County of San Diego
PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

GERMANN TENTATIVE SUBDIVISION MAP – TRACT NO. 5520 RPL 1
RECORD ID: TRACT NO. 5520 RPL 1

WEST SIDE OF WESTHILL ROAD AT HILLMAN WAY
LAKESIDE, CA 92040

ASSESSOR'S PARCEL NUMBER(S):
382-121-05

ENGINEER OF WORK:

WAYNE W. CHANG, MS, PE 46548, EXPIRES 6/30/2017

PREPARED FOR:

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PDP SWQMP PREPARED BY:

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DATE OF SWQMP:
DECEMBER 14, 2016

PLANS PREPARED BY:
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SAN DIEGO, CA 92128
(858) 675-9490

SWQMP APPROVED BY:

APPROVAL DATE:

Table of Contents

Attachments

Acronyms

ACP	Alternative Compliance Project
APN	Assessor's Parcel Number
BMP	Best Management Practice
BMP DM	Best Management Practice Design Manual
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
NRCS	Natural Resources Conservation Service
PDCI	Private Development Construction Inspection Section
PDP	Priority Development Project
PDS	Planning and Development Services
PE	Professional Engineer
RPO	Resource Protection Ordinance
SC	Source Control
SD	Site Design
SDRWQCB	San Diego Regional Water Quality Control Board
SIC	Standard Industrial Classification
SWQMP	Storm Water Quality Management Plan
WMAA	Watershed Management Area Analysis
WPO	Watershed Protection Ordinance
WQIP	Water Quality Improvement Plan

PDP SWQMP Preparer's Certification Page

Project Name: Germann Tentative Subdivision Map
Permit Application Number: Tract No. 5520 RPL 1

PREPARER'S CERTIFICATION

I hereby declare that I am the Engineer in Responsible Charge of design of storm water best management practices (BMPs) for this project, and that I have exercised responsible charge over the design of the BMPs as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the PDP requirements of the County of San Diego BMP Design Manual, which is a design manual for compliance with local County of San Diego Watershed Protection Ordinance (Sections 67.801 et seq.) and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100) requirements for storm water management.

I have read and understand that the County of San Diego has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the BMP Design Manual. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by County staff is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

46548, Exp. 6/30/2017
Engineer of Work's Signature, PE Number & Expiration Date

Wayne W. Chang
Print Name

Chang Consultants
Company

December 14, 2016
Date

Engineer's Seal:

Template Date: March 16, 2016
LUEG:SW **PDP SWQMP**

Preparation Date: December 14, 2016

Submittal Record

Use this Table to keep a record of submittals of this PDP SWQMP. Each time the PDP SWQMP is re-submitted, provide the date and status of the project. In column 4 summarize the changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck comments behind this page.

Preliminary Design / Planning / CEQA

Submittal Number	Date	Summary of Changes
1	7/07/2016	Initial Submittal
2	11/01/2016	Second Submittal
3		
4		

Final Design

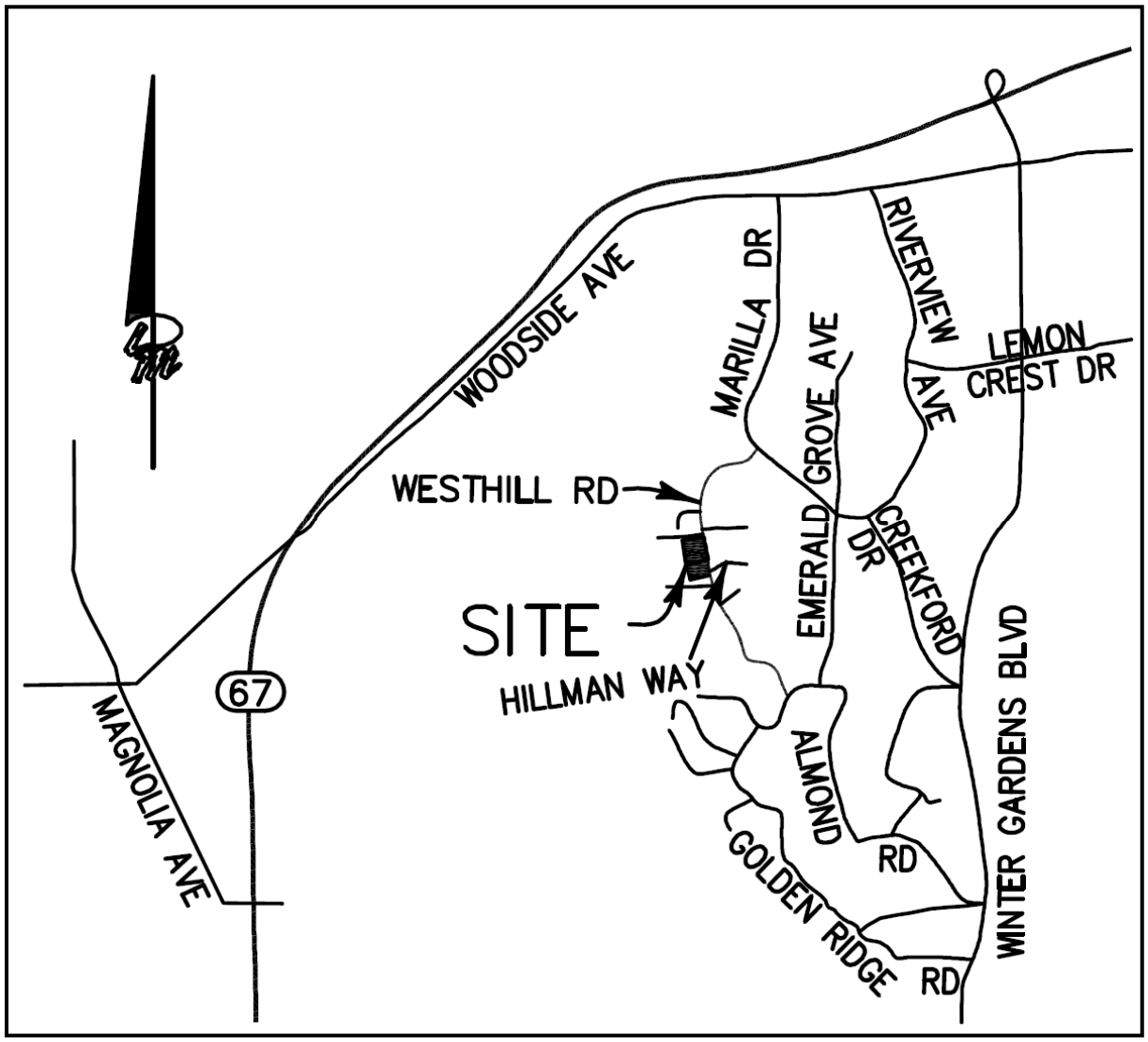
Submittal Number	Date	Summary of Changes
1		Initial Submittal
2		
3		
4		

Plan Changes

Submittal Number	Date	Summary of Changes
1		Initial Submittal
2		
3		
4		

Project Vicinity Map

Project Name: Germann Tentative Subdivision Map
Record ID: Tract No. 5520 RPL 1



Step 1: Project type determination (Standard or Priority Development Project)

Is the project part of another Priority Development Project (PDP)? (☐ Yes ☒ No If so, a PDP SWQMP is required. Go to Step 2.			
The project is (select one): ☐ New Development ☒ Redevelopment[1]			
The total proposed newly created or replaced impervious area is: 73,544 ft^2			
The total existing (pre-project) impervious area is: 14,318 ft^2			
The total area disturbed by the project is: approx. 200,000 ft^2			
If the total area disturbed by the project is 1 acre (43,560 sq. ft.) or more OR the project is part of a larger common plan of development disturbing 1 acre or more, a Waste Discharger Identification (WDID) number must be obtained from the State Water Resources Control Board. WDID: Will be obtained during final engineering.			
Is the project in any of the following categories, (a) through (f)?[2]			
Yes ☐	No ☒	(a)	New development projects that create 10,000 square feet or more of impervious surfaces [3](collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☒	No ☐	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☒	No ☐	(c)	New and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.

[1] Redevelopment is defined as: The creation and/or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include routine maintenance activities, such as trenching and resurfacing associated with utility work; pavement grinding; resurfacing existing roadways; new sidewalks construction; pedestrian ramps; or bike lanes on existing roads; and routine replacement of damaged pavement, such as pothole repair.

[2] Applicants should note that any development project that will create and/or replace 10,000 square feet or more of impervious surface (collectively over the entire project site) is considered a new development.

[3] For solar energy farm projects, the area of the solar panels does not count toward the total impervious area of the site.

Project type determination (continued)

Yes ☐	No ☒	(d)	New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). *Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See BMP Design Manual Section 1.4.2 for additional guidance.*
Yes ☐	No ☒	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.
Yes ☒	No ☐	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See BMP Design Manual Section 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the Priority Development Project categories (a) through (f) listed above?

☐ No – the project is not a Priority Development Project (Standard Project).

☒ Yes – the project is a Priority Development Project (PDP).

Further guidance may be found in Chapter 1 and Table 1-2 of the BMP Design Manual.

The following is for **redevelopment PDPs only**:

The area of existing (pre-project) impervious area at the project site is:	14,318 ft^2 (A)
The total proposed newly created or replaced impervious area is	73,544 ft^2 (B)
Percent impervious surface created or replaced (B/A)*100:	514 %

The percent impervious surface created or replaced is (select one based on the above calculation):

☐ less than or equal to fifty percent (50%) – **only newly created or replaced impervious areas are considered a PDP and subject to stormwater requirements**

OR

☒ greater than fifty percent (50%) – **the entire project site is considered a PDP and subject to stormwater requirements**

Step 1.1: Storm Water Quality Management Plan requirements

Step	Answer	Progression
Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions? To answer this item, complete Step 1 Project Type Determination Checklist on Pages 1 and 2, and see PDP exemption information below. For further guidance, see Section 1.4 of the BMP Design Manual *in its entirety*.	☐ Standard Project	Standard Project requirements apply, including Standard Project SWQMP. **Complete Standard Project SWQMP.**
	☒ PDP	Standard and PDP requirements apply, including PDP SWQMP. **Complete PDP SWQMP.**
	☐ PDP with ACP	If participating in offsite alternative compliance, **complete Step 6.3 and an ACP SWQMP.**
	☐ PDP Exemption	**Go to Step 1.2 below.**

Step 1.2: Exemption to PDP definitions

Is the project exempt from PDP definitions based on either of the following: ☐ Projects that are only new or retrofit paved sidewalks, bicycle lanes, or trails that meet the following criteria: (i) Designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas; OR (ii) Designed and constructed to be hydraulically disconnected from paved streets or roads [i.e., runoff from the new improvement does not drain directly onto paved streets or roads]; OR (iii) Designed and constructed with permeable pavements or surfaces in accordance with County of San Diego Guidance on Green Infrastructure;	If so: Standard Project requirements apply, AND any additional requirements specific to the type of project. County concurrence with the exemption is required. *Provide discussion and list any additional requirements below in this form.* **Complete Standard Project SWQMP**
☐ Projects that are only retrofitting or redeveloping existing paved alleys, streets or roads that are designed and constructed in accordance with the County of San Diego Guidance on Green Infrastructure.	**Complete Green Streets PDP Exempt SWQMP.**
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable: N/A. Project is not exempt. Project is a PDP.	

Step 2: Construction Storm Water BMP Checklist

Minimum Required Standard Construction Storm Water BMPs		
If you answer "Yes" to any of the questions below, your project is subject to Table 1 on the following page (Minimum Required Standard Construction Stormwater BMPs). As noted in Table 1, please select at least the minimum number of required BMPs, or as many as are feasible for your project. If no BMP is selected, an explanation must be given in the box provided. The following questions are intended to aid in determining construction BMP requirements for your project. **Note: All selected BMPs below must be included on the BMP plan incorporated into the construction plan sets.**		
1. Will there be soil disturbing activities that will result in exposed soil areas? (This includes minor grading and trenching.) **Reference Table 1 Items A, B, D, and E** Note: Soil disturbances NOT considered significant include, but are not limited to, change in use, mechanical/electrical/plumbing activities, signs, temporary trailers, interior remodeling, and minor tenant improvement.	☒Yes	☐ No
2. Will there be asphalt paving, including patching? **Reference Table 1 Items D and F**	☒Yes	☐No
3. Will there be slurries from mortar mixing, coring, or concrete saw cutting? **Reference Table 1 Items D and F**	☒Yes	☐ No
4. Will there be solid wastes from concrete demolition and removal, wall construction, or form work? **Reference Table 1 Items D and F**	☒Yes	☐ No
5. Will there be stockpiling (soil, compost, asphalt, concrete, solid waste) for over 24 hours? **Reference Table 1 Items D and F**	☒Yes	☐ No
6. Will there be dewatering operations? **Reference Table 1 Items C and D**	☐ Yes	☒No
7. Will there be temporary on-site storage of construction materials, including mortar mix, raw landscaping and soil stabilization materials, treated lumber, rebar, and plated metal fencing materials? **Reference Table 1 Items E and F**	☒Yes	☐ No
8. Will trash or solid waste product be generated from this project? **Reference Table 1 Item F**	☒Yes	☐ No
9. Will construction equipment be stored on site (e.g.: fuels, oils, trucks, etc.?) **Reference Table 1 Item F**	☒Yes	☐ No
10. Will Portable Sanitary Services ("Porta-potty") be used on the site? **Reference Table 1 Item F**	☒Yes	☐ No

Table 1. Construction Storm Water BMP Checklist

Minimum Required Best Management Practices (BMPs)	CALTRANS SW Handbook[4] Detail or County Std. Detail	✔ BMP Selected	Reference sheet No.'s where each selected BMP is shown on the plans. If no BMP is selected, an explanation must be provided.
A. Select Erosion Control Method for Disturbed Slopes (choose at least one for the appropriate season)			
Vegetation Stabilization Planting[5] (Summer)	SS-2, SS-4	☐	This is discretionary submittal. Erosion control BMPs will be shown during final engineering.
Hydraulic Stabilization Hydroseeding[2] (Summer)	SS-4	☒	
Bonded Fiber Matrix or Stabilized Fiber Matrix[6] (Winter)	SS-3	☒	
Physical Stabilization Erosion Control Blanket[3] (Winter)	SS-7	☐	
B. Select erosion control method for disturbed flat areas (slope < 5%) (choose at least one)			
County Standard Lot Perimeter Protection Detail	PDS 659[7], SC-2	☐	This is discretionary submittal. Erosion control BMPs will be shown during final engineering.
Will use erosion control measures from Item A on flat areas also	SS-3, 4, 7	☒	
County Standard Desilting Basin (must treat all site runoff)	PDS 660[8], SC-2	☐	
Mulch, straw, wood chips, soil application	SS-6, SS-8	☐	

4 State of California Department of Transportation (Caltrans). 2003. Storm Water Quality Handbooks, Construction Site Best Management Practices (BMPs) Manual. March. Available online at: http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm.

