholes
- Proven to prevent pollutant washout at up to 450% of its treatment flow
- Long flow path through the device ensures a long residence time within the treatment chamber, enhancing pollutant settling
- Delivered to site pre-assembled and ready for installation

Fig.1 The First Defense® High Capacity has internal components designed to efficiently capture pollutants and prevent washout at peak flows.



Components

1. Inlet Grate (optional)
2. Precast chamber
3. Inlet Pipe (optional)
4. Floatables Draw Off Slot (not pictured)
5. Inlet Chute
6. Internal Bypass
7. Outlet pipe
8. Oil and Floatables Storage
9. Outlet chute
10. Sediment Storage Sump

How it Works

The First Defense® High Capacity has internal components designed to remove and retain gross debris, total suspended solids (TSS) and hydrocarbons (**Fig.1**).

Contaminated stormwater runoff enters the inlet chute from a surface grate and/or inlet pipe. The inlet chute introduces flow into the chamber tangentially to create a low energy vortex flow regime (magenta arrow) that directs sediment into the sump while oils, floating trash and debris rise to the surface.

Treated stormwater exits through a submerged outlet chute located opposite to the direction of the rotating flow (blue arrow). Enhanced vortex separation is provided by forcing the rotating flow within the vessel to follow the longest path possible rather than directly from inlet to outlet.

Higher flows bypass the treatment chamber to prevent turbulence and washout of captured pollutants. An internal bypass conveys infrequent peak flows directly to the outlet eliminating the need for, and expense of, external bypass control structures. A floatables draw off slot functions to convey floatables into the treatment chamber prior to bypass.

Hydro International, 94 Hutchins Drive, Portland, ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212
Email: stormwaterinquiry@hydro-int.com Web: www.hydro-int.com

First Defense® High Capacity

Sizing & Design

This adaptable online treatment system works easily with large pipes, multiple inlet pipes, inlet grates and now, contains a high capacity bypass for the conveyance of large peak flows. Designed with site flexibility in mind, the First Defense® High Capacity allows engineers to maximize available site space without compromising treatment level.

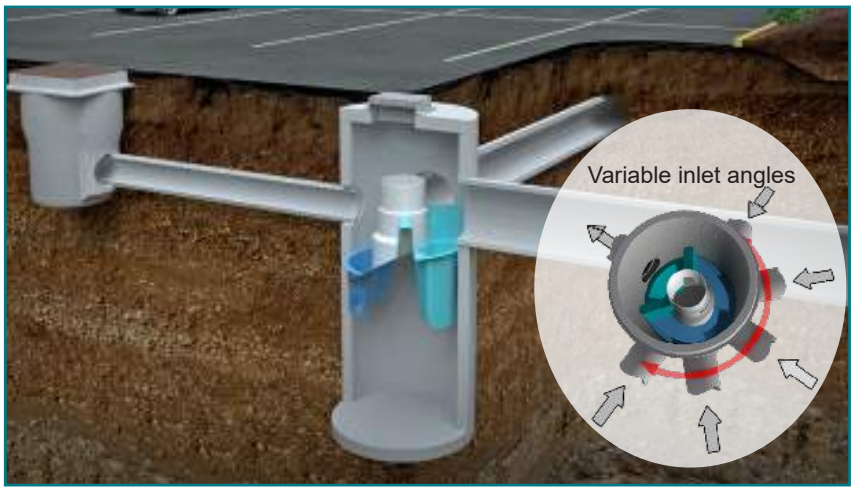


Fig 2. Works with multiple inlet pipes and grates

Inspection and Maintenance

Nobody maintains our systems better than we do. To ensure optimal, ongoing device performance, be sure to recommend Hydro International as a preferred service and maintenance provider to your clients.

Call **1 (800) 848-2706** to schedule an inspection and cleanout or learn more at **hydro-int.com/service**

Sizing Calculator for Engineers

This simple online tool will recommend the best separatror, model size and online/offline arrangement based on site-specific data entered by the user.

Go to hydro-int.com/sizing to access the tool.

Fig 3. Maintenance is done with a vactor truck

Table 1. First Defense® High Capacity Design Criteria.

