

STORMWATER CONTROL PLAN

for

Sorrento Village

City of Antioch, CA

March 7, 2024

Prepared for:

**Legacy Builders, Inc.
4021 Port Chicago Highway
Concord, CA 94520**

Prepared by:

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TABLE OF CONTENTS

I.	Project Data	3
II.	Setting	4
II.A.	Project Location and Description	4
II.B.	Existing Site Features and Conditions	4
II.C.	Opportunities and Constraints for Stormwater Control	4
III.	Low Impact Development Design Strategies	4
III.A.	Optimization of Site Layout	4
III.B.	Use of Permeable Pavements	4
III.C.	Dispersal of Runoff to Pervious Areas	4
III.D.	Bioretention or other Integrated Management Practices	4
IV.	Documentation of Drainage Design	5
IV.A.	Descriptions of each Drainage Management Area	5
IV.A.1.	Table of Drainage Management Areas	5
IV.A.2.	Drainage Management Area Descriptions	5
IV.B.	Integrated Management Practice Descriptions	5
IV.C.	Flow Control	6
V.	Tabulation and sizing calculations	6
V.A.	Areas Draining to IMPs	6
VI.	Source Control Measures	7
VI.A.	Site activities and potential sources of pollutants	7
VI.B.	Source Control Table	7
VI.C.	Features, Materials, and Methods of Construction of Source Control BMPs	8
VII.	Stormwater Facility Maintenance	8
VII.A.	Ownership and Responsibility for Maintenance in Perpetuity	8
VII.B.	Summary of Maintenance Requirements for Each Stormwater Facility	8
	Following Significant Rain Events	8
	Prior to the Start of the Rainy Season	9
	Annually During Winter	9
VIII.	Certifications	9

Tables

Table 1 Project Data	3
Table 2 Drainage Management Areas	5
Table 3 Information Summary for IMP Design	6
Table 4 Drainage Management Area Summary	6
Table 5 Source Controls	7

Attachments

Vicinity Map

Existing Conditions Exhibit

Bioretention/Hydromodification Basin Section

Stormwater Control Plan Sheet

Contra Costa County Clean Water Program IMP Sizing Tool Report

I. PROJECT DATA

Table 1 Project Data

Project Name/Number	Sorrento Village
Project Location	APN 076-021-018, 076-021-017 Antioch, CA 94509
Name of Developer	Legacy Builders, Inc.
Project Phase No.	NA
Project Type and Description	124 Single family homes
Total Project Site Area (acres)	20.63 Acres
Total Area of Land Disturbed (acres)	15.43 Acres
Total New Impervious Surface Area (sq. ft.)	380,457 sq. ft.
Total Replaced Impervious Surface Area	5,070 sq. ft.
Total Pre-Project Impervious Surface Area	17,100 sq. ft.
Total Post-Project Impervious Surface Area	380,457 sq. ft.
50% Rule[*]	Applies
Project Density	6.01 DU/Ac.
Applicable Special Project Categories [Complete even if all treatment is LID]	None
Percent LID and non-LID treatment	100% LID
HM Compliance [†]	Applies

[*50% rule applies if: Total Replaced Impervious Surface Area > 0.5 x Pre-Project Impervious Surface Area]

[†HM required (unless project meets one of the exemptions on *Guidebook* p. 9) if:
(Total New Impervious Surface Area + Total Replaced Impervious Surface Area) ≥ 1 acre]

II. SETTING

II.A. Project Location and Description

The site is located north of James Donlon Boulevard in Antioch, CA spanning between the intersection of Pintail Drive and Hummingbird Drive. This 20.2-acre site consists of two parcels containing 95 proposed single-family homes. All treatment and detention will be self-contained via one proposed water quality/flow control basin on the east side of the property.

II.B. Existing Site Features and Conditions

The site is undeveloped and located on hilly terrain with slopes as steep as 2:1 falling northeast with a grade differential of approximately 87 feet. Along the center of the site is a concrete ditch running north and then along the property line. North of this concrete ditch is an earthen swale. Aside from an access road extending from Pintail drive, the site is vacant and covered in vegetation. There is an existing 36-inch drain line and a 8-inch sewer line flowing north along the east side of the site.