5 If Vegetation Stabilization (Planting or Hydroseeding) is proposed for erosion control it may be installed between May 1st and August 15th. Slope irrigation is in place and needs to be operable for slopes >3 feet. Vegetation must be watered and established prior to October 1st. The owner must implement a contingency physical BMP by August 15th if vegetation establishment does not occur by that date. If landscaping is proposed, erosion control measures must also be used while landscaping is being established. Established vegetation must have a subsurface mat of intertwined mature roots with a uniform vegetative coverage of 70 percent of the natural vegetative coverage or more on all disturbed areas.

6 All slopes over three feet must have established vegetative cover prior to final permit approval.

7 County of San Diego, Planning & Development Services. 2012. Standard Lot Perimeter Protection Design System. Building Division. PDS 659. Available online at http://www.sandiegocounty.gov/pds/docs/pds659.pdf.

8 County of San Diego, Planning & Development Services. 2012. County Standard Desilting Basin for Disturbed Areas of 1 Acre or Less Building Division. PDS 659. Available online at http://www.sandiegocounty.gov/pds/docs/pds660.pdf.

Table 1. Construction Storm Water BMP Checklist (continued)

Minimum Required Best Management Practices (BMPs)	CALTRANS SW Handbook Detail or County Std. Detail	✔ BMP Selected	Reference sheet No.'s where each selected BMP is shown on the plans. If no BMP is selected, an explanation must be provided.
C. If runoff or dewatering operation is concentrated, velocity must be controlled using an energy dissipater			
Energy Dissipater Outlet Protection[9]	SS-10	☒	Sheet 1
D. Select sediment control method for all disturbed areas (choose at least one)			
Silt Fence	SC-1	☒	This is discretionary submittal. Erosion control BMPs will be shown during final engineering
Fiber Rolls (Straw Wattles)	SC-5	☒	
Gravel & Sand Bags	SC-6 & 8	☒	
Dewatering Filtration	NS-2	☐	
Storm Drain Inlet Protection	SC-10	☒	
Engineered Desilting Basin (sized for 10-year flow)	SC-2	☐	
E. Select method for preventing offsite tracking of sediment (choose at least one)			
Stabilized Construction Entrance	TC-1	☒	This is discretionary submittal. Erosion control BMPs will be shown during final engineering
Construction Road Stabilization	TC-2	☐	
Entrance/Exit Tire Wash	TC-3	☐	
Entrance/Exit Inspection & Cleaning Facility	TC-1	☐	
Street Sweeping and Vacuuming	SC-7	☐	
F. Select the general site management BMPs			
F.1 Materials Management			
Material Delivery & Storage	WM-1	☒	This is discretionary submittal. Erosion control BMPs will be shown during final engineering
Spill Prevention and Control	WM-4	☐	
F.2 Waste Management[10]			
Waste Management Concrete Waste Management	WM-8	☒	This is discretionary submittal. Erosion control BMPs will be shown during final engineering
Solid Waste Management	WM-5	☒	
Sanitary Waste Management	WM-9	☒	
Hazardous Waste Management	WM-6	☐	

Note: The Construction General Permit (Order No. 2009-0009-DWQ) also requires all projects not subject to the BMP Design Manual to comply with runoff reduction requirements through the implementation of post-construction BMPs as described in Section XIII of the order.

[9] Regional Standard Drawing D-40 – Rip Rap Energy Dissipater is also acceptable for velocity reduction.

[10] Not all projects will have every waste identified. The applicant is responsible for identifying wastes that will be onsite and applying the appropriate BMP. For example, if concrete will be used, BMP WM-8 must be selected.

Step 3: County of San Diego PDP SWQMP Site Information Checklist

Step 3.1: Description of Existing Site Condition

Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	San Diego Hydrologic Unit, 907.00; Lower San Diego Hydrologic Area, 907.10; Santee Hydrologic Subarea, 907.12

Current Status of the Site (select all that apply):

☒ Existing development
☐ Previously graded but not built out
☐ Demolition completed without new construction
☐ Agricultural or other non-impervious use
☒ Vacant, undeveloped/natural

Description / Additional Information:
The existing site generally slopes northwest and northeast at over 10 percent towards a lower lying area along the center of the site. This lower lying area conveys the runoff over the natural ground surface in a northerly direction. The current project area is undeveloped except for a single-family home at the southwest corner and an asphalt roadway/driveway from Westhill Road serving the residence..

Existing Land Cover Includes (select all that apply and provide each area on site):

☒ Vegetative Cover 2.46 Acres (107,310 Square Feet)
☒ Non-Vegetated Pervious Areas 2.46 Acres (107,310 Square Feet)
☒ Impervious Areas 0.33 Acres (14,318 Square Feet)

Description / Additional Information:
The impervious surface is from the existing residence and access roadway/driveway. The remainder of the existing site supports scattered vegetation and dirt. The vegetative cover is approximately 50 percent of the pervious area from Google Earth and the dirt is approximately 50 percent.

Underlying Soil belongs to Hydrologic Soil Group (select all that apply):

☐ NRCS Type A
☒ NRCS Type B
☐ NRCS Type C
☐ NRCS Type D

Approximate Depth to Groundwater (GW) (or N/A if no infiltration is used):

☐ GW Depth < 5 feet
☐ 5 feet < GW Depth < 10 feet
☐ 10 feet < GW Depth < 20 feet
☒ GW Depth > 20 feet

Existing Natural Hydrologic Features (select all that apply):
☐ Watercourses
☐ Seeps
☐ Springs
☐ Wetlands
☐ None
☒ Other

Description / Additional Information:
Off-site runoff from the south outlets onto the site from a culvert on the southerly property line. The runoff flows northerly through the middle of the site along the natural ground surface.

Step 3.2: Description of Existing Site Drainage Patterns

How is storm water runoff conveyed from the site? At a minimum, this description should answer:

(1) Whether existing drainage conveyance is natural or urban;
(2) Is runoff from offsite conveyed through the site? if yes, quantify all offsite drainage areas, design flows, and locations where offsite flows enter the project site, and summarize how such flows are conveyed through the site;
(3) Provide details regarding existing project site drainage conveyance network, including any existing storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels; and
(4) Identify all discharge locations from the existing project site along with a summary of conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.

Describe existing site drainage patterns:
The existing site drainage consists primarily of surface runoff that sheet flows in a northerly direction over the natural ground surface. The runoff enters an existing drainage system just north of the center of the site. There is over 42 acres of off-site area to the south that contributes storm runoff onto the site. The off-site flow enters the center of the southern end of the site and then continues north along the on-site lower lying area. There is also over 7 acres of off-site area to the southeast that contributes storm runoff onto the easterly edge of the site near the northern boundary. This runoff is directed onto the site by a drainage culvert under Westhill Road. The runoff then flows over the natural ground surface towards the on-site lower lying area.

Step 3.3: Description of Proposed Site Development

Project Description / Proposed Land Use and/or Activities:
The tentative subdivision map for the project is being prepared by Farrington Engineering Consultants. The overall project will be located on 5.24 gross acres and proposes single-family residential lots, two public streets, and improvements (widening and asphalt berm) along the west side of Westhill Road. There are two tentative map alternatives, Alternative A and B. The existing pipe to the north that conveys flows away from the site is a 24-inch HDPE located on private property. The pipe is not sufficient to convey the existing condition tributary flows. An agreement has not been reached with the property owners allowing the pipe to be upsized. Alternative A assumes that an agreement will be reached with the property owners, so that the project will only mitigate for its flow increase. Alternative B assumes that an agreement will not be reached with the property owners, so the project will detain an additional amount to the capacity of the existing 24-inch HDPE. Under Alternative A, a combined water quality/detention basin will be installed at the north end of the site and 14 residential lots are proposed. Under Alternative B, an additional detention basin will be installed at the south end of the site, so only 13 residential lots are proposed. The southerly off-site flow will be directed to the south basin to meet the additional detention requirements. An existing residence at the southwest corner will remain.

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):
The project is a single family residential subdivision, so the impervious features are those typically found on such development. This includes the homes, driveways, hardscape, streets, curb, gutter, and sidewalk.

List/describe proposed pervious features of the project (e.g., landscape areas):
The pervious areas will include landscaping on the individual lots, right-of-way, and common/public areas.

Does the project include grading and changes to site topography?
☒Yes
☐No

Description / Additional Information:
Grading and changes to site topography will be required for the residential subdivision. This includes grading to create the pads and streets and to install the necessary infrastructure.

Insert acreage or square feet for the different land cover types in the table below:

Change in Land Cover Type Summary			
Land Cover Type	Existing (acres or ft^2)	Proposed (acres or ft^2)	Percent Change
Vegetation	107,310 sf	143,629 sf	+134%
Pervious (non-vegetated)	107,310 sf	0 sf	-100%
Impervious	14,318 sf	73,544 sf	+514%

Step 3.4: Description of Proposed Site Drainage Patterns

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

☒Yes
☐No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre- and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

Describe proposed site drainage patterns:

The existing site drainage consists primarily of surface runoff that sheet flows in a northerly direction over the natural ground surface. The runoff enters an existing drainage system just north of the center of the site. There is over 42 acres of off-site area to the south that contributes storm runoff onto the site. The off-site flow enters the center of the southern end of the site and then continues north along the on-site lower lying area. There is also over 7 acres of off-site area to the southeast that contributes storm runoff onto the easterly edge of the site near the northern boundary. This runoff is directed onto the site by a drainage culvert under Westhill Road. The runoff then flows over the natural ground surface towards the on-site lower lying area.

Under proposed conditions, the project will continue to direct on-site storm runoff north to the existing storm drain at the north end of the site. In addition, new storm drain lines will be constructed to convey the southerly and southeasterly off-site flows through or along the site to the receiving storm drain. The new storm drain lines will prevent commingling of on- and off-site flows until after the on-site flow is treated. Under Alternative A and B, a northerly water quality/detention basin will treat and detain the on-site runoff. This detention basin will be used to mitigate for the project's flow increase. Under Alternative B, an additional southerly detention basin will detain the off-site runoff that is conveyed through the site. The additional detention basin will reduce the on- and off-site flow to the capacity of the receiving storm drain.

The accompanying December 14, 2016, *CEQA Drainage Study for Germann Tentative Subdivision Map (Tract No. 5520 RPL 1),* by Chang Consultants contains the following results:

Analysis	Overall Tributary Area, ac	Overall 100-Year Flow Rate, cfs
Existing Conditions	55.91	73
Proposed Conditions[1]	55.91	79

[1]The proposed condition undetained flow rates are given and similar for Alternatives A and B.

Rational Method Results

Step 3.5: Potential Pollutant Source Areas

Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply). Select "Other" if the project is a phased development and provide a description:

- ☒ On-site storm drain inlets
- ☐ Interior floor drains and elevator shaft sump pumps
- ☐ Interior parking garages
- ☒ Need for future indoor & structural pest control
- ☒ Landscape/Outdoor Pesticide Use
- ☐ Pools, spas, ponds, decorative fountains, and other water features
- ☐ Food service
- ☐ Refuse areas
- ☐ Industrial processes
- ☐ Outdoor storage of equipment or materials
- ☐ Vehicle and Equipment Cleaning
- ☐ Vehicle/Equipment Repair and Maintenance
- ☐ Fuel Dispensing Areas
- ☐ Loading Docks
- ☒ Fire Sprinkler Test Water
- ☒ Miscellaneous Drain or Wash Water
- ☒ Plazas, sidewalks, and parking lots
- ☐ Other (provide description)

Description / Additional Information:
The project is a single-family residential subdivision, so the pollutant source areas are those consistent with this type of development.

Step 3.6: Identification and Narrative of Receiving Water and Pollutants of Concern

Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable):
The project runoff is directed to an existing receiving storm drain pipe (24-inch HDPE) near the northerly property line (middle of site). The storm drain continues for approximately 115 feet and outlets on the natural ground surface. The runoff is then conveyed northerly by a small natural watercourse and ultimately discharges into the San Diego River, approximately 4,700 feet north of the site. The San Diego River continues west over 19 miles to the Pacific Ocean.