First Defense® High Capacity Model Number	Diameter	Typical TSS Treatment Flow Rates		Peak Online Flow Rate	Maximum Pipe Diameter[1]	Oil Storage Capacity	Typical Sediment Storage Capacity[2]	Minimum Distance from Outlet Invert to Top of Rim[3]	Standard Distance from Outlet Invert to Sump Floor
		NJDEP Certified	110µm						
	(ft / m)	(cfs / L/s)	(cfs / L/s)	(cfs / L/s)	(in / mm)	(gal / L)	(yd^3 / m^3)	(ft / m)	(ft / m)
FD-3HC	3 / 0.9	0.84 / 23.7	1.06 / 45.3	15 / 424	18 / 457	125 / 473	0.4 / 0.3	2.0 - 3.5 / 0.6 - 1.0	3.71 / 1.13
FD-4HC	4 / 1.2	1.50 / 42.4	1.88 / 50.9	18 / 510	24 / 600	191 / 723	0.7 / 0.5	2.3 - 3.9 / 0.7 - 1.2	4.97 / 1.5
FD-5HC	5 / 1.5	2.34 / 66.2	2.94 / 82.1	20 / 566	24 / 600	300 / 1135	1.1 / .84	2.5 - 4.5 / 0.7 - 1.3	5.19 / 1.5
FD-6HC	6 / 1.8	3.38 / 95.7	4.23 / 133.9	32 / 906	30 / 750	496 / 1,878	1.6 / 1.2	3.0 - 5.1 / 0.9 - 1.6	5.97 / 1.8
FD-8HC	8 / 2.4	6.00 / 169.9	7.52 / 212.9	50 / 1,415	48 / 1219	1120 / 4239	2.8 / 2.1	3.0 - 6.0 / 0.9 -1.8	7.40 / 2.2

[1]Contact Hydro International when larger pipe sizes are required.
[2]Contact Hydro International when custom sediment storage capacity is required.
[3]Minimum distance for models depends on pipe diameter.

Hydro International, 94 Hutchins Drive, Portland, ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212
Email: stormwaterinquiry@hydro-int.com Web: www.hydro-int.com

Stormwater Solutions
hydro-int.com/firstdefensehc

Filterra® Media – Proven Pollutant Removal

At the heart of the Filterra system is Filterra engineered biofiltration media; a specified gradation of washed aggregate and organic material homogeneously blended under strict quality controlled conditions. Using data from independent, third-party studies including the University of Virginia (TARP), Herrera Environmental Consultants (TAPE), Terraphase Engineering (NJCAT), North Carolina State University (TAPE & TARP) and Geosyntec Consultants, the filter media has been optimized to operate under high flow rates while maintaining pollutant removal performance. Filterra media is tested for hydraulic functionality, fertility, and particle size distribution to ensure uniform performance.

Filterra media also supports a vegetation component consisting of grasses, shrubs, or trees that assist with the adsorption of pollutants through biological uptake/storage and pollutant consumption by microbes within the plant root zone.

MEASURED POLLUTANT REMOVAL PERFORMANCE			
Pollutant	**Median Removal Efficiency**	**Median Effluent Concentration (mg/L)**	**Third Party Reference Studies**
Total Suspended Solids	86%	3.3	UVA 2006, Herrera 2009, Herrera 2014, NC State 2015
Total Phosphorus (TAPE)	70%	0.05	Herrera 2014, NC State 2015
Total Nitrogen	34%	0.54	NC State 2015
Total Copper	55%	0.004	UVA 2006, Herrera 2009
Dissolved Copper	43%	0.003	Herrera 2009
Total Zinc	56%	0.04	UVA 2006, Herrera 2009, NC State 2015
Dissolved Zinc	54%	0.1	Herrera 2009
Total Petroleum Hydrocarbons	87%	0.71	Herrera 2009

Information above is based on results from third party field studies following industry recognized protocols such as TAPE and TARP. Relevant studies are noted for each pollutant, and corresponding data was aggregated to provide realistic and repeatable performance expectations.

Some jurisdictions recognize higher removal rates - see your Contech Stormwater Consultant for performance expectations.

Filterra media has been **optimized** to operate under high flow rates while maintaining pollutant removal performance.