II.C. Opportunities and Constraints for Stormwater Control

The site consists of clay loam and is located on steep terrain, making it difficult to have level areas for stormwater quality. Walls will need to be used to create a level open space area for stormwater quality. However, the steep terrain does provide sufficient hydraulic head for a storm drain system.

III. LOW IMPACT DEVELOPMENT DESIGN STRATEGIES

III.A. Optimization of Site Layout

The steep terrain limits the area that can be developed, leaving portions of the site for open space areas. The streets and hardscape are also designed to the minimum required by the City of Antioch in order to minimize impervious area.

III.B. Use of Permeable Pavements

The use of permeable pavements was not used in this development due to cost constraints and geotechnical considerations.

III.C. Dispersal of Runoff to Pervious Areas

The proposed development will have paved walkways that will slope towards landscaped areas where feasible.

III.D. Bioretention or other Integrated Management Practices

Runoff from houses will be directed towards the streets where it will be collected by drain inlets, ultimately discharging to the bioretention basin.

IV. DOCUMENTATION OF DRAINAGE DESIGN

IV.A. Descriptions of each Drainage Management Area

IV.A.1. Table of Drainage Management Areas

Table 2 Drainage Management Areas

<i>DMA Name</i>	<i>Area (SF)</i>	<i>Surface Type/Description</i>	<i>DMA Type/Drains to</i>
DMA 1A	215,387	Pavement	Bioretention IMP 1
DMA 1B	165,070	Roof	
DMA 1C	226,579	Self-Treating Landscape	
DMA 1D	240,445	Landscape	

IV.A.2. Drainage Management Area Descriptions

DMA 1, totaling 671,933 square feet, drains roadways, sidewalk, roof, and landscape to IMP 1 via road gutter and storm drain.

IV.B. Integrated Management Practice Descriptions

Runoff from the project site will be collected by a storm drain system and routed to bioretention facilities. The bioretention facilities will be constructed according to the criteria in the *Contra Costa Cleanwater Program C.3 Guidebook, 7th Edition*.

IV.C. Flow Control

This project is subject to hydromodification and Contra Costa County IMP Sizing Calculator was used for sizing calculations. The existing condition consists solely of undeveloped open space. The proposed development will use water quality/flow-control basins with metered outlets to mitigate flow to pre-development conditions.

V. TABULATION AND SIZING CALCULATIONS

Table 3 Information Summary for IMP Design

Total Project Area Requiring Treatment (SF)	671,933
Mean Annual Precipitation	14.0
IMP Designed For:	Treatment Plus Flow Control

V.A. Areas Draining to IMPs

Table 4 Drainage Management Area Summary

DMA	Total Drainage Area (SF)	Total Impervious Area (SF)	Total Pervious Area (SF)	Effective Impervious Area (SF)	Required Treatment (4%) (SF)	Provided Treatment Area (SF)	Required Flow-Control Volume (CF)	Provided Flow-Control Volume (CF)
1	898,512	380,457	467,024	427,024	17,086	40,613	36,870	40,613

VI. SOURCE CONTROL MEASURES

VI.A. Site activities and potential sources of pollutants

VI.B. Source Control Table

Table 5 Source Controls

Potential source of runoff pollutants

Permanent source control BMPs

Operational source control BMPs

On-site storm drain inlets	Mark all inlets with the words “No Dumping! Flows to Creek”	<p>Maintain and periodically repaint or replace inlet markings.</p> <p>Provide stormwater pollution prevention information to new site owners, lessees, or operators.</p> <p>See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com</p> <p>Include the following in lease agreements: “Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential</p>
Landscape/ Outdoor Pesticide Use	<p>Final landscape plans will include:</p> <p>Landscape design to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.</p> <p>Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.</p> <p>Specify pest-resistant plants, especially adjacent to hardscape.</p> <p>Insure successful establishment by selecting plants appropriate to site soils, slopes, climate, sun, wind, rain,</p>	<p>Maintain landscaping using minimum or no pesticides.</p> <p>See applicable operational BMPs in Fact Sheet SC-41, “Building and Grounds Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com</p> <p>Provide IPM information to new owners, lessees and operators.</p>