List any 303(d) impaired water bodies[11] within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant
San Diego River (Lower)	Enterococcus, Fecal Coliform, Low Dissolved Oxygen, Manganese, Nitrogen, Phosphorus, Total Dissolved Solids, Toxicity	TMDLs not established yet.

Identification of Project Site Pollutants*

*Identification of project site pollutants below is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs. Note the project must also participate in an alternative compliance program (unless prior lawful approval to meet earlier PDP requirements is demonstrated).

Identify pollutants expected from the project site based on all proposed use(s) of the site (see BMP Design Manual Appendix B.6):

Pollutant	Not Applicable to the Project Site	Anticipated from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment	☐	☒	☐
Nutrients	☐	☒	☒
Heavy Metals	☐	☒	☐
Organic Compounds	☐	☒	☐
Trash & Debris	☐	☒	☐

[11] The current list of Section 303(d) impaired water bodies can be found at http://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/#impaired

Oxygen Demanding Substances	☐	☒	☒
Oil & Grease	☐	☒	☐
Bacteria & Viruses	☐	☒	☒
Pesticides	☐	☒	☐

Step 3.7: Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the BMP Design Manual)?

☒Yes, hydromodification management requirements for flow control and preservation of critical coarse sediment yield areas are applicable.

☐No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA[12] for the watershed in which the project resides.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

N/A

[12] The Watershed Management Area Analysis (WMAA) is an optional element for inclusion in the Water Quality Improvement Plans (WQIPs) described in the 2013 MS4 Permit [Provision B.3.b.(4)]. It is available online at the Project Clean Water website: http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=248

Step 3.7.1: Critical Coarse Sediment Yield Areas*

***This Section only required if hydromodification management requirements apply**

Projects must satisfy critical coarse sediment yield area (CCSYA) requirements by characterizing the project as one of the scenario-types presented below and satisfying associated criteria. Projects must appropriately satisfy all requirements for identification, avoidance, and bypass, OR may alternatively elect to demonstrate no net impact.

☐ **Scenario 1**: Project is subject to and in compliance with RPO requirements *(without utilization of RPO exemptions 86.604(e)(2)(cc) or 86.604(e)(3) that result in impacts to more than 15% of the project-scale CCSYAs)*.

- ☐ Identify: Project has identified both onsite and upstream CCSYAs as areas that are coarse, ≥25% slope, and ≥50' tall. *(Optional refinement methods may be performed per guidance in Section H.1.2). AND,*
- ☐ Avoid: Project has avoided onsite CCSYAs per existing RPO steep slope encroachment criteria. AND,
- ☐ Bypass: Project has demonstrated that both onsite and upstream CCSYAs are bypassed through or around the project site with a 2 year peak storm velocity of 3 feet per second or greater. OR,
- ☐ No Net Impact: Project does not satisfy all Scenario 1 criteria above and must alternatively demonstrate no net impact to the receiving water.

☒ **Scenario 2**: Project is entirely exempt/not subject to RPO requirements without utilization of RPO exemptions 86.604(e)(2)(cc) or 86.604(e)(3).

- ☒ Identify: Project has identified upstream CCSYAs that are coarse, ≥25% slope, and ≥50' tall. *(Optional refinement methods may be performed per guidance in Section H.1.2). AND,*
- ☒ Avoid: Project is not required to avoid onsite CCSYAs as none were identified in the previous step. AND,
- ☒ Bypass: Project has demonstrated that upstream CCSYAs are bypassed through or around the project site with a 2 year peak storm velocity of 3 feet per second or greater. OR,
- ☐ No Net Impact: Project does not satisfy all Scenario 2 criteria above and must alternatively demonstrate no net impact to the receiving water. *(Skip to next row).*

☐ **Scenario 3**: Project utilizes exemption(s) via RPO Section 86.604(e)(2)(cc) or 86.604(e)(3) and impacts more than 15% of the project-scale CCSYAs.

- ☐ No Net Impact: Project is not eligible for traditional methods of identification, avoidance, and bypass. Project must demonstrate no net impact to the receiving water.

Critical Coarse Sediment Yield Areas Continued
Demonstrate No Net Impact
If the project elects to satisfy CCSYA criteria through demonstration of no net impact to the receiving water. Applicants must identify the methods utilized from the list below and provide supporting documentation in Attachment 2c of the SWQMP. Check all that are applicable. ☒ N/A, the project appropriately identifies, avoids, and bypasses CCSYAs. ☐ Project has performed additional analysis to demonstrate that impacts to CCSYAs satisfy the no net impact standard of Ep/Sp≤1.1. ☐ Project has provided alternate mapping of CCSYAs. ☐ Project has implemented additional onsite hydromodification flow control measures. ☐ Project has implemented an offsite stream rehabilitation project to offset impacts. ☐ Project has implemented other applicant-proposed mitigation measures.

Step 3.7.2: Flow Control for Post-Project Runoff*

*This Section only required if hydromodification management requirements apply
List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit. The project runoff will be conveyed in streets or drainage facilities to an existing 24-inch HDPE at the northerly portion of the site. The 24-inch HDPE continues for approximately 115 feet before discharging onto the natural ground surface. This discharge location is the POC.
Has a geomorphic assessment been performed for the receiving channel(s)? ☒ No, the low flow threshold is 0.1Q2 (default low flow threshold) ☐ Yes, the result is the low flow threshold is 0.1Q2 ☐ Yes, the result is the low flow threshold is 0.3Q2 ☐ Yes, the result is the low flow threshold is 0.5Q2 *If a geomorphic assessment has been performed, provide title, date, and preparer:* N/A *Discussion / Additional Information: (optional)* N/A

Step 3.8: Other Site Requirements and Constraints

When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.

N/A

Optional Additional Information or Continuation of Previous Sections As Needed

This space provided for additional information or continuation of information from previous sections as needed.

N/A

Step 4: Source Control BMP Checklist

Source Control BMPs			
All development projects must implement source control BMPs 4.2.1 through 4.2.6 where applicable and feasible. See Chapter 4.2 and Appendix E of the County BMP Design Manual for information to implement source control BMPs shown in this checklist. Answer each category below pursuant to the following: • "Yes" means the project will implement the source control BMP as described in Chapter 4.2 and/or Appendix E of the County BMP Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification must be provided.			
Source Control Requirement	**Applied?**		
4.2.1 Prevention of Illicit Discharges into the MS4	☒Yes	☐ No	☐ N/A
Discussion / justification if 4.2.1 not implemented:			
4.2.2 Storm Drain Stenciling or Signage	☒Yes	☐ No	☐ N/A
Discussion / justification if 4.2.2 not implemented:			
4.2.3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐Yes	☐ No	☒N/A
Discussion / justification if 4.2.3 not implemented:			
4.2.4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐Yes	☐ No	☒N/A
Discussion / justification if 4.2.4 not implemented:			

Source Control Requirement	Applied?		
4.2.5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☒Yes	☐ No	☐N/A
Discussion / justification if 4.2.5 not implemented:			
4.2.6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below):			
☐ A. On-site storm drain inlets	☒Yes	☐ No	☐ N/A
☐ B. Interior floor drains and elevator shaft sump pumps	☐Yes	☐ No	☒N/A
☐ C. Interior parking garages	☐Yes	☐ No	☒N/A
☐ D. Need for future indoor & structural pest control	☒Yes	☐ No	☐N/A
☐ E. Landscape/outdoor pesticide use	☒Yes	☐ No	☐N/A
☐ F. Pools, spas, ponds, fountains, and other water features	☐Yes	☐ No	☒N/A
☐ G. Food service	☐Yes	☐ No	☒N/A
☐ H. Refuse areas	☐Yes	☐ No	☒N/A
☐ I. Industrial processes	☐Yes	☐ No	☒N/A
☐ J. Outdoor storage of equipment or materials	☐Yes	☐ No	☒N/A
☐ K. Vehicle and equipment cleaning	☐Yes	☐No	☒N/A
☐ L. Vehicle/equipment repair and maintenance	☐Yes	☐ No	☒N/A
☐ M. Fuel dispensing areas	☐Yes	☐ No	☒N/A
☐ N. Loading docks	☐Yes	☐ No	☒N/A
☐ O. Fire sprinkler test water	☒Yes	☐ No	☐N/A
☐ P. Miscellaneous drain or wash water	☒Yes	☐ No	☐N/A
☐ Q. Plazas, sidewalks, and parking lots	☒Yes	☐ No	☐N/A
Discussion / justification if 4.2.6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above.			

Note: Show all source control measures described above that are included in design capture volume calculations in the plan sheets of Attachment 5.

Step 5: Site Design BMP Checklist

Site Design BMPs
All development projects must implement site design BMPs SD-A through SD-H where applicable and feasible. See Chapter 4.3 and Appendix E of the County BMP Design Manual for information to implement site design BMPs shown in this checklist. Answer each category below pursuant to the following: • "Yes" means the project will implement the site design BMP as described in Chapter 4.3 and/or Appendix E of the County BMP Design Manual. Discussion / justification is not required. • "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided. • "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification must be provided.

Site Design Requirement	Applied?		
4.3.1 Maintain Natural Drainage Pathways and Hydrologic Features	☐Yes	☐ No	☒N/A
Discussion / justification if 4.3.1 not implemented: The drainage pathways within the site are not natural and have been graded.			
4.3.2 Conserve Natural Areas, Soils, and Vegetation	☐Yes	☐ No	☒N/A
Discussion / justification if 4.3.2 not implemented: The entire site has previously been disturbed.			
4.3.3 Minimize Impervious Area	☒Yes	☐ No	☐ N/A
Discussion / justification if 4.3.3 not implemented:			
4.3.4 Minimize Soil Compaction	☒Yes	☐ No	☐ N/A
Discussion / justification if 4.3.4 not implemented:			
4.3.5 Impervious Area Dispersion	☒Yes	☐ No	☐ N/A
Discussion / justification if 4.3.5 not implemented:			

Site Design Requirement	Applied?		
4.3.6 Runoff Collection	☒Yes	☐ No	☐ N/A
Discussion / justification if 4.3.6 not implemented: The project will consider implementing rain barrels for all or a portion of the proposed single-family residences during final engineering.			
4.3.7 Landscaping with Native or Drought Tolerant Species	☒Yes	☐ No	☐ N/A
Discussion / justification if 4.3.7 not implemented:			
4.3.8 Harvesting and Using Precipitation	☐Yes	☒No	☐N/A
Discussion / justification if 4.3.8 not implemented: The project proposes 14 single-family residences. The project includes an infiltration basin, which is equivalent to proposing distributed capture and reuse in the form of rain barrels.			

Note: Show all site design measures described above that are included in design capture volume calculations in the plan sheets of Attachment 5.

Step 6: PDP Structural BMPs

All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the BMP Design Manual). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the BMP Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s).

PDP structural BMPs must be verified by the County at the completion of construction. This may include requiring the project owner or project owner's representative and engineer of record to certify construction of the structural BMPs (see Section 1.12 of the BMP Design Manual). PDP structural BMPs must be maintained into perpetuity, and the County must confirm the maintenance (see Section 7 of the BMP Design Manual).

Use this section to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (Step 6.2) for each structural BMP within the project (copy the BMP summary information sheet [Step 6.2] as many times as needed to provide summary information for each individual structural BMP).

Step 6.1: Description of structural BMP strategy

Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the BMP Design Manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate. At the end of this discussion provide a summary of all the structural BMPs within the project including the type and number.

Harvest and use did not meet the demand requirements (see Attachment 1a), so infiltration and biofiltration was considered next.

According to the Web Soil Survey the soil within the project footprint consists of hydrologic soil group B, so infiltration is possible. Since the project is currently just in the entitlement phase, preliminary sizing has been prepared for an infiltration basin, which will yield the most conservative sizing. During final engineering, more detailed geotechnical analyses shall be prepared to determine if biofiltration (with partial retention) is needed rather than infiltration, in which case the sizing can be reduced from the conservative sizing in this report.

(Continue on following page as necessary.)

Description of structural BMP strategy continued (Page reserved for continuation of description of general strategy for structural BMP implementation at the site)
(Continued from previous page)

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)

Structural BMP ID No. BMP 1 – infiltration is analyzed for entitlements (conservative), but Biofiltration with Partial Retention (PR-1) could ultimately be selected during final engineering depending on infiltration testing results.