CONTECH ENGINEERED SOLUTIONS

filterra Bioretention Systems

Filterra Sizing Spreadsheet
Uniform Intensity Approach
Storm Intensity = 0.20 in/hr

Filterra Infiltration Rate = 100 (in/hr)
Filterra Flow per Square Foot = 0.0023 (ft3/sec/ft2)

Filterra Flow Rate, Q = 0.0023 ft3/sec x Filterra Surface Area
Rational Method, Q = C x I x A

Site Flowrate, Q = (C x DI x DA x 43560) / (12 x3600)
OR DA = (12 x 3600 x Q) / (C x 43560 x DI)

where Q = Flow (ft3/sec)
DA = Drainage Area (acres)
DI = Design Intensity (in/hr)
C = Runoff coefficient (dimensionless)

			DI 0.2	C 1.00	C 0.85	C 0.50
Available Filterra Box Sizes			Filterra	100%	Commercial	Residential
L (ft)	W (ft)	Filterra Surface Area (ft2)	Flow Rate, Q (ft3/sec)	Imperv. DA (acres)	max DA (acres)	max DA (acres)
4	4	16	0.0370	0.184	0.216	0.367
6	4	24	0.0556	0.275	0.324	0.551
6.5	4	26	0.0602	0.298	0.351	0.597
8	4	32	0.0741	0.367	0.432	0.735
12	4	48	0.1111	0.551	0.648	1.102
6	6	36	0.0833	0.413	0.486	0.826
8	6	48	0.1111	0.551	0.648	1.102
10	6	60	0.1389	0.689	0.810	1.377
12	6	72	0.1667	0.826	0.972	1.653
13	7	91	0.2106	1.045	1.229	2.089

ATTACHMENT B: COMPLETED SWCP CHECKLIST AND PERFORMANCE REQUIREMENT CHECKLISTS

STORMWATER CONTROL PLAN
APPLICATION AND COVERSHEET

PLANNING & BUILDING DEPARTMENT • COUNTY OF SAN LUIS OBISPO
976 OSOS STREET • ROOM 200 • SAN LUIS OBISPO • CALIFORNIA 93408 • (805) 781-5600

1) APPLICANT INFORMATION

Applicant Name: SCM AVILA BEACH PARTNERS, LLC Daytime Phone: _____

Mailing Address: 115 W.CANON PERDIDO STREET, SANTA BARBARA, CA Zip Code: 93101

Email Address: _____

2) PROJECT INFORMATION

☒ **PRELIMINARY** – Subdivision or Land Use Permit ❑ **FINAL** – Construction Permit

Permit Number: _____

Property APN: 076-174-009

FOR ITEMS # 3, 4, and 5 – Please Refer to Chapter 3 of the PCR Handbook

3) IMPERVIOUS SURFACE VALUES – *Refer to the Glossary or Appendix C in the PCR Handbook*

Pre-Project (sqft)

Impervious Area: 0 Total Project Area: 969,210

Post-Project (sqft)

Total Impervious Area: 147,317 Pervious Area: 821,893

New Imp. Surface: 147,317 *Removed Imp. Surface:* 0

Replaced Imp. Surface: 0

Total Site Disturbance 337,000

4) REVIEW FOR EXEMPTION – *Refer to Figure 3-2 in the PCR Handbook*

☒ **SWCP REQUIRED** – The project is located in a Stormwater Management (MS4) Area and involves at least 2,500 square feet of impervious surface area.

❑ **SWCP EXEMPT** – The project is exempt from a Stormwater Control Plan for the following reason:

□ **Outside of MS4.** The project is not located in a Stormwater Management Area.

□ **Less than 2,500 square feet.** The project creates or replaces less than 2,500 square feet of impervious area.