	land use, air movement, ecological consistency, and plant interactions.	
Vehicle Cleaning, Repair and Maintenance	No vehicle repair or maintenance will be done outdoors Management to prohibit on-site car washing.	No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinse water from parts cleaning into storm drains. No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately. No person shall leave unattended drip parts or other open containers containing vehicle fluid.
Private Streets		Provide street sweeping on a regular basis to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect wash water containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

VI.C. Features, Materials, and Methods of Construction of Source Control BMPs

Source Control BMP's will be constructed per City of Antioch Standards. Drainage inlets will conform to city specifications and will be marked for no dumping. The proposed landscaped design will minimize irrigation and will maintain all native trees and shrubs where possible. Trees and shrubs will be selected based on suitability in the climate and soil conditions.

VII. STORMWATER FACILITY MAINTENANCE

VII.A. Ownership and Responsibility for Maintenance in Perpetuity

Proper operation and maintenance of stormwater management facilities will be the responsibility of the project **Home Owner's Association (HOA)** in perpetuity.

The applicant will prepare and submit, for the City's review, an acceptable Stormwater Control Operation and Maintenance Plan prior to the completion of construction.

VII.B. Summary of Maintenance Requirements for Each Stormwater Facility

The bioretention facilities will be maintained on the following schedule at a minimum. Details of maintenance responsibilities and procedures will be included in a Stormwater Facility Operation and Maintenance Plan. At no time will synthetic pesticides or fertilizers be applied, nor will any soil amendments, other than aged compost mulch or sand/compost mix, be introduced.

Weekly: The facilities will be examined for visible trash, and trash will be removed. Any graffiti, vandalism, or other damage will be noted and addressed within 48 hours.

Following Significant Rain Events

A significant rain event is one that produces approximately a half-inch or more rainfall in a 24-hour period. Within 24 hours after each such event, the following will be conducted:

- The surface of the facility will be observed to confirm ponding is not prolonged.
- The surface of the mulch layer will be inspected for movement of material. Mulch will be replaced and raked smooth if needed.
- Inlets will be inspected, and any accumulations of trash or debris will be removed. Any erosion at inlets should be restored to grade.
- Side slopes, if any, will be inspected for evidence of instability or erosion, and corrections will be made as necessary.
- Check dams will be inspected for movement and corrections made as necessary.
- Outlet structures will be inspected for any obstructions.

Prior to the Start of the Rainy Season

In September of each year, facility inlets and outlets, including flow-control orifices, will be inspected to confirm there is no accumulation of debris that would block flow. Stormwater should drain freely into the bioretention facilities.

If not previously addressed during monthly maintenance, any growth and spread of plantings that blocks inlets or the movement of runoff across the surface of the facility will be cut back or removed.

Annually During Winter

Once, in December – February of each year, vegetation will be cut back as needed, debris removed, and plants and mulch replaced as needed. The concrete work will be inspected for damage. The elevation of the top of soil and mulch layer will be confirmed to be consistent with the 6-inch reservoir depth.

VIII. CERTIFICATIONS

The selection, sizing, and preliminary design of stormwater treatment and other control measures in this plan meet the requirements of Regional Water Quality Control Board Order R2-2015-0049.