Construction Plan Sheet No. Tentative Map Sheet 1

Type of structural BMP:
☐ Retention by harvest and use (HU-1)
☒ Retention by infiltration basin (INF-1)
☐ Retention by bioretention (INF-2)
☐ Retention by permeable pavement (INF-3)
☐ Partial retention by biofiltration with partial retention (PR-1)
☐ Biofiltration (BF-1)
☐ Biofiltration with Nutrient Sensitive Media Design (BF-2)
☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F
☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below)
☐ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below)
☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below)
☐ Detention pond or vault for hydromodification management
☐ Other (describe in discussion section below)

Purpose:
☐ Pollutant control only
☐ Hydromodification control only
☒ Combined pollutant control and hydromodification control
☐ Pre-treatment/forebay for another structural BMP
☐ Other (describe in discussion section below)

Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 1.12 of the BMP Design Manual)	The developer will assign the appropriate responsible party during final engineering.
Who will be the final owner of this BMP?	☒ HOA ☐ Property Owner ☐ County ☐ Other (describe)
Who will maintain this BMP into perpetuity?	☒ HOA ☐ Property Owner ☐ County ☐ Other (describe)
What Category (1-4) is the Structural BMP? Refer to the Category definitions in Section 7.3 of the BMP DM. Attach the appropriate maintenance agreement in Attachment 3.	Category 2

Discussion (as needed):
The developer/owner, then HOA will be responsible for long-term funding, operation, and maintenance of the proposed facilities. Infiltration sizing is included in this preliminary SWQMP. During final engineering when infiltration testing is performed, infiltration could be replaced with PR-1, Biofiltration with Partial Retention, in conjunction with BF-2, Nutrient Sensitive Media Design. If so, the PR-1 and BF-2 sizing will be smaller, so assuming infiltration for entitlement purposes is appropriate.
(Continue on subsequent pages as necessary)

Step 6.3: Offsite Alternative Compliance Participation Form

PDP INFORMATION	
Record ID:	N/A. Alternative compliance not used.
Assessor's Parcel Number(s) [APN(s)]	
What are your PDP Pollutant Control Debits? *See Attachment 1 of the PDP SWQMP	
What are your PDP HMP Debits? (if applicable) *See Attachment 2 of the PDP SWQMP	
ACP Information	
Record ID:	
Assessor's Parcel Number(s) [APN(s)]	
Project Owner/Address	
What are your ACP Pollutant Control Credits? *See Attachment 1 of the ACP SWQMP	
What are your ACP HMP Debits? (if applicable) *See Attachment 2 of the ACP SWQMP	
Is your ACP in the same watershed as your PDP? ☐ Yes ☐ No	Will your ACP project be completed prior to the completion of the PDP? ☐ Yes ☐ No
Does your ACP account for all Deficits generated by the PDP? ☐ Yes ☐ No (PDP and/or ACP must be redesigned to account for all deficits generated by the PDP.	What is the difference between your PDP debits and ACP Credits? *(ACP Credits -Total PDP Debits = Total Earned Credits)

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP 2	
Construction Plan Sheet No. Tentative Map Sheet 1	
Type of structural BMP: ☐ Retention by harvest and use (HU-1) ☐ Retention by infiltration basin (INF-1) ☐ Retention by bioretention (INF-2) ☐ Retention by permeable pavement (INF-3) ☐ Partial retention by biofiltration with partial retention (PR-1) ☐ Biofiltration (BF-1) ☐ Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☒ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐ Detention pond or vault for hydromodification management ☐ Other (describe in discussion section below)	
Purpose: ☐ Pollutant control only ☐ Hydromodification control only ☐ Combined pollutant control and hydromodification control ☒ Pre-treatment/forebay for another structural BMP ☐ Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 1.12 of the BMP Design Manual)	The developer will assign the appropriate responsible party during final engineering.
Who will be the final owner of this BMP?	☒ HOA ☐ Property Owner ☐ County ☐ Other (describe)
Who will maintain this BMP into perpetuity?	☒ HOA ☐ Property Owner ☐ County ☐ Other (describe)
What Category (1-4) is the Structural BMP? Refer to the Category definitions in Section 7.3 of the BMP DM. Attach the appropriate maintenance agreement in Attachment 3.	Category 2

Discussion (as needed):
A curb inlet filter will be installed in each of the three curb inlets tributary to the infiltration basin for pre-treament. The filter shall be capable of providing effective TSS treatment in compliance with the BMP Design Manual.
(Continue on subsequent pages as necessary)

Step 6.3: Offsite Alternative Compliance Participation Form

PDP INFORMATION	
Record ID:	N/A. Alternative compliance not used.
Assessor's Parcel Number(s) [APN(s)]	
What are your PDP Pollutant Control Debits? *See Attachment 1 of the PDP SWQMP	
What are your PDP HMP Debits? (if applicable) *See Attachment 2 of the PDP SWQMP	
ACP Information	
Record ID:	
Assessor's Parcel Number(s) [APN(s)]	
Project Owner/Address	
What are your ACP Pollutant Control Credits? *See Attachment 1 of the ACP SWQMP	
What are your ACP HMP Debits? (if applicable) *See Attachment 2 of the ACP SWQMP	
Is your ACP in the same watershed as your PDP? ☐ Yes ☐ No	Will your ACP project be completed prior to the completion of the PDP? ☐ Yes ☐ No
Does your ACP account for all Deficits generated by the PDP? ☐ Yes ☐ No (PDP and/or ACP must be redesigned to account for all deficits generated by the PDP.	What is the difference between your PDP debits and ACP Credits? *(ACP Credits -Total PDP Debits = Total Earned Credits)

ATTACHMENT 1

BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	**Contents**	**Checklist**
Attachment 1a	Storm Water Pollutant Control Worksheet Calculations -Worksheet B.3-1 (Required) -Worksheet B.1-1 (Required) -Worksheet B.4-1 (if applicable) -Worksheet B.4-2 (if applicable) -Worksheet B.5-1 (if applicable) -Worksheet B.5-2 (if applicable) -Worksheet B.5-3 (if applicable) -Worksheet B.6-1 (if applicable) -Summary Worksheet (optional)	☒ Included
Attachment 1b	Form I-8, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP Design Manual to complete Form I-8.	☒ Included ☐ Not included because the entire project will use harvest and use BMPs
Attachment 1c	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this Attachment cover sheet.	☒ Included
Attachment 1d	Individual Structural BMP DMA Mapbook (Required) -Place each map on 8.5”x11” paper. -Show at a minimum the DMA, Structural BMP, and any existing hydrologic features within the DMA.	☒ Included

Automated Worksheet B.3-1: Project-Scale BMP Feasibility Analysis (V1.1)

Category	#	Description	Value	Units
Capture & Use Inputs	0	Design Capture Volume for Entire Project Site	3,614	cubic-feet
	1	Proposed Development Type	Residential	unitless
	2	Number of Residents or Employees at Proposed Development	56	#
	3	Total Planted Area within Development	146,130	sq-ft
	4	Water Use Category for Proposed Planted Areas	Low	unitless
Infiltration Inputs	5	Is Average Site Infiltration Rate Less than 0.5 Inches per Hour?	Yes	yes/no
	6	Is Retention of the Full DCV Anticipated to Produce Negative Impacts?	No	yes/no
	7	Is Retention of Any Volume Anticipated to Produce Negative Impacts?	No	yes/no
Calculations	8	36-Hour Toilet Use Per Resident or Employee	0.37	cubic-feet
	9	Subtotal: Anticipated 36 Hour Toilet Use	21	cubic-feet
	10	Anticipated 1 Acre Landscape Use Over 36 Hours	52.14	cubic-feet
	11	Subtotal: Anticipated Landscape Use Over 36 Hours	175	cubic-feet
	12	Total Anticipated Use Over 36 Hours	196	cubic-feet
	13	Total Anticipated Use / Design Capture Volume	0.05	cubic-feet
	14	Are Full Capture and Use Techniques Feasible for this Project?	No	unitless
	15	Is Full Retention Feasible for this Project?	No	yes/no
	16	Is Partial Retention Feasible for this Project?	Yes	yes/no
Result	17	Feasibility Category	4	1, 2, 3, 4, 5

Worksheet B.3-1 General Notes:

A. Applicants may use this optional worksheet to gauge the feasibility of implementing capture and use techniques on their project site. User input should be provided for yellow shaded cells, values for all other cells will be automatically generated. Projects demonstrating feasibility or potential feasibility via this worksheet are encouraged to incorporate capture and use features in their project.

Attachment 1a

For tentative map purposes, BMP sizing has been performed for an infiltration option. The impervious and pervious areas are based on TM Alternative A since this has more impervious area and will yield the more conservative results. During final engineering, infiltration testing will be performed to verify infiltration. If infiltration is not feasible, biofiltration with partial retention will be used. Since infiltration sizing is more conservative, the current analyses will accommodate either options.

Automated Worksheet B.1-1: Calculation of Design Capture Volume (V1.1)

Category	#	Description	*i*	Units
Standard Drainage Basin Inputs	0	Drainage Basin ID or Name	BMP 1 - Inf	unitless
	1	Basin Drains to the Following BMP Type	Infiltration	unitless
	2	85th Percentile 24-hr Storm Depth	0.49	inches
	3	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	83,277	sq-ft
	4	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)	0	sq-ft
	5	Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10)	143,630	sq-ft
	6	Natural Type A Soil Not Serving as Dispersion Area (C=0.10)	0	sq-ft
	7	Natural Type B Soil Not Serving as Dispersion Area (C=0.14)	0	sq-ft
	8	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)	0	sq-ft
	9	Natural Type D Soil Not Serving as Dispersion Area (C=0.30)	0	sq-ft
Dispersion, Tree Well, & Rain Barrel Inputs (Optional)	10	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	No	yes/no
	11	Impervious Surfaces **Directed to Dispersion Area** per SD-B (Ci=0.90)		sq-ft
	12	Semi-Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.30)		sq-ft
	13	Engineered Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.10)		sq-ft
	14	Natural Type A Soil **Serving as Dispersion Area** per SD-B (Ci=0.10)		sq-ft
	15	Natural Type B Soil **Serving as Dispersion Area** per SD-B (Ci=0.14)		sq-ft
	16	Natural Type C Soil **Serving as Dispersion Area** per SD-B (Ci=0.23)		sq-ft
	17	Natural Type D Soil **Serving as Dispersion Area** per SD-B (Ci=0.30)		sq-ft
	18	Number of Tree Wells Proposed per SD-A		#
	19	Average Mature Tree Canopy Diameter		ft
	20	Number of Rain Barrels Proposed per SD-E		#
	21	Average Rain Barrel Size		gal
Final Adjusted Runoff Factor Calculations	22	Total Area Tributary to BMP	226,907	sq-ft
	23	Composite Runoff Factor for Standard Drainage Areas	0.39	unitless
	24	Initial Composite Runoff Factor for Dispersed & Dispersion Areas	1.00	unitless
	25	Total Impervious Area Dispersed to Pervious Surface	0	sq-ft
	26	Total Pervious Dispersion Area	0	sq-ft
	27	Dispersed Impervious Area / Pervious Dispersion Area	n/a	ratio
	28	Adjustment Factor for Dispersed & Dispersion Areas	1.00	ratio
	29	Final Adjusted Tributary Runoff Factor	0.39	unitless
Volume Reduction Calculations	30	Final Effective Tributary Area	88,494	sq-ft
	31	Initial Design Capture Volume	3,614	cubic-feet
	32	Volume Reduction per Tree Well	0	cubic-feet
	33	Total Tree Well Volume Reduction	0	cubic-feet
	34	Total Rain Barrel Volume Reduction	0	cubic-feet
Result	35	Design Capture Volume Tributary to BMP	3,614	cubic-feet

Worksheet B.1-1 General Notes:

A. Applicants may use this worksheet to calculate design capture volumes for up to 10 drainage areas. User input must be provided for yellow shaded cells, values for all other cells will be automatically generated, errors/notifications will be highlighted in red and summarized below. Upon completion of this worksheet, proceed to the appropriate BMP Sizing worksheet(s).

B. Impervious surfaces include roofs, concrete, asphalt, or pervious pavements with an impervious liner. Semi-pervious surfaces include decomposed granite, cobbles, crushed aggregate, or compacted soils such as unpaved parking. Engineered pervious surfaces include pervious pavements providing full retention of the 85th percentile rainfall depth, or areas with soils that have been amended and mulched per Section 86.709 of the Landscape Ordinance. Dispersion areas are pervious or semi-pervious surfaces that receive runoff from impervious surfaces

Automated Worksheet B.4-1: Sizing Infiltration-Only BMPs (V1.1)

Category	#	Description	*i*	Units
BMP Inputs	0	Drainage Basin ID or Name	BMP 1 - Inf	unitless
	1	Design Capture Volume Tributary to BMP	3,614	cubic-feet
	2	Provided Infiltration Surface Area	6,078	sq-ft
	3	Provided Surface Ponding Depth	12	inches
	4	Provided Soil Media Thickness	18	inches
	5	Provided Gravel Storage Thickness	0	inches
	6	Native Soil Infiltration Rate	0.50	in/hr
Infiltration Calculations	7	Volume Infiltrated Over 6 Hour Storm	1,520	cubic-feet
	8	Soil Media Pore Space	0.40	unitless
	9	Gravel Pore Space	0.40	unitless
	10	Effective Depth of Infiltration Storage	19.2	inches
	11	Drawdown Time for Surface Ponding (Post-Storm)	24	hours
	12	Drawdown Time for Entire Infiltration Basin (Including 6 Hour Storm)	44	hours
	13	Volume Infiltrated by BMP	11,244	cubic-feet
	14	Fraction of DCV Infiltrated	3.00	ratio
	15	Percentage of Performance Requirement Satisfied	1.00	ratio
Result	16	**Deficit of Effectively Treated Stormwater**	**0**	cubic-feet

Worksheet B.4-1 General Notes:

A. Applicants may use this worksheet to size Infiltration-Only BMPs (INF-1) for up to 10 basins. User input must be provided for yellow shaded cells, values for blue cells are automatically populated based on user inputs from previous worksheets, values for all other cells will