□ **Previous land use approval.** The project has received land use approval prior to March 6, 2014. Project Number: _____

5) PERFORMANCE REQUIREMENTS

Check the applicable performance requirements and identify whether the project meets the requirement:

❑ **Exempt from SWCP**			
☒ **#1 – Site Design**	Performance Requirement Met?	❑ YES	❑ NO
☒ **#2 – Water Quality Treatment**	Performance Requirement Met?	❑ YES	❑ NO
❑ **#3 – Runoff Retention**	Performance Requirement Met?	❑ YES	❑ NO
❑ **#4 – Peak Management**	Performance Requirement Met?	❑ YES	❑ NO

Are structural stormwater control measures proposed? ❑ YES ❑ NO

6) DESIGN CRITERIA – *Refer to PCR Handbook, Appendix A*

❑ Exempt from SWCP

Watershed Management Zone # 10

Applicable Rainfall Event (percentile): 95

24-hour Rainfall Isohyetal Line (in): 1.8

7) CERTIFICATION

❑ **Exempt.** This project is exempt from submitting a SWCP.

☒ **Full Compliance.** This project fully complies with all applicable Performance Requirements.

❑ **Alternative Compliance.** This project is unable to fully comply with all applicable Performance Requirements. As such, the applicant is requesting to use methods of alternative compliance.

Reason for non-compliance: _____

_____

Method for alternative compliance: _____

_____

This SWCP was prepared by a Registered Civil Engineer: ❑ YES ❑ NO

Engineer Name ROBERT A. SCHMIDT License No. 71335

I have completed this form accurately and declare that all statements here are true.

Preparer signature WESLEY C. BARBER, P.E. Date 2/14/2018

Preparer's name (if other than the Engineer listed above) WESLEY C. BARBER, P.E.

STORMWATER SITE DESIGN ANALYSIS

San Luis Obispo County Department of Planning and Building File No _____

SITE DESCRIPTION

Is the project site within the Central Business District?	☐ YES	☒ NO
Was the project site previously developed?	☐ YES	☒ NO
Is the project site surrounded on all sides by development?	☐ YES	☒ NO

SITE DESIGN

For each of the following, please describe how this project has complied to the *maximum extent practicable* with the following site design and runoff reduction strategies (attach additional pages if needed):

1. Limit disturbance of creeks and natural drainage features.

THERE IS ONE NATRUAL DRAINAGE FEATURE ADJACENT TO THE SITE ACCESS ROAD, SPECIFICALLY AN ERODED DIERT CHANNEL / DRY WASH, WHICH IS TO BE LEFT UNDISTURBED WITH A BRIDGE CROSSING CONSTRUCTED ABOVE.

2. Minimize compaction of highly permeable soils.

NRCS HYDROLOGIC SOIL GROUP MAPPING INDICATES THAT TEH ENTIRE AREA PROPOSED FOR DEVELOPMENT IS COMPOSED OF "D" SOIL TYPES, INDICATING THAT HIGHLY PERMEABLE SOILS DO NOT EXIST IN THE PROJECT AREA.

3. Limit clearing and grading of native vegetation at the site to the minimum area needed to build the project, allow access, and provide fire protection.

NATIVE VEGETATION WILL NOT BE CLEARED ANYWHERE OUTSIDE THE AREA PROPOSED FOR DEVELOPMENT AND WILL BE LEFT INTACT WITHIN THE DEVELOPMENT AREA AS MUCH AS POSSIBLE BETWEEN THE PROPOSED COTTAGES.

4. Minimize impervious surfaces by concentrating improvements on the least-sensitive portions of the site, while leaving the remaining land in a natural, undisturbed state.

PROPOSED IMPERVIOUS SURFACE WILL BE MINIMIZED BY CONSTRUCTING THE PROPOSED ACCESS ROADS TO THE MINIMUM ALLOWABLE WIDTH REQUIRED FOR FIRE DEPARTMENT ACCESS, AND UTILIZATION OF PERMEABLE PARKING AREAS ADJACENT TO THE ROADWAY IN DMA2. ADDITIONALLY, DISTURBANCE WILL BE MINIMIZED IN THE ONLY SENSITIVE AREA WHERE DEVELOPMENT IS PROPOSED (DUE TO ARCHAEOLOGICAL FINDINGS), BY KEEPING PROPOSED GRADING AS CLOSE AS POSSIBLE TO THE EXISTING GROUND SURFACE ELEVATION.