By

Print Name

ATTACHMENTS

VICINITY MAP

SORRENTO VILLAGE

ANTIOCH

CALIFORNIA

MAY 2023



WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
4670 WILLOW ROAD, STE 125 TEL 925.847.1556
PLEASANTON, CA 94588 FAX 925.847.1557

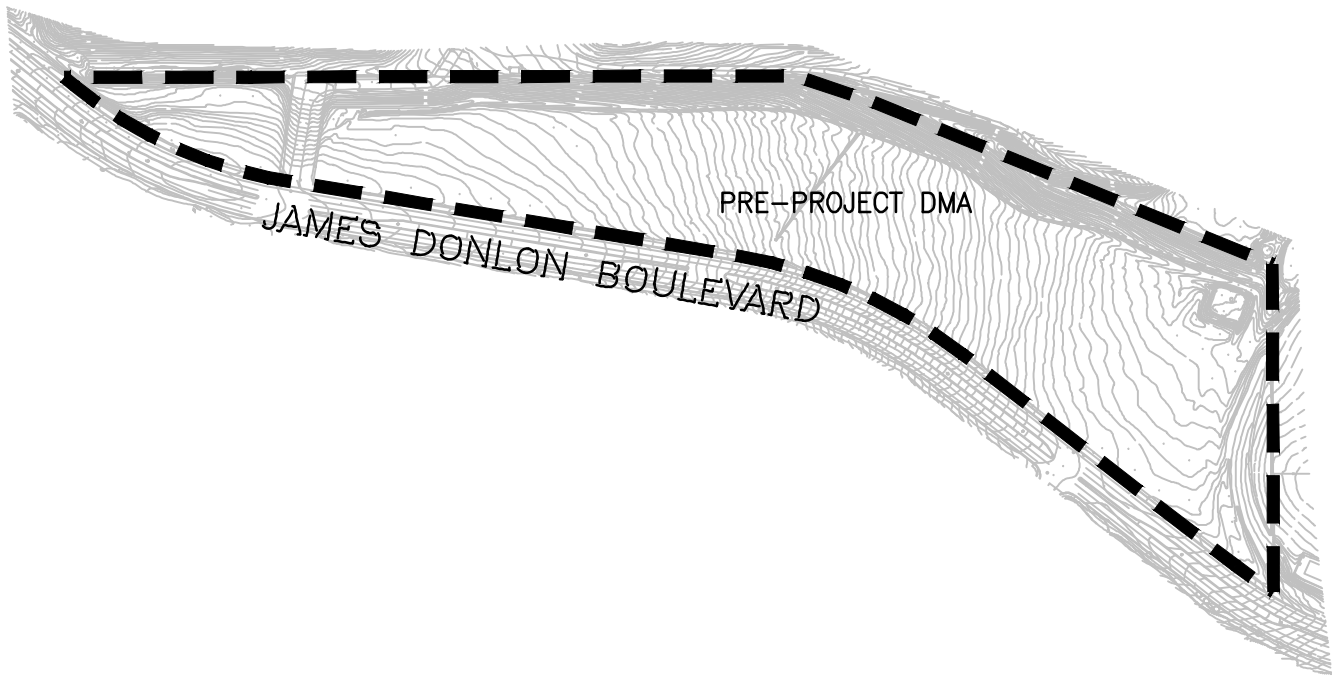
EXISTING CONDITIONS EXHIBIT

SORRENTO VILLAGE

ANTIOCH

CALIFORNIA

MAY 2023



JAMES DONLON BOULEVARD

PRE-PROJECT DMA

400' 200' 0 400'



SCALE: 1" = 400'