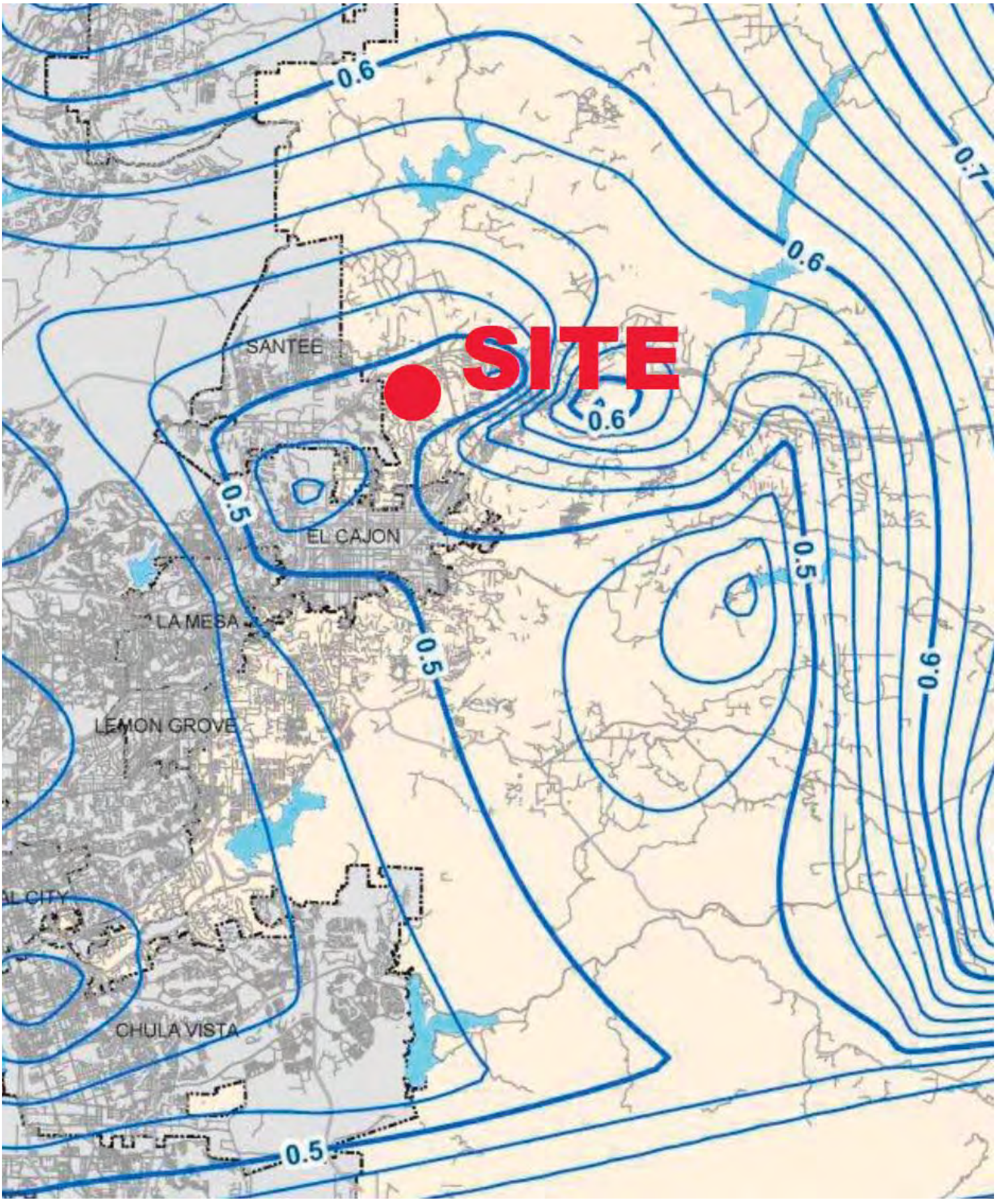
Summary of Stormwater Pollutant Control Calculations (V1.1)

Category	Description	*i*	Units
Drainage Basin Inputs	Drainage Basin ID or Name	BMP 1 - Inf	unitless
	Total Area Tributary to BMP	226,907	sq-ft
	Composite Runoff Factor for Standard Drainage Areas	0.39	unitless
	85th Percentile 24-hr Storm Depth	0.49	inches
	Initial Design Capture Volume	3,614	cubic-feet
Volume Reductions	Final Adjusted Tributary Runoff Factor	0.39	unitless
	Final Effective Tributary Area	88,494	sq-ft
	Tree Well and Rain Barrel Reductions	0	cubic-feet
	Design Capture Volume Tributary to BMP	3,614	cubic-feet
BMP Sizing	Basin Drains to the Following BMP Type	Infiltration	unitless
	Deficit of Effectively Treated Stormwater	0	cubic-feet

Summary Notes:

All fields in this summary worksheet are populated based on previous user inputs. Drainage basins achieving full compliance with performance requirements for onsite pollutant control are highlighted in green. Drainage basins not achieving full compliance are highlighted in red and summarized below. Please note that drainage areas using

-Congratulations, all specified drainage basins and BMPs are in compliance with stormwater pollutant control requirements. Include 11x17 color prints of this summary sheet and supporting worksheet calculations as part of



24-HOUR, 85TH PRECIPITATION

Attachment 1b

Categorization of Infiltration Feasibility Condition	Form I-8

Part 1 - Full Infiltration Feasibility Screening Criteria

Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?

Note that it is not necessary to investigate each and every criterion in the worksheet if infiltration is precluded. Instead a letter of justification from a geotechnical professional familiar with the local conditions substantiating any geotechnical issues will be required.

Criteria	Screening Question	Yes	No
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		

Provide basis:

The hydrologic soil group at the site is B, so infiltration could be feasible. For tentative map purposes, sizing has been performed for both an infiltration option and a biofiltration (non-infiltration) option.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.2.		

Provide basis:

This will be assessed during final engineering. See prior response.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

Form I-8 Page 2 of 4			
Criteria	Screening Question	**Yes**	**No**
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.3.		
Provide basis: To be determined during final engineering. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: The site is relatively small at 5.24 gross acres, so water balance issues are not anticipated. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result *	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2	No.	

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

Form I-8 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		

Provide basis:

The hydrologic soil group at the site is B, so infiltration could be feasible. For tentative map purposes, sizing has been performed for both an infiltration option and a biofiltration (non-infiltration) option.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.2.		

Provide basis:

This will be assessed during final engineering. See prior response.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

Form I-8 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.3.		
Provide basis: To be determined during final engineering. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question must be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: The site is relatively small at 5.24 gross acres, so water rights issues are not anticipated. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 1-4 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**	No infiltration	

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

FLAT/ MODERATE SLOPE

STEEP SLOPE

FLAT/ MODERATE SLOPE

STEEP SLOPE

1" = 60'

0 60

25' R.Y.S.B. LINE (TYP.)

N 88°44'00" E 468.39'

LEGEND:

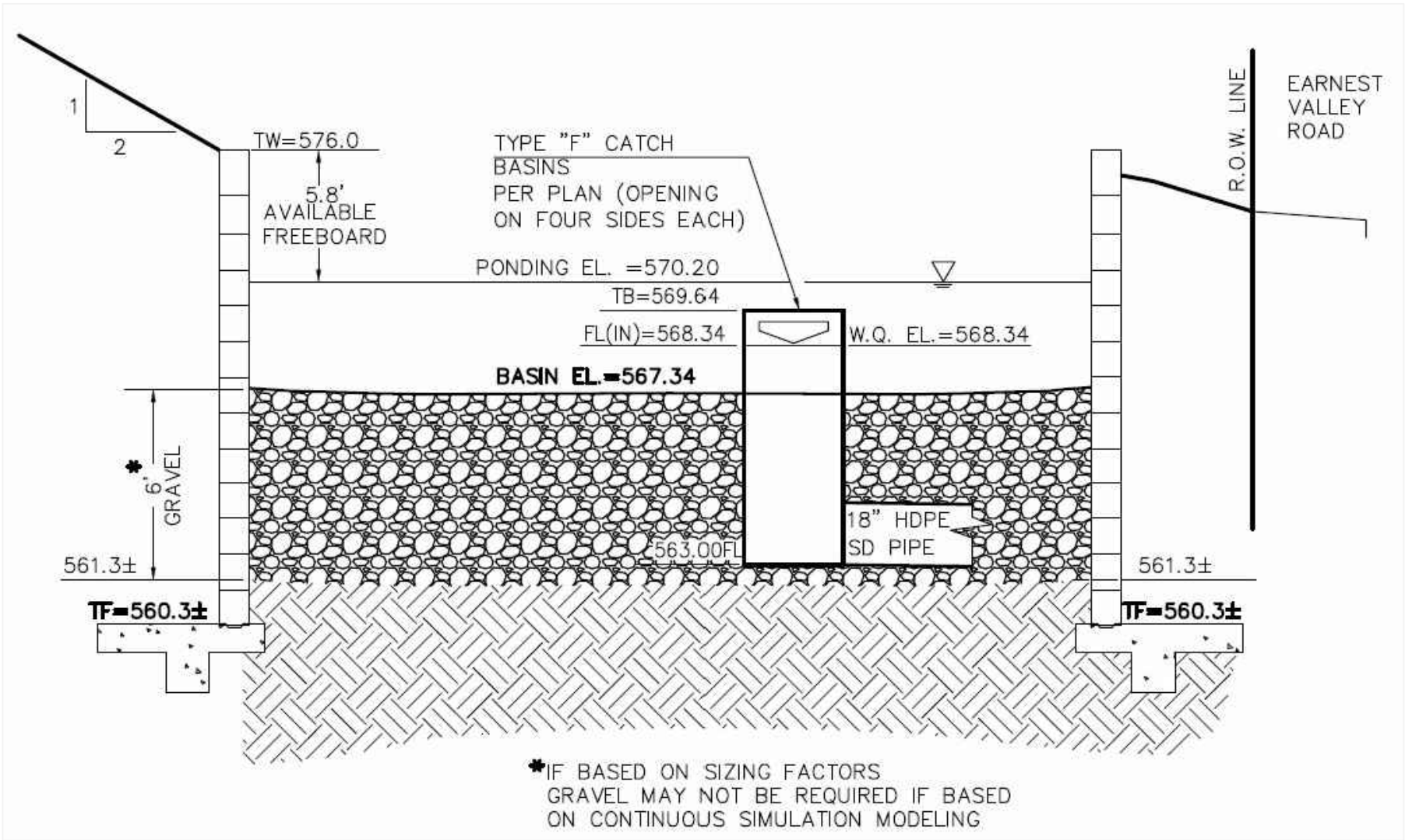
- DMA BOUNDARY
- STORM DRAIN
- INLET STENCILING
- BMP 1 – INFILTRATION BASIN (6,078 SF)
- DMA 1 – STREETS/DRIVEWAYS (41,945 SF)
- DMA 2 – SIDEWALKS (8,949 SF)
- DMA 3 – EXIST. RESIDENTIAL BLDGS (3,783 SF)
- DMA 4 – LANDSCAPING (143,629 SF)
- DMA 5 – SELF-MITIGATING (11,310 SF)

NOTE:

THE UNDERLYING HYDROLOGIC SOIL GROUP IS B. THE APPROXIMATE DEPTH TO GROUNDWATER IS OVER 20 FEET. THE ENTIRE SITE HAS BEEN DISTURBED, SO THERE ARE NO EXISTING NATURAL HYDROLOGIC FEATURES. THERE ARE NO ON-SITE CRITICAL COARSE SEDIMENT YIELD AREAS. THE EXISTING ON-SITE STREET AT THE NORTH WILL BE DEMOLISHED. DESIGN FEATURES INCLUDE MINIMIZING PRIVATE DRIVEWAY WIDTHS AND HAVING MOST LOTS SERVED BY A SINGLE STREET. THE POC IS AT THE OUTLET OF THE STORM DRAIN LEAVING THE SITE TO THE NORTH.

EACH PROPOSED RESIDENTIAL LOT IS ASSUMED TO CONTAIN 2,200 SF OF IMPERVIOUS AREA (HOUSE, DRIVEWAY, HARDSCAPE = 28,600 SF FOR 13 LOTS). NOTE THAT ADDITIONAL DRIVEWAY LENGTH IS SHOWN ON THE NORTHWESTERLY TWO LOTS TO ACCOUNT FOR THE DEEPER LOTS.