Measures Homeowners Can Take to Reduce Stormwater Impacts

Everyone is strongly encouraged to reduce stormwater impacts associated with development and redevelopment by taking these actions:

☒ Protect soils from compaction that will ultimately be used in planted areas

☒ Amend soils designated to be used as planted areas

☒ Sumped planted areas are preferred over mounded planting areas to better retain irrigation and rain water.

☒ Direct driveway runoff and runoff from roof downspouts at least 10-feet away from foundations and towards planting beds and lawns where water can safely soak into the ground. Plant rain gardens.

☐ Protect existing trees from construction impacts by placing safety fence around the root zone of the tree (minimally the shadow of the tree canopy at high noon) and/or plant new trees

☒ Use permeable pavers for walkways, driveway and patios instead of concrete

☒ Through minor grading, encourage water retention on site (but away from foundations)

☐ Install rain cisterns and/or rain barrels to capture and re-use roof rain water

Stormwater Control Plan (SWCP) Checklist

Report

- ☒ Stormwater Control Plan (SWCP) Application (**Appendix B-5 to B-13**)
- ☒ Stormwater Site Design Analysis (**Appendix B-3**)
- ☒ SWCP Completed according to SWCP Template in **Appendix G.**

Attachments

- ☒ Support Calculations
- ☒ Completed checklists (**Appendix B-5 to B-13)** for SWCP and each applicable Performance Requirement or Alternative Compliance, as appropriate.
- ☒ Site Stormwater Assessment Exhibit.
  - ☒ Site map with (existing and proposed) topographic information
  - ☒ Delineation of sensitive areas, native vegetation and soils types. (Can be provided on multiple exhibits to supplement design strategy narrative)

For projects subject to PR 2, 3, and/or 4:

- ☒ Drainage Management Area (DMA) Exhibit.
  - ☒ Uniquely identify each DMA and indicate if the DMA is self-retaining (zero discharge), self-treating, or draining to a treatment/flow control facility.
  - ☒ Include location of all infiltration, treatment, or flow-control facilities, their tributary area and basis for sizing (rational C, NRCS CN value, Tc, etc)
  - ☒ Potential pollutant source areas (if applicable), including loading docks, food service areas, refuse areas, outdoor processes and storage, vehicle cleaning, repair or maintenance, fuel dispensing, equipment washing, etc.
  - ☒ Plan Set with Construction Details for drainage related items (as appropriate)
- ☐ Operation and Maintenance Documentation (if applicable) (**Appendix B-18**)
  - Constructive Notification
  - EXHIBIT A – Post Construction Stormwater Management System Operations & Maintenance Plan
    - PART 1 – General Information and Specifications
    - PART 2 – Drawings & Photos
    - PART 3 – Certification and Approval
  - EXHIBIT B – Post Construction Stormwater Management System Operations & Maintenance Checklist

Performance Requirement 1: Site Design and Runoff Reduction SWCP Checklist				
DESIGN STRATEGY (HANDBOOK LOCATION)			MEANS OF DEMONSTRATING COMPLIANCE	
*Please complete the **Stormwater Site Design Analysis** form providing a narrative description of how the project incorporates all of the following design strategies.*				
1.	Limit disturbance of creeks and natural drainage features. (4.2.1)		Pre and post drainage feature map. Delineate natural drainage features on Site Stormwater Assessment Exhibit and DMA Exhibit, as applicable.	
2.	Minimize compaction of highly permeable soils. (4.2.2)		Site Stormwater Assessment Exhibit of soil types, overlain with development footprint	
3.	Limit clearing and grading of native vegetation at the site to the minimum area needed to build the project, allow access, and provide fire protection. (4.2.3)		Site Stormwater Assessment Exhibit with native vegetation, overlain with development footprint	
4.	Minimize impervious surfaces by concentrating improvements on the least-sensitive portions of the site, while leaving the remaining land in a natural undisturbed state. (4.2.4)		Site Stormwater Assessment Exhibit with delineated sensitive areas overlain with development footprint	
MINIMIZE STORMWATER RUNOFF BY IMPLEMENTING ONE OR MORE OF THE FOLLOWING DESIGN MEASURES:				
5.	MANDATORY SITE DESIGN MEASURES (SELECT AT LEAST ONE)		Selected	Reason, for not selecting
	a.	Roof runoff directed into cisterns or rain barrels for reuse? (5.2.1)		OTHER COMPLIANCE METHODS SELECTED
	b.	Roof runoff directed into vegetated areas (safely away from building foundations and footings)? (5.2.2)	SELECTED	
	c.	Runoff from sidewalks, walkaways, and/or patios directed onto vegetated areas (safely away from the building foundations and footings)? (5.2.3)	SELECTED	
	d.	Runoff from driveways and/or uncovered parking lots onto vegetated areas (safely away from the building foundations and footings)? (5.2.4)	SELECTED	
	e.	Are bike lanes, driveways, uncovered parking lots, sidewalks, walkways, and patios constructed with permeable surfaces? (5.2.5)	SELECTED	