LEGEND

■ ■ ■ DMA AREA



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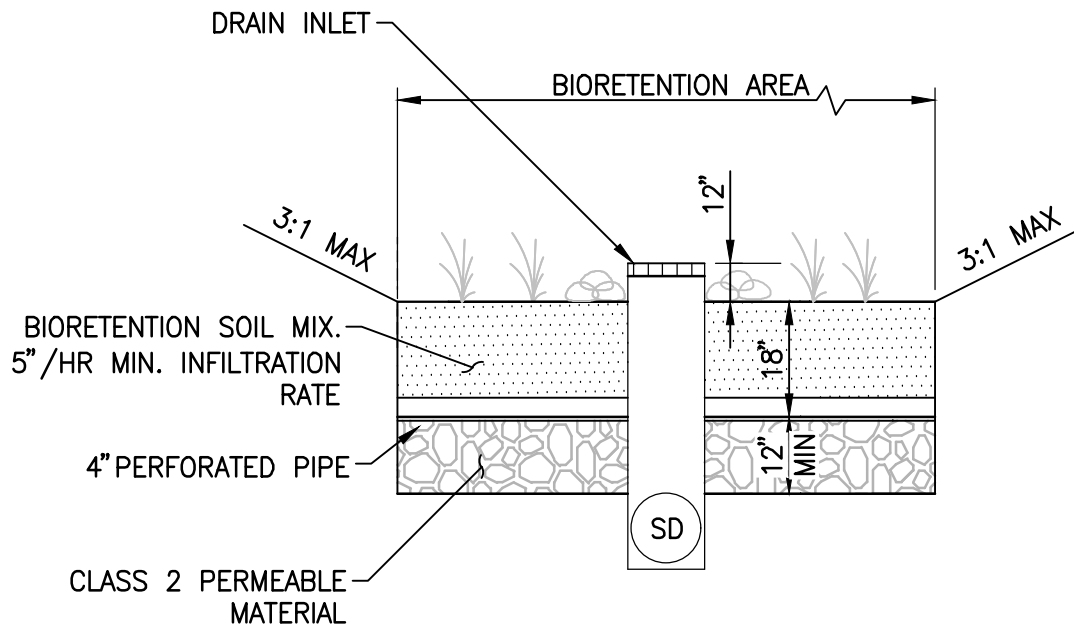
BIORETENTION/HYDROMODIFICATION BASIN SECTION