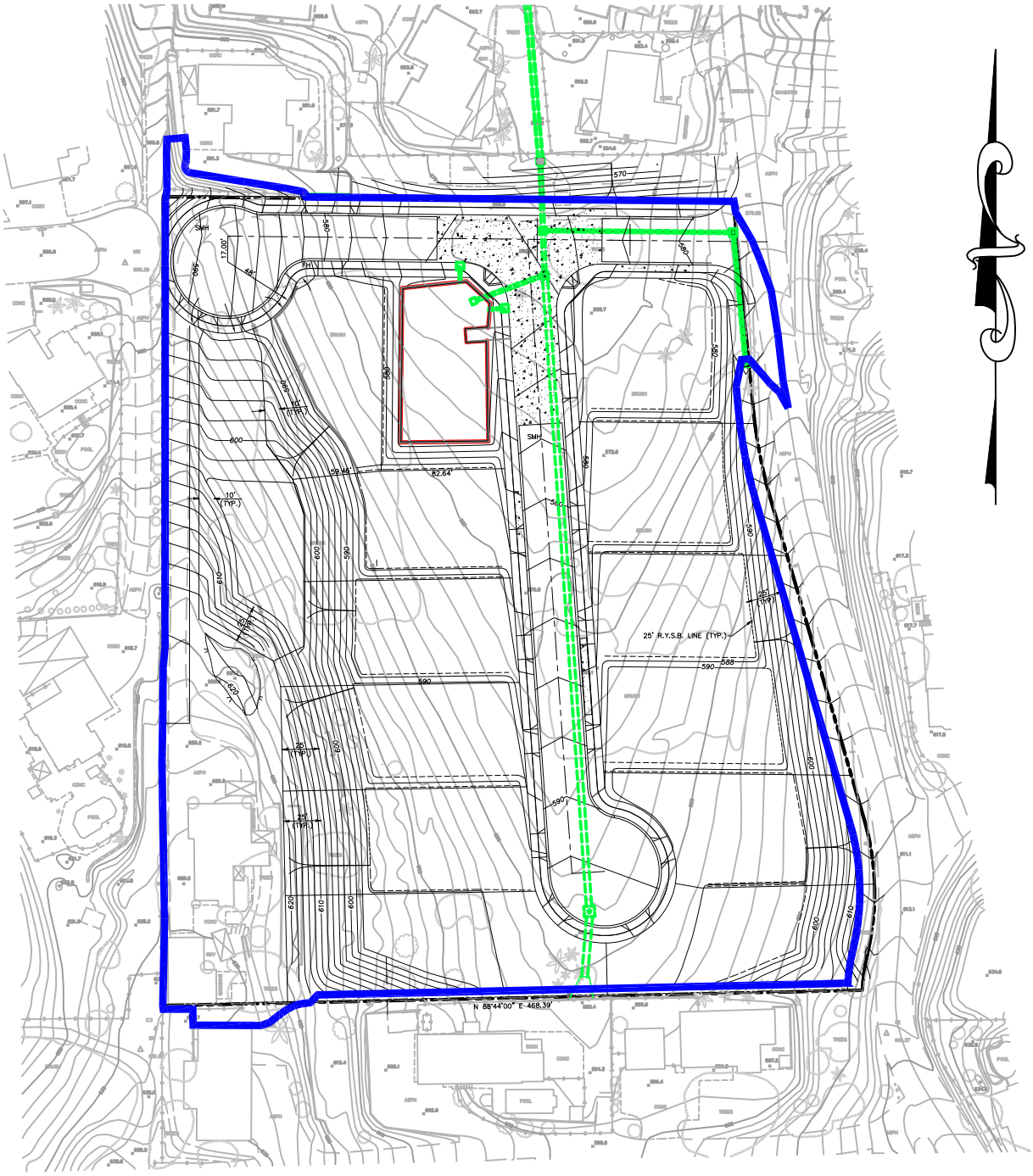
ATTACHMENT 1C/2B – DMA EXHIBIT & HYDROMODIFICATION MANAGMENT EXHIBIT



INFILTRATION BASIN DETAIL

NOT TO SCALE

ATTACHMENT 1C/2B – DMA EXHIBIT &
HYDROMODIFICATION MANAGMENT EXHIBIT



LEGEND:

DMA BOUNDARY

PROPOSED DRAINAGE FACILITY

INFILTRATION BASIN

1" = 100'

0 100

BMP MAP 1 – INFILTRATION BASIN
GERMANN TENTATIVE SUBDIVISION MAP – TRACT 5520 RPL 1

ATTACHMENT 2

BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

☐ Mark this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 2a	Flow Control Facility Design, including Structural BMP Drawdown Calculations and Overflow Design Summary (Required) See Chapter 6 and Appendix G of the BMP Design Manual	☒ Included ☐ Submitted as separate stand-alone document
Attachment 2b	Hydromodification Management Exhibit (Required)	☒ Included See Hydromodification Management Exhibit Checklist on the back of this Attachment cover sheet.
Attachment 2c	Management of Critical Coarse Sediment Yield Areas See Section 6.2 and Appendix H of the BMP Design Manual.	☐ Exhibit depicting onsite and/or upstream sources of critical coarse sediment as mapped by Regional or Jurisdictional approaches outlined in Appendix H.1 AND, ☒ Demonstration that the project effectively avoids and bypasses sources of mapped critical coarse sediment per approaches outlined in Appendix H.2 and H.3. OR, ☐ Demonstration that project does not generate a net impact on the receiving water per approaches outlined in Appendix H.4.
Attachment 2d	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the BMP Design Manual.	☒ Not performed ☐ Included ☐ Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	☐ Included ☒ Not required because BMPs will drain in less than 96 hours

ATTACHMENT 2a

Flow Control Facility Design
(PDP Hydromodification Control Measures)

Summary

The County of San Diego's February 26, 2016, *BMP Design Manual* requires that Drainage Management Areas (DMA) be delineated representing the various impervious and pervious surface types within a proposed development. The project proposes to redevelop the existing site containing a single residence into a subdivision with new homes, driveways, streets, hardscape, and landscaping. The existing residence will remain. Storm runoff from the site area will continue to be directed to an existing receiving 24-inch HDPE storm drain pipe midway along the northerly property boundary. A separate storm drain will be constructed in a north-south direction along the proposed on-site street to convey off-site runoff from the south through the site without commingling with on-site runoff.

The on-site runoff will enter a water quality basin within the northerly portion of the site for pollutant treatment and hydromodification control. The current submittal is for a tentative map, so preliminary sizing has been performed assuming full infiltration. The specific type of basin will be determined during final engineering. If infiltration becomes infeasible, a biofiltration basin will be used. Since a biofiltration basin footprint will be smaller than an infiltration basin, assuming infiltration for this preliminary SWQMP is appropriate.

The County's BMP Sizing Spreadsheet was used to conceptually size the infiltration basin (see attached) for hydromodification. The on-site soils are Type B. The attached results show that the infiltration basin footprint must be at least 6,078 square feet to provide adequate hydromodification control. The current sizing is adequate for the treatment control sizing given in Attachment 1a. These sizing estimates may change during final engineering and depending whether Alternative A or B is selected during final engineering. The current sizing analyses are based on the more conservative (more impervious area) Alternative A. Therefore, the results show that the tentative map designs are feasible.

BMP Sizing Spreadsheet V1.04

Project Name:	Germann Tentative Subdivision Map
Project Applicant:	Robert Germann
Jurisdiction:	County of San Diego
Parcel (APN):	382-121-05
Hydrologic Unit:	San Diego
Rain Gauge:	Oceanside
Total Project Area (sf):	226,907
Channel Susceptibility:	High

BMP Sizing Spreadsheet V1.04			
Project Name:	Germann Tentative Subdivision Map	Hydrologic Unit:	San Diego
Project Applicant:	Robert Germann	Rain Gauge:	Oceanside
Jurisdiction:	County of San Diego	Total Project Area:	226907
Parcel (APN):	382-121-05	Low Flow Threshold:	0.1Q2
BMP Name:	Infiltration Alternative	BMP Type:	Infiltration
BMP Native Soil Type:	B	BMP Infiltration Rate (in/hr):	0.52

Areas Draining to BMP						HMP Sizing Factors			Minimum BMP Size		
DMA Name	Area (sf)	Soil Type	Slope	Post Project Surface Type	Runoff Factor (Table 4-2)	Surface Area	Infiltration Volume	N/A	Surface Area (sf)	Infiltration Volume (cf)	N/A
Streets/Driveways	13748	B	Steep	Impervious	1.0	0.06	0.156	N/A	825	2145	N/A
Sidewalks	2721	B	Steep	Impervious	1.0	0.06	0.156	N/A	163	424	N/A
Proposed Homes	26400	B	Steep	Impervious	1.0	0.06	0.156	N/A	1584	4118	N/A
Landscaping	109456	B	Steep	Pervious	0.1	0.06	0.156	N/A	657	1708	N/A
Streets/Driveways	28197	B	Moderate	Impervious	1.0	0.065	0.169	N/A	1833	4765	N/A
Sidewalks	6228	B	Moderate	Impervious	1.0	0.065	0.169	N/A	405	1053	N/A
Existing Structures	3783	B	Moderate	Impervious	1.0	0.065	0.169	N/A	246	639	N/A
Proposed Homes	2200	B	Moderate	Impervious	1.0	0.065	0.169	N/A	143	372	N/A
Landscaping	34173	B	Moderate	Pervious	0.1	0.065	0.169	N/A	222	578	N/A
Total BMP Area	226906										

Minimum BMP Size	6077.5205	15802	
Proposed BMP Size*	6078	8813	N/A
			in
Minimum Infiltration Depth		31.20	in
Maximum Infiltration Depth		49.92	in
Selected Infiltration Depth		36.00	in

Describe the BMP's in sufficient detail in your SWMP to demonstrate the area, volume, and other criteria can be met within the constraints of the site.

BMP's must be adapted and applied to the conditions specific to the development project such as unstable slopes or the lack of available head.
Designated Staff have final review and approval authority over the project design.

This Sizing Calculator has been developed in compliance with the Countywide Model SUSMP. For questions or concerns please contact the jurisdiction in which your project is located.

BMP Sizing Spreadsheet V1.04			
Project Name:	ann Tentative Subdivisio	Hydrologic Unit:	San Diego
Project Applicant:	Robert Germann	Rain Gauge:	Oceanside
Jurisdiction:	County of San Diego	Total Project Area:	226907
Parcel (APN):	382-121-05	Low Flow Threshold:	0.1Q2
BMP Name	Infiltration Alternative	BMP Type:	Infiltration

DMA Name	Rain Gauge	Existing Condition			Q2 Sizing Factor (cfs/ac)	DMA Area (ac)	Orifice Flow - $\%Q_2$ (cfs)	**Orifice Area (in2)**
		Soil Type	Cover	Slope				
Streets/Driveways	Oceanside	B	Scrub	Steep	0.181	0.316	N/A	**N/A**
Sidewalks	Oceanside	B	Scrub	Steep	0.181	0.062	N/A	**N/A**
Proposed Homes	Oceanside	B	Scrub	Steep	0.181	0.606	N/A	**N/A**
Landscaping	Oceanside	B	Scrub	Steep	0.181	2.513	N/A	**N/A**
Streets/Driveways	Oceanside	B	Scrub	Moderate	0.134	0.647	N/A	**N/A**
Sidewalks	Oceanside	B	Scrub	Moderate	0.134	0.143	N/A	**N/A**
Existing Structures	Oceanside	B	Scrub	Moderate	0.134	0.087	N/A	**N/A**
Proposed Homes	Oceanside	B	Scrub	Moderate	0.134	0.051	N/A	**N/A**
Landscaping	Oceanside	B	Scrub	Moderate	0.134	0.785	N/A	**N/A**
							N/A	**N/A**
							N/A	**N/A**
							N/A	**N/A**
							N/A	**N/A**
							N/A	**N/A**
							N/A	**N/A**

N/A	**N/A**	**N/A**
Tot. Allowable Orifice Flow (cfs)	**Tot. Allowable Orifice Area (in2)**	**Max Orifice Diameter (in)**

Actual Orifice Flow (cfs)	Actual Orifice Area (in2)	Selected Orifice Diameter (in)

Drawdown (Hrs)	69.2

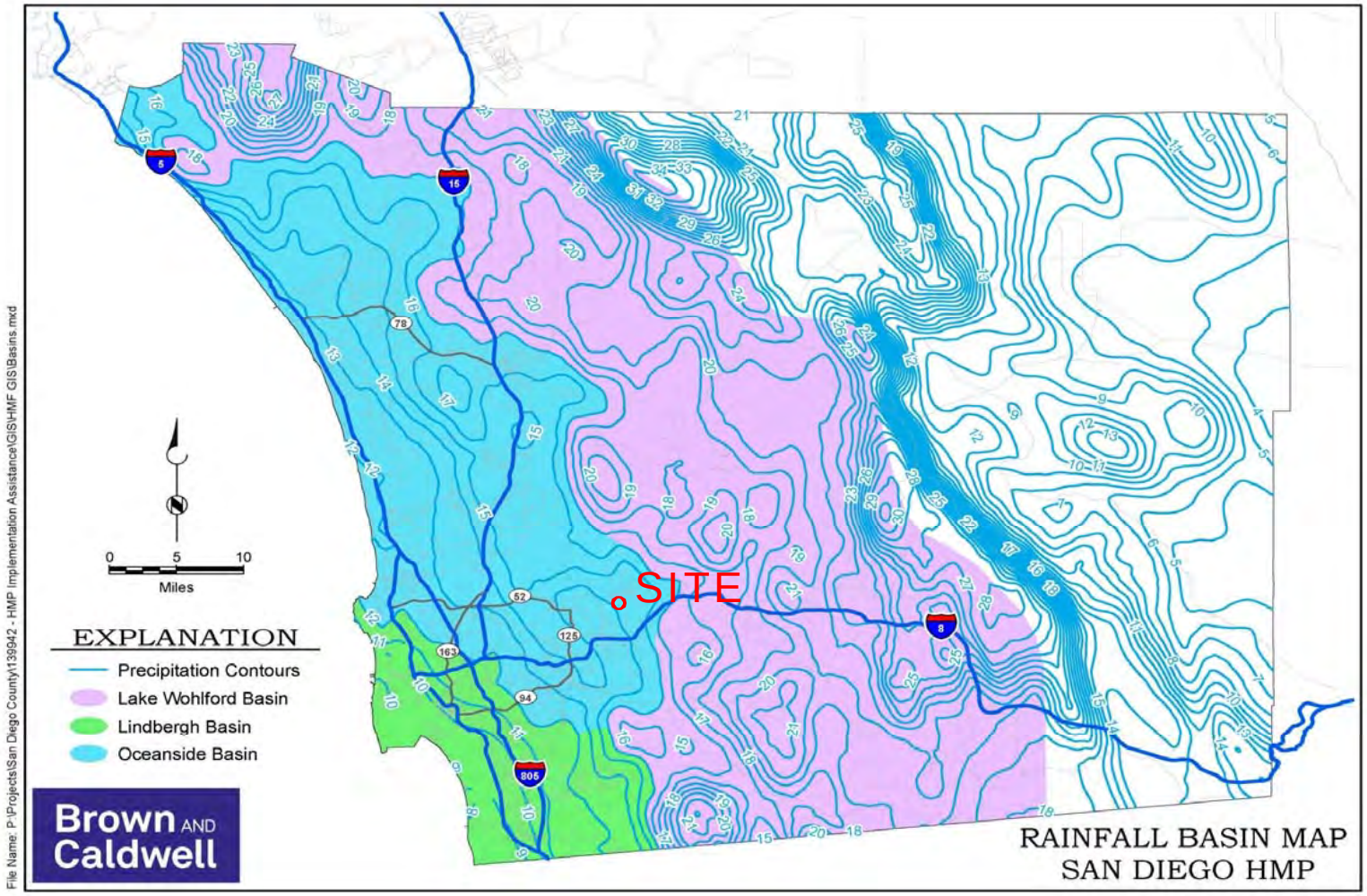

SITE
0 5 10
Miles
EXPLANATION
Precipitation Contours
Lake Wohlford Basin
Lindbergh Basin
Oceanside Basin
Brown AND Caldwell
RAINFALL BASIN MAP
SAN DIEGO HMP
File Name: P:\Projects\San Diego County\139942 - HMP Implementation Assistance\GIS\HMP GIS\Basins.mxd