This checklist must be included with every SWCP (except for projects deemed EXEMPT). See Figure 3-2 of Chapter 3 to determine if your project is considered exempt, or regulated.

Performance Requirement 2: Water Quality Treatment SWCP Checklist

Project Level Documentation, identify

☒ Project Net Impervious Area

☒ Certification that on-site water quality treatment measures have been met on site, or if not achievable:
- Documentation of the volume of runoff for which compliance cannot be achieved on site and the associated off-site compliance requirements
- Statement of intent to comply with Water Quality Treatment Performance Requirement through Alternative Compliance

For each Drainage Management Area, provide:

☒ Unique DMA Number, area, and likely pollutant(s) of concern

☒ Water Quality Treatment Approach
N/A if self-treating, or,
Through the use of LID, Biofiltration or Non-retention Based Treatment System)

☒ Supporting calculations demonstrating compliance with Treatment Performance Requirement

☒ Plan sheet page and detail number (if appropriate) of Drainage Management Areas (DMA) Exhibit where construction details are provided for each DMA.

For DMAs using Low Impact Development Treatment Systems, provide:

☐ 85th percentile 24-hour storm event value, and basis of determination

For DMAs using Biofiltration Systems, provide:

☐ Statement indicating why an LID treatment system was not appropriate

☐ Surface loading rate approach, and basis of determination
(0.2 x per hour intensity, or 2 x 85th percentile hourly rainfall intensity)

☐ Calculations to demonstrate that the minimum surface reservoir volume is equal to the biofiltration treatment system surface area time a depth of 6-inches

☐ Construction detail (or reference to page on plans) which provides:
- Minimum planting depth
- Planting medium specifications. Either:
  - Specify 60 to 70% ASTM C33 sand, with 30-40% compost , or
  - Provide testing documentation demonstrating planting medium specified can minimally infiltrate at a rate of 5 inches per hour)
- Plant selection consistent with Appendix L
- Subsurface drainage/storage (gravel) layer with an area equal to the biofiltration treatment system surface area and having a minimum depth of 12 inches;
- Underdrain with discharge elevation at top of gravel layer;
- No compaction of soils beneath the biofiltration facility (ripping/loosening of soils required if compacted)
- No liners or other barriers interfering with infiltration, except for situations where lateral infiltration is not technically feasible.

For **DMAs using Non-Retention Based Treatment Systems**, provide:

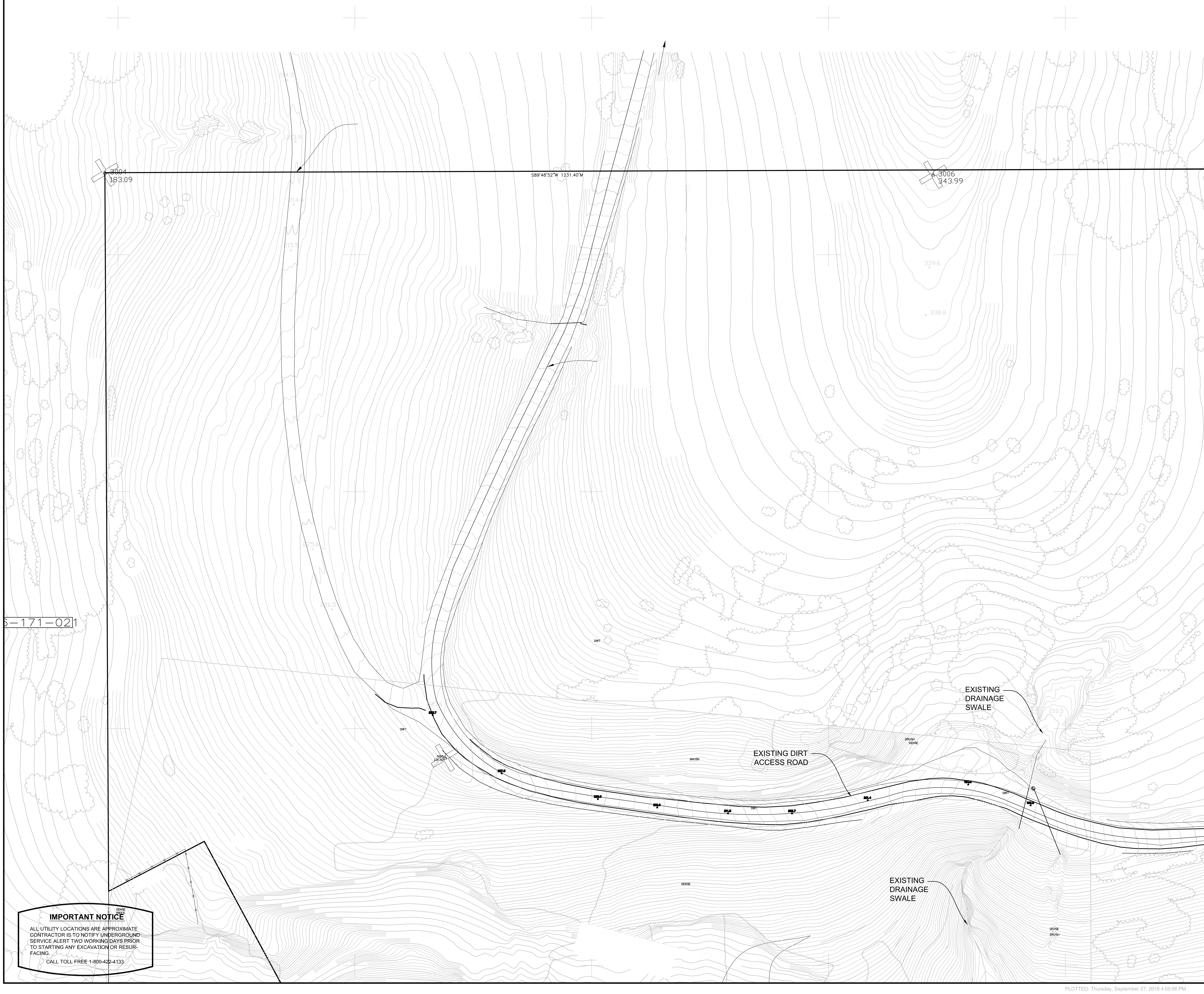
☒ Statement indicating why an LID, or Biofiltration treatment system was not appropriate

☒ Hydraulic Sizing Criteria used, and basis of determination
(Volume = to 85th percentile, 24-hour storm, or flow basis (2 x 85th percentile hourly rainfall intensity or 0.2 x inches per hour intensity)

ATTACHMENT C: SITE STORMWATER ASSESSMENT

SITE ASSESSMENT PROJECT NOTES:

1. ALL SOILS IN PROJECT AREA CLASSIFIED AS HYDROLOGIC SOIL GROUP D
2. NO EXISTING IMPROVEMENT EXCEPT DIRT ACCESS ROAD.
3. NO EXISTING WATER OR DRAINAGE FEATURES EXCEPT ERODED DIRT CHANNEL TO BE BRIDGED.
4. NO SENSITIVE AREAS EXCEPT ARCHEOLOGICAL RESOURCE AREA AS SHOWN.
5. DEVELOPMENT AREA CHARACTERIZED BY STEEP SLOPES.
6. GROUND WATER NOT ENCOUNTERED.
7. SITE DOES NOT DRAIN TO 303-D LISTED WATERS.
8. NO RIPARIAN OR SENSITIVE HABITAT SETBACKS.



SCALE: 1" = 30'

GRAPHIC SCALE

0 15 30 60 90 120 150

IMPORTANT NOTICE

ALL UTILITY LOCATIONS ARE APPROXIMATE CONTRACTOR IS TO NOTIFY UNDERGROUND SERVICE ALERT TWO WORKING DAYS PRIOR TO STARTING ANY EXCAVATION OR RESURFACING.

CALL TOLL FREE 1-800-422-4133

THE COTTAGES AT POINT SAN LUIS

SITE ASSESSMENT EXHIBIT

COUNTY OF SAN LUIS OBISPO, CALIFORNIA

FLOWERS & ASSOCIATES, INC.
CIVIL ENGINEERS
201 N. Calle Cesar Chavez, Suite 100 Santa Barbara, CA 93103
Telephone (805) 966-2224

PRELIMINARY
NOT FOR CONSTRUCTION

BY:______ DATE:______

ATTACHMENT D: DRAINAGE MANAGEMENT AREA (DMA) EXHIBIT

PROJECT NOTES:

1. ALL SOILS IN PROJECT AREA CLASSIFIED AS HYDROLOGIC SOIL GROUP D
2. NO EXISTING IMPROVEMENTS EXCEPT DIRT ACCESS ROAD AND CULVERTS.
3. NO EXISTING WATER OR DRAINAGE FEATURES EXCEPT ERODED DIRT CHANNEL TO BE BRIDGED AND CULVERTS.
4. NO SENSITIVE AREAS EXCEPT ARCHEOLOGICAL RESOURCE AREA AS SHOWN.

DMA SUMMARY

DMA	Area sf	0.2 in/hr (cfs)	Area ac	Treatment
1	65511	0.30	1.50	Hydro FD-3HC
2	21700	0.10	0.50	Hydro FD-3HC
3	64666	0.30	1.48	Filterra 12'x6'
4	31977	0.15	0.73	Filterra 8' x 4'
5	21161	0.10	0.49	Filterra 6' x 4'
6	33370	0.15	0.77	Filterra 8' x 4'
7	53556	0.25	1.23	Filterra 10' x 6'
8	110223	0.51	2.53	Inlet Filters
9	432121	2.00	9.92	Inlet Filters

HYDRO FD-3HC
FILTERRA 12'X6'
FILTERRA 10'X6
FILTERRA 8'X4'
FILTERRA 6'X4'
FILTERRA 8'X4'
HYDRO FD-3HC
ARCHEOLOGICAL SENSITIVE AREA BOUNDARY
PROPOSED EASEMENT AND STORMDRAIN
CA-SLO-2440 NATIVE AMERICAN REGION
EXISTING VEGETATION TO BE UNDISTURBED
30% MAX. SLOPE
DRAINAGE MANAGEMENT AREA DESIGNATION, TYP
EXISTING DRAINAGE SWALE
DRAIN INLET FILTERS
DRAIN INLET FILTERS
EXISTING DRAINAGE SWALE
POOL
LAWN
PROPERTY LINE
BLUFF RETREAT SETBACK LINE
TOP OF BLUFF EDGE
PROPERTY LINE
S89°48'52"W 1231.40'M
3004 183.09
3006 343.99
005-171-021

SCALE: 1" = 30'
GRAPHIC SCALE
0 15 30 60 90 120 150

IMPORTANT NOTICE

ALL UTILITY LOCATIONS ARE APPROXIMATE CONTRACTOR IS TO NOTIFY UNDERGROUND SERVICE ALERT TWO WORKING DAYS PRIOR TO STARTING ANY EXCAVATION OR RESURFACING.

CALL TOLL FREE 1-800-422-4133

THE COTTAGES AT POINT SAN LUIS

STORMWATER CONTROL PLAN EXHIBIT

COUNTY OF SAN LUIS OBISPO, CALIFORNIA

FLOWERS & ASSOCIATES, INC.
CIVIL ENGINEERS
201 N. Calle Cesar Chavez, Suite 100 Santa Barbara, CA 93103
Telephone (805) 966-2224

PRELIMINARY
NOT FOR CONSTRUCTION
BY: _____ DATE: _____

PLOTTED: Thursday, September 27, 2018 4:13:14 PM
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ATTACHMENT E: DRAFT OPERATIONS AND MAINTENANCE FORMS