SORRENTO VILLAGE

ANTIOCH

CALIFORNIA

MAY 2023



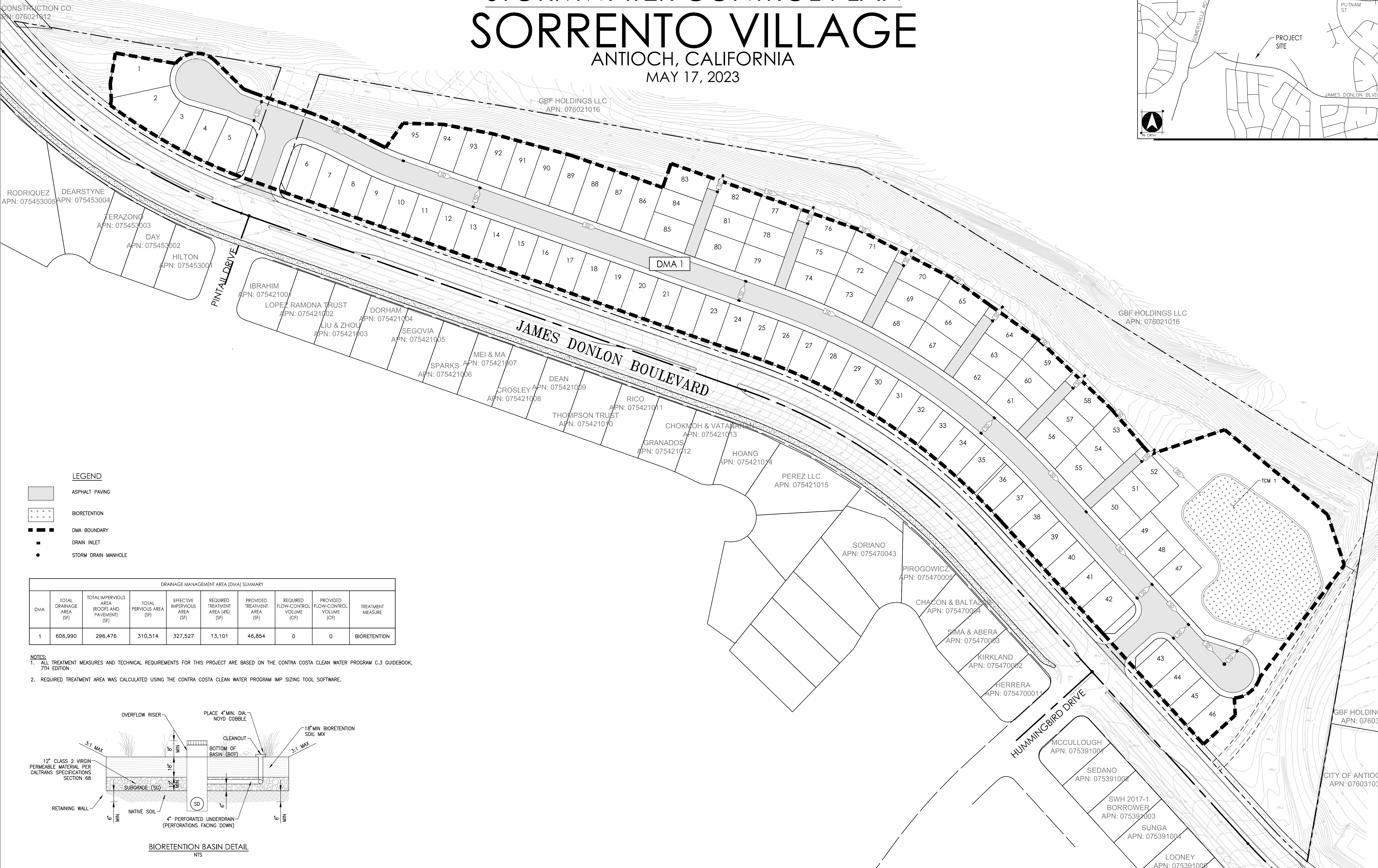
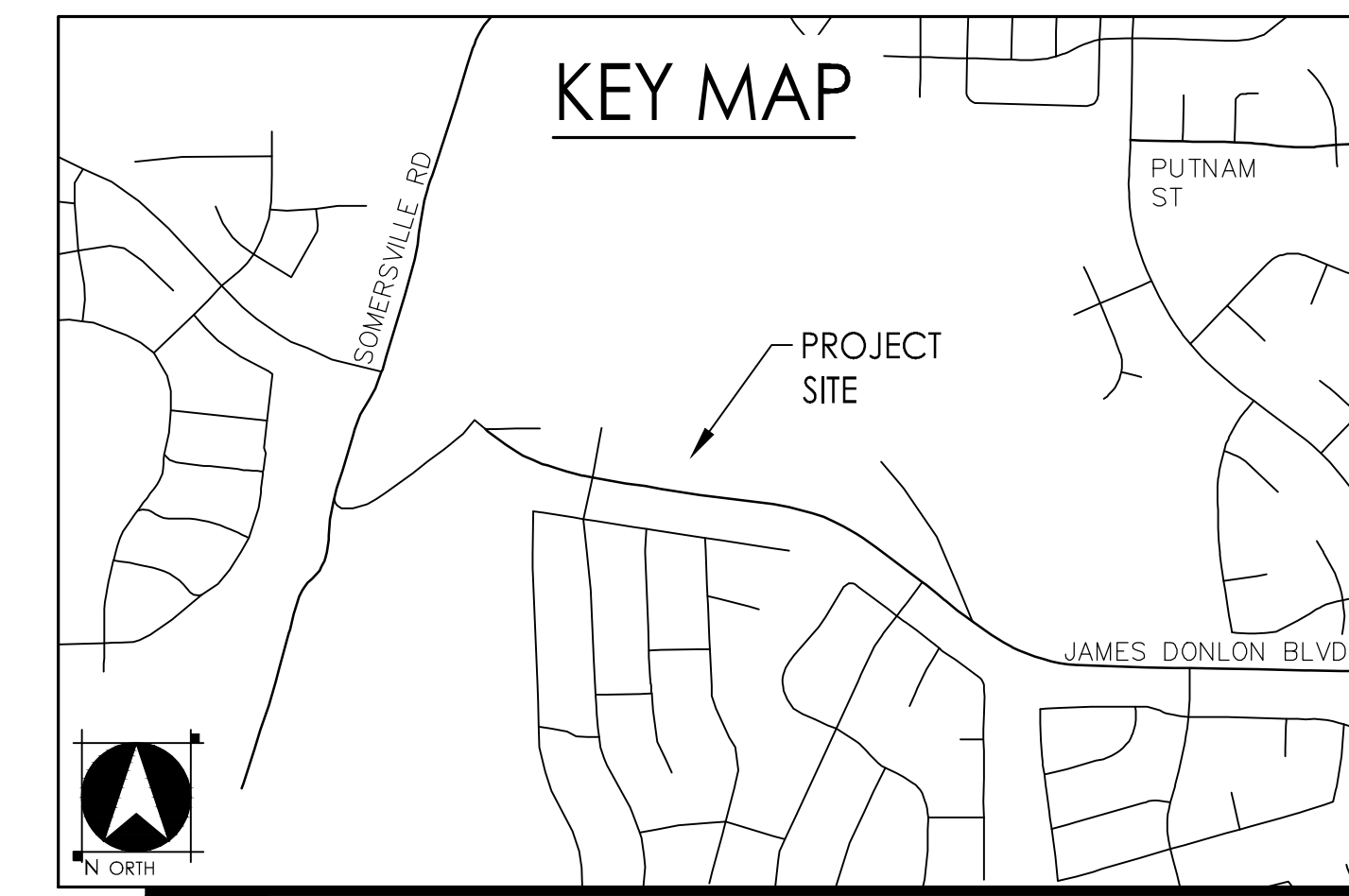
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STORMWATER CONTROL PLAN

SORRENTO VILLAGE

ANTIOCH, CALIFORNIA
MAY 17, 2023

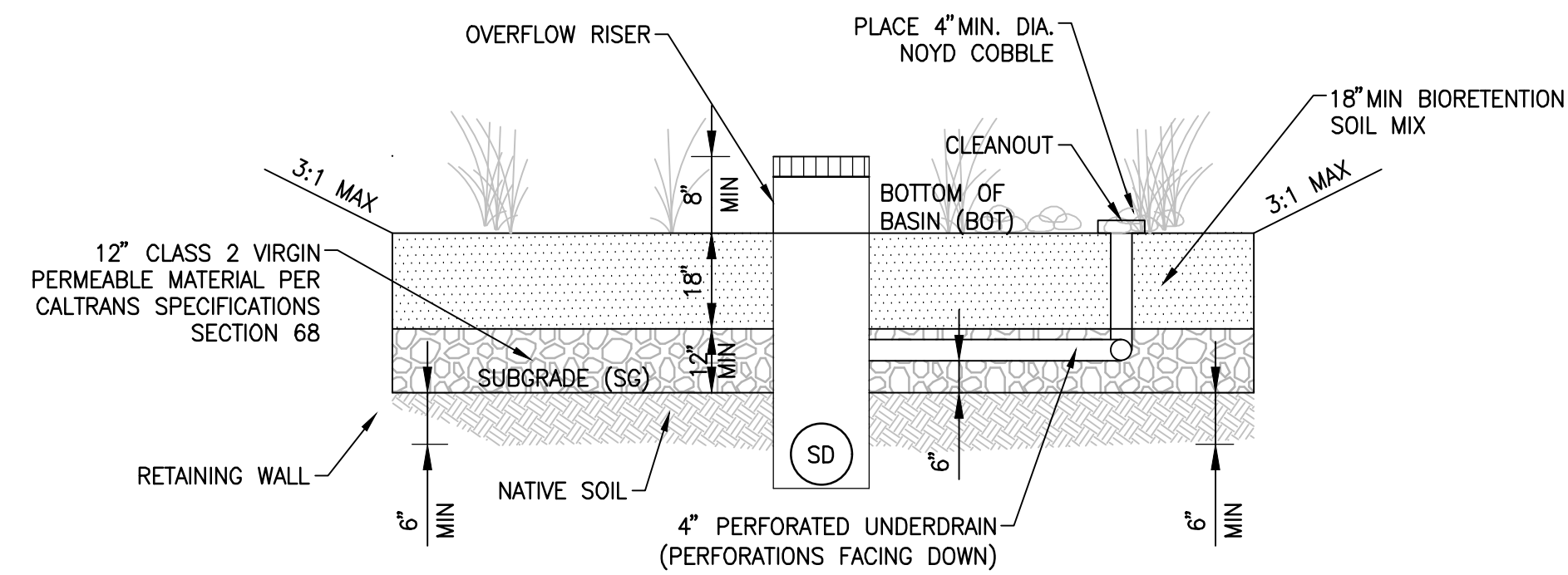


LEGEND

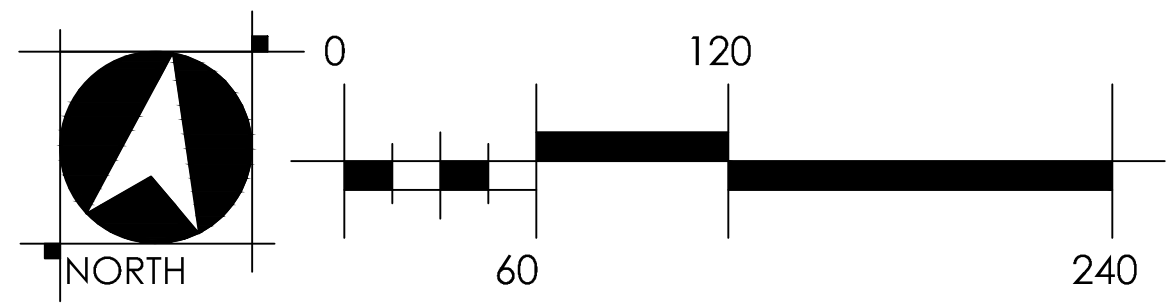
- ASPHALT PAVING
- BIORETENTION
- DMA BOUNDARY
- DRAIN INLET
- STORM DRAIN MANHOLE

DRAINAGE MANAGEMENT AREA (DMA) SUMMARY									
DMA	TOTAL DRAINAGE AREA (SF)	TOTAL IMPERVIOUS AREA (ROOFS AND PAVEMENT) (SF)	TOTAL PERVIOUS AREA (SF)	EFFECTIVE IMPERVIOUS AREA (SF)	REQUIRED TREATMENT AREA (4%) (SF)	PROVIDED TREATMENT AREA (SF)	REQUIRED FLOW-CONTROL VOLUME (CF)	PROVIDED FLOW-CONTROL VOLUME (CF)	TREATMENT MEASURE
1	606,990	296,476	310,514	327,527	13,101	46,854	0	0	BIORETENTION

- NOTES:**
- ALL TREATMENT MEASURES AND TECHNICAL REQUIREMENTS FOR THIS PROJECT ARE BASED ON THE CONTRA COSTA CLEAN WATER PROGRAM C.3 GUIDEBOOK, 7TH EDITION.
 - REQUIRED TREATMENT AREA WAS CALCULATED USING THE CONTRA COSTA CLEAN WATER PROGRAM IMP SIZING TOOL SOFTWARE.



BIORETENTION BASIN DETAIL
NTS



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Project Name: Sorrento Village
Project Type: Treatment and Flow Control
APN:
Drainage Area: 898,512
Mean Annual Precipitation: 14.0

Self-Treating DMAs

DMA Name	Area (sq ft)
DMA3	226,579.0

IV. Areas Draining to IMPs

IMP Name: IMP1
IMP Type: Bioretention Facility
Soil Group: IMP1

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing			
DMA1	215,387	Concrete or Asphalt	1.00	215,387	IMP Sizing Factor	Rain Adjustment Factor	Minimum Area or Volume	Proposed Area or Volume
DMA2	165,070	Conventional Roof	1.00	165,070				
DMA4	240,445	Landscape	0.50	120,223				
Total				500,680				
				Area	0.060	1.227	36,870	40,600
				Surface Volume	0.050	1.227	30,725	36,239
				Subsurface Volume	0.066	1.227	40,557	51,031
							Maximum Underdrain Flow (cfs)	0.52
							Orifice Diameter (in)	4.67