Table 7-5. Sizing Factors for Infiltration Facilities						
Lower Flow Threshold	Soil Group	Slope	Rain Gauge	A	V_1	V_2
0.3Q2	D	Steep	Oceanside	N/A	N/A	N/A
0.3Q2	A	Flat	L Wohlford	0.050	0.1300	N/A
0.3Q2	A	Moderate	L Wohlford	0.050	0.1300	N/A
0.3Q2	A	Steep	L Wohlford	0.040	0.1040	N/A
0.3Q2	B	Flat	L Wohlford	0.078	0.2015	N/A
0.3Q2	B	Moderate	L Wohlford	0.075	0.1950	N/A
0.3Q2	B	Steep	L Wohlford	0.065	0.1690	N/A
0.3Q2	C	Flat	L Wohlford	N/A	N/A	N/A
0.3Q2	C	Moderate	L Wohlford	N/A	N/A	N/A
0.3Q2	C	Steep	L Wohlford	N/A	N/A	N/A
0.3Q2	D	Flat	L Wohlford	N/A	N/A	N/A
0.3Q2	D	Moderate	L Wohlford	N/A	N/A	N/A
0.3Q2	D	Steep	L Wohlford	N/A	N/A	N/A
0.1Q2	A	Flat	Lindbergh	0.040	0.1040	N/A
0.1Q2	A	Moderate	Lindbergh	0.040	0.1040	N/A
0.1Q2	A	Steep	Lindbergh	0.035	0.0910	N/A
0.1Q2	B	Flat	Lindbergh	0.058	0.1495	N/A
0.1Q2	B	Moderate	Lindbergh	0.055	0.1430	N/A
0.1Q2	B	Steep	Lindbergh	0.050	0.1300	N/A
0.1Q2	C	Flat	Lindbergh	N/A	N/A	N/A
0.1Q2	C	Moderate	Lindbergh	N/A	N/A	N/A
0.1Q2	C	Steep	Lindbergh	N/A	N/A	N/A
0.1Q2	D	Flat	Lindbergh	N/A	N/A	N/A
0.1Q2	D	Moderate	Lindbergh	N/A	N/A	N/A
0.1Q2	D	Steep	Lindbergh	N/A	N/A	N/A
0.1Q2	A	Flat	Oceanside	0.045	0.1170	N/A
0.1Q2	A	Moderate	Oceanside	0.045	0.1170	N/A
0.1Q2	A	Steep	Oceanside	0.040	0.1040	N/A
0.1Q2	B	Flat	Oceanside	0.065	0.1690	N/A
0.1Q2	B	Moderate	Oceanside	0.065	0.1690	N/A
0.1Q2	B	Steep	Oceanside	0.060	0.1560	N/A
0.1Q2	C	Flat	Oceanside	N/A	N/A	N/A
0.1Q2	C	Moderate	Oceanside	N/A	N/A	N/A
0.1Q2	C	Steep	Oceanside	N/A	N/A	N/A
0.1Q2	D	Flat	Oceanside	N/A	N/A	N/A
0.1Q2	D	Moderate	Oceanside	N/A	N/A	N/A
0.1Q2	D	Steep	Oceanside	N/A	N/A	N/A
0.1Q2	A	Flat	L Wohlford	0.050	0.1300	N/A
0.1Q2	A	Moderate	L Wohlford	0.050	0.1300	N/A

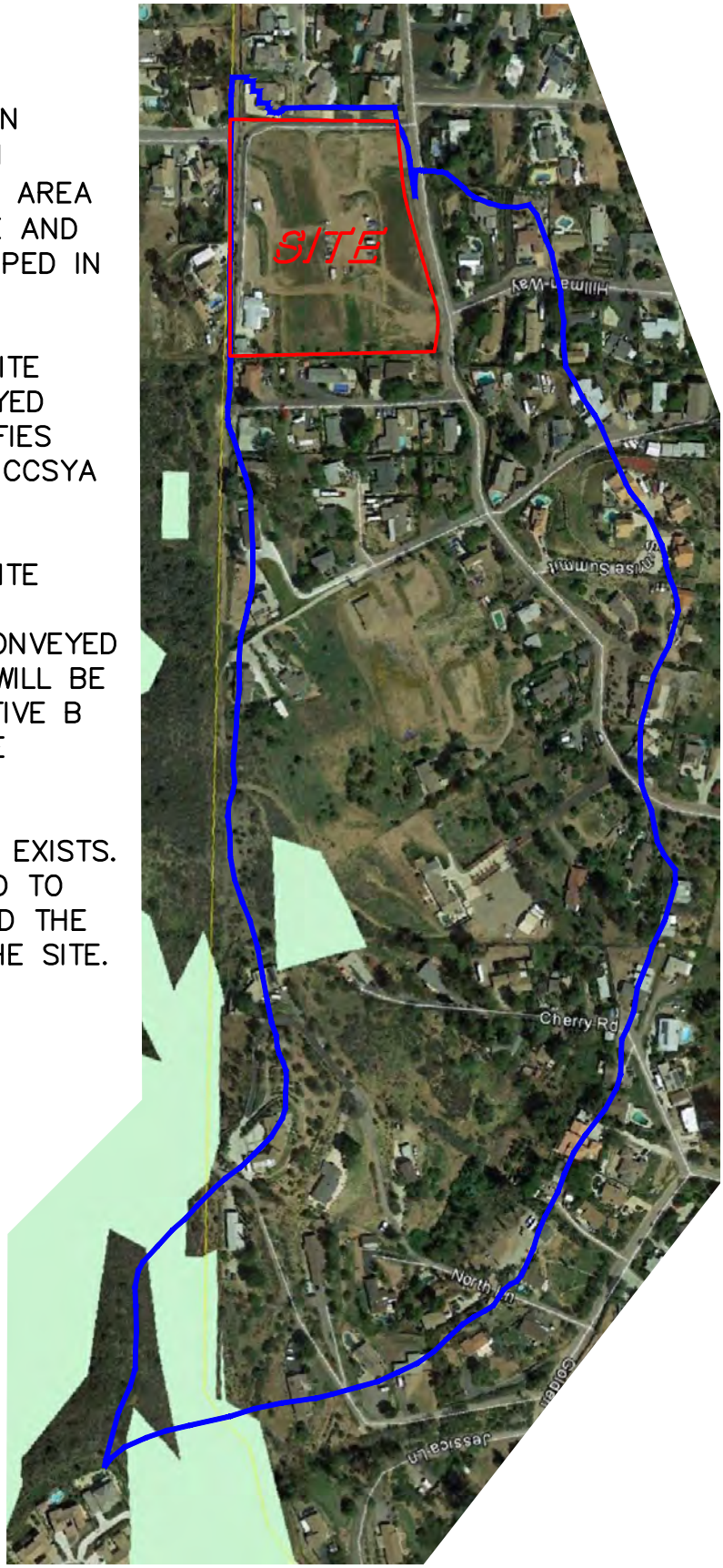
ATTACHMENT 2b

Hydromodification Management Exhibit
(Combined with Attachment 1c)

THE GREEN SHADED CCSYA'S SHOWN HEREON ARE FROM PROJECT CLEAN WATER'S KMZ DATA. THE DRAINAGE AREA TRIBUTARY TO THE SITE IS IN BLUE AND THE SITE IS IN RED. CCSYA IS MAPPED IN THE UPPER OFF-SITE WATERSHED.

UNDER ALTERNATIVE A, THE OFF-SITE 100-YEAR RUNOFF WILL BE CONVEYED THROUGH THE SITE, SO THIS SATISFIES THE REQUIREMENT FOR CONVEYING CCSYA THROUGH THE SITE.

UNDER ALTERNATIVE B, THE OFF-SITE RUNOFF WILL ENTER A PROPOSED DETENTION BASIN BEFORE BEING CONVEYED THROUGH THE SITE. THE PROJECT WILL BE CONDITIONED SO THAT IF ALTERNATIVE B IS SELECTED, THE PROJECT WILL BE SUBJECT TO BMP DESIGN MANUAL APPENDIX H. THIS COULD INVOLVE VERIFYING WHETHER CCSYA REALLY EXISTS. IF SO, A BYPASS CAN BE DESIGNED TO CONVEY THE BED MATERIAL AROUND THE DETENTION BASIN AND THROUGH THE SITE.



1" = 400'

0 400

ATTACHMENT 2c

CRITICAL COURSE SEDIMENT YIELD AREAS

ATTACHMENT 3

Structural BMP Maintenance Information

This is the cover sheet for Attachment 3.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Plan (Required)	☒ Included See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Stormwater Maintenance Notification / Agreement (when applicable)	☐ Included ☒ Not Applicable

ATTACHMENT 3a

Structural BMP Maintenance Plan

STRUCTURAL BMP MAINTENANCE PLAN

The developer will be responsible for the initial funding, construction, and implementation as well the operations and maintenance of the project's on-site biofiltration BMPs. A homeowner's association, once established, will be responsible for ongoing operations and maintenance. The following describes the specific BMP maintenance.

Biofiltration/Infiltration Basin
Biofiltration basins are shallow, vegetated basins underlain by an engineered soil media and gravel. Healthy plant and biological activity in the root zone maintain and renew the macro-pore space in the soil and maximize plant uptake of pollutants and runoff. This keeps the BMP from becoming clogged and allows more of the soil column to function as both a sponge (retaining water) and a highly effective and self-maintaining biofilter. Infiltration basins area similar, but do not have the gravel (or underdrain).

Regular maintenance is critical to the successful operation of biofiltration and infiltration basins. Recommended operation and maintenance guidelines include:

- The landscape maintenance staff shall inspect each basin during routine weekly landscaping maintenance visits. Access will be from adjacent unpaved access, landscape areas, or paved areas. The vegetation shall be replanted, trimmed, pruned, removed, as needed, to maintain proper coverage and growth. The irrigation system shall be maintained, as needed.

- Inspections and maintenance to ensure that water infiltrates into the subsurface completely within 24 hours or less (up to 96 hours is allowed at the discretion of the County if certified by a landscape architect or agronomist), and that vegetation is carefully managed to prevent creating mosquito and other vector habitats.

- Observe drain time for the design storm after completion or modification of the facility to confirm that the desired drain time has been obtained.

- Schedule semi-annual inspections for beginning and end of the wet season to identify potential problems such as erosion of the basin side slopes and invert, standing water, trash and debris, and sediment accumulation. The overflow facilities shall also be inspected to ensure proper functioning.

- Remove accumulated trash and debris in the basin at the start and end of the wet season.

- Inspect for standing water at the end of the wet season.

- Trim vegetation at the beginning and end of the wet season to prevent establishment of woody vegetation and for aesthetic and vector reasons.

- Remove accumulated sediment and regrade when the accumulated sediment volume exceeds 10% of the basin.

- If erosion is occurring within the basin, revegetate immediately and stabilize with an erosion control mulch or mat until vegetation cover is established.

- To avoid reversing soil development, scarification or other disturbance should only be performed when there are actual signs of clogging, rather than on a routine basis. Always remove deposited sediments before scarification, and use a hand-guided rotary tiller, if possible, or a disc harrow pulled by a very light tractor.

Pre-Treatment Curb Inlet Filters

Curb inlet filters will be installed in each of the three curb inlets tributary to the infiltration basin. The filters will be selected during final engineering and must meet the *BMP Design Manual's* requirements for TSS removal. The maintenance must follow the manufacturer's guidelines and is anticipated to include routine inspection, cleaning, and/or replacement of the filter element.

E.13 INF-1 Infiltration Basin

MS4 Permit Category
Retention

Manual Category
Infiltration

Applicable Performance Standard
Pollutant Control
Flow Control

Primary Benefits
Volume Reduction
Peak Flow Attenuation

Photo Credit: http://www.storm waterpartners.com/facilities/basin.html

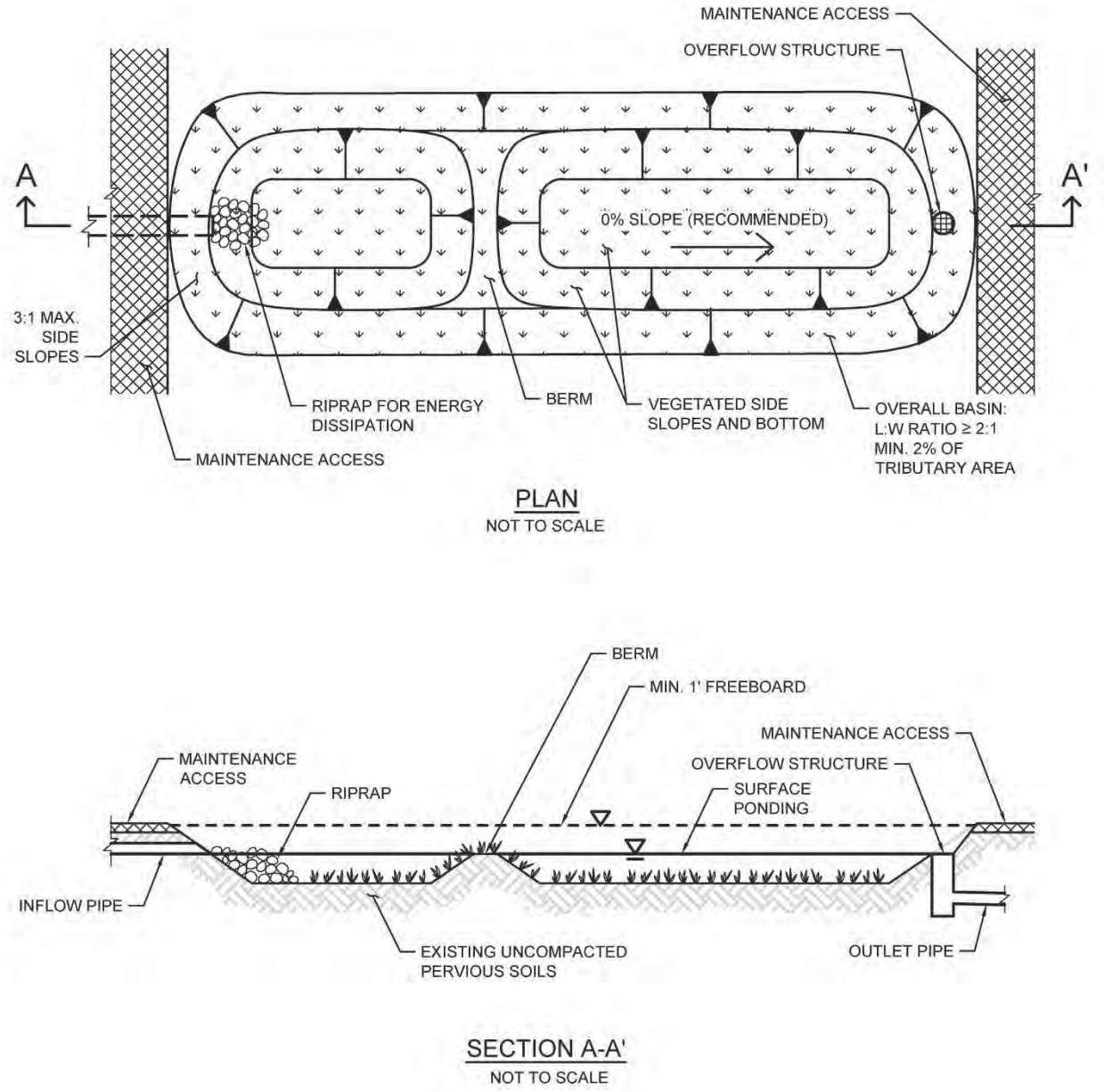
Description

An infiltration basin typically consists of an earthen basin with a flat bottom constructed in naturally pervious soils. An infiltration basin retains storm water and allows it to evaporate and/or percolate into the underlying soils. The bottom of an infiltration basin is typically vegetated with native grasses or turf grass; however other types of vegetation can be used if they can survive periodic inundation and long inter-event dry periods. Treatment is achieved primarily through infiltration, filtration, sedimentation, biochemical processes and plant uptake. Infiltration basins can be constructed as linear **trenches** or as **underground infiltration galleries**.

Typical infiltration basin components include:

- Inflow distribution mechanisms (e.g., perimeter flow spreader or filter strips)
- Energy dissipation mechanism for concentrated inflows (e.g., splash blocks or riprap)
- Forebay to provide pretreatment surface ponding for captured flows
- Vegetation selected based on basin use, climate, and ponding depth
- Uncompacted native soils at the bottom of the facility

- Overflow structure



Typical plan and section view of an Infiltration BMP

Design Adaptations for Project Goals

Full infiltration BMP for storm water pollutant control. Infiltration basins can be used as a pollutant control BMP, designed to infiltrate runoff from direct rainfall as well as runoff from adjacent areas that are tributary to the BMP. Infiltration basins must be designed with an infiltration storage volume (a function of the surface ponding volume) equal to the full DCV and able to meet drawdown time limitations.

Integrated storm water flow control and pollutant control configuration. Infiltration basins can also be designed for flow rate and duration control by providing additional infiltration storage through increasing the surface ponding volume.

Design Criteria and Considerations

Infiltration basins must meet the following design criteria. Deviations from the below criteria may be approved at the discretion of County staff if it is determined to be appropriate:

	Siting and Design	*Intent/Rationale*
☐	Placement observes geotechnical recommendations regarding potential hazards (e.g., slope stability, landslides, liquefaction zones) and setbacks (e.g., slopes, foundations, utilities).	Must not negatively impact existing site geotechnical concerns.
☐	Selection and design of basin is based on infiltration feasibility criteria and appropriate design infiltration rate (See Appendix C and D).	Must operate as a full infiltration design and must be supported by drainage area and in-situ infiltration rate feasibility findings.
☐	Finish grade of the facility is ≤ 2% (0% recommended).	Flatter surfaces reduce erosion and channelization with the facility.
☐	Settling forebay has a volume ≥ 25% of facility volume below the forebay overflow.	A forebay to trap sediment can decrease frequency of required maintenance.
☐	Infiltration of surface ponding is limited to a 36-hour drawdown time.	Prolonged surface ponding reduces volume available to capture subsequent storms. The applicant has an option to use a surface drawdown time of up to 96 hours if the volume of the facility is adjusted using the percent capture method in Appendix B.4.1.
☐	Minimum freeboard provided is ≥1 foot.	Freeboard minimizes risk of uncontrolled surface discharge.
☐	Side slopes are = 3H:1V or shallower.	Gentler side slopes are safer, less prone to erosion, able to establish vegetation more quickly and easier to maintain.

Inflow and Overflow Structures		
☐	Inflow and outflow structures are accessible by required equipment (e.g., vactor truck) for inspection and maintenance.	Maintenance will prevent clogging and ensure proper operation of the flow control structures.
☐	Inflow velocities are limited to 3 ft/s or less or use energy dissipation methods (e.g., riprap, level spreader) for concentrated inflows.	High inflow velocities can cause erosion, scour and/or channeling.
☐	Overflow is safely conveyed to a downstream storm drain system or discharge point. Size overflow structure to pass 100-year peak flow for on-line basins and water quality peak flow for off-line basins.	Planning for overflow lessens the risk of property damage due to flooding.

Conceptual Design and Sizing Approach for Storm Water Pollutant Control

To design infiltration basins for storm water pollutant control only (no flow control required), the following steps should be taken:

1. Verify that siting and design criteria have been met, including placement and basin area requirements, forebay volume, and maximum slopes for basin sides and bottom.
2. Calculate the DCV per Appendix B based on expected site design runoff for tributary areas.
3. Use the sizing worksheet (Appendix B.4) to determine if full infiltration of the DCV is achievable based on the infiltration storage volume calculated from the surface ponding area and depth for a maximum 36-hour drawdown time. The drawdown time can be estimated by dividing the average depth of the basin by the design infiltration rate. Appendix D provides guidance on evaluating a site's infiltration rate.

Conceptual Design and Sizing Approach for Storm Water Pollutant Treatment and Flow Control

Control of flow rates and/or durations will typically require significant surface ponding volume, and therefore the following steps should be taken prior to determination of storm water pollutant control design. Pre-development and allowable post-project flow rates and durations should be determined as discussed in Chapter 6 of the manual.

1. Verify that siting and design criteria have been met, including placement and basin area requirements, forebay volume, and maximum slopes for basin sides and bottom.

2. Iteratively determine the surface ponding required to provide infiltration storage to reduce flow rates and durations to allowable limits while adhering to the maximum 36-hour drawdown time. Flow rates and durations can be controlled using flow splitters that route the appropriate inflow amounts to the infiltration basin and bypass excess flows to the downstream storm drain system or discharge point.
3. If an infiltration basin cannot fully provide the flow rate and duration control required by this manual, an upstream or downstream structure with appropriate storage volume such as an underground vault can be used to provide additional control.
4. After the infiltration basin has been designed to meet flow control requirements, calculations must be completed to verify if storm water pollutant control requirements to treat the DCV have been met.

ATTACHMENT 4

County of San Diego PDP Structural BMP Verification for Permitted Land Development Projects

County of San Diego BMP Design Manual Verification Form	
Project Summary Information	
Project Name	Germann Tentative Subdivision Map
Record ID (e.g., grading/improvement plan number)	Tract No. 5520 RPL 1
Project Address	West side of Westhill Road at Hillman Way Lakeside, CA 92040
Assessor's Parcel Number(s) (APN(s))	

382-121-05

Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	San Diego Hydrologic Unit, 907.00; Lower San Diego Hydrologic Area, 907.10; Santee Hydrologic Subarea, 907.12
Responsible Party for Construction Phase	
Developer's Name	Robert Germann
Address	9111 Hillman Way Lakeside, CA 92040
Email Address	regermann@hotmail.com
Phone Number	(619) 654-0758
Engineer of Work	Farrington Engineering Consultants
Engineer's Phone Number	(858) 675-9490
Responsible Party for Ongoing Maintenance	
Owner's Name(s)*	Robert Germann until HOA formed
Address	9111 Hillman Way Lakeside, CA 92040
Email Address	regermann@hotmail.com
Phone Number	(619) 654-0758
*Note: If a corporation or LLC, provide information for principal partner or Agent for Service of Process. If an HOA, provide information for the Board or property manager at time of project closeout.	

County of San Diego BMP Design Manual Verification Form Page 2 of 4					
Stormwater Structural Pollutant Control & Hydromodification Control BMPs* (List all from SWQMP)					
Description/Type of Structural BMP	**Plan Sheet #**	**STRUCT-URAL BMP ID#**	**Maint-enance Category**	**Maintenance Agreement Recorded Doc #**	**Revisions**
Infiltration basin	1	1	2	TBD	
*All Priority Development Projects (PDPs) require a Structural BMP					

Note: If this is a partial verification of Structural BMPs, provide a list and map denoting Structural BMPs that have already been submitted, those for this submission, and those anticipated in future submissions.

County of San Diego BMP Design Manual Verification Form Page 3 of 4

Checklist for Applicant to submit to PDCI:

- ☐ Copy of the final accepted SWQMP and any accepted addendum.
- ☐ Copy of the most current plan showing the Stormwater Structural BMP Table, plans/cross-section sheets of the Structural BMPs and the location of each verified as-built Structural BMP.
- ☐ Photograph of each Structural BMP.
- ☐ Photograph(s) of each Structural BMP during the construction process to illustrate proper construction.
- ☐ Copy of the approved Structural BMP maintenance agreement and associated security

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

Please sign your name and seal.

Professional Engineer's Printed Name:

To Be Determined During Final Engineering

Professional Engineer's Signed Name:

[SEAL]

Date:

County of San Diego BMP Design Manual Verification Form Page 4 of 4

COUNTY - OFFICIAL USE ONLY:

For PDCI: Verification Package #: _____

PDCI Inspector: _____

Date Project has/expects to close: _____

Date verification received from EOW: _____

By signing below, PDCI Inspector concurs that every noted Structural BMP has been installed per plan.

PDCI Inspector's Signature: _____ Date: _____

FOR WPP:

Date Received from PDCI: _____

WPP Submittal Reviewer: _____

WPP Reviewer concurs that the information provided for the following Structural BMPs is acceptable to enter into the Structural BMP Maintenance verification inventory:

List **acceptable** Structural BMPs:

WPP Reviewer's Signature: _____ Date: _____

ATTACHMENT 5

Copy of Plan Sheets Showing Permanent Storm Water BMPs, Source Control, and Site Design

ATTACHMENT 6

Copy of Project's Drainage Report

This is the cover sheet for Attachment 6.

If hardcopy or CD is not attached, the following information should be provided:

Title: CEQA Drainage Study for Germann Tentative Subdivision Map
Prepared By: Chang Consultants
Date: December 14, 2016

ATTACHMENT 7

Copy of Project's Geotechnical and Groundwater Investigation Report

This is the cover sheet for Attachment 7.

If hardcopy or CD is not attached, the following information should be provided:

Title: Project is merely being entitled. A detailed soils investigation will be prepared during final engineering.
Prepared By:
Date: