

**INITIAL  
STORM WATER  
LOW IMPACT  
DEVELOPMENT  
SUBMITTAL  
(SWLID)**

**GIFFEN  
BUILDING 1**

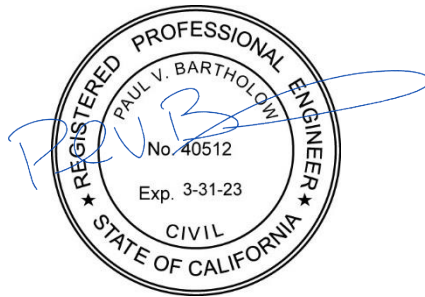
**GIFFEN AVE.  
SANTA ROSA, CA 95407**

**APN's: 010-450-008**

**GIFFEN AVE PROPERTIES  
LLC**

**B&R PROJECT #3163.33**

JUNE 29, 2022



**Prepared By:**

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[www.brce.com](http://www.brce.com)

Project Name: \_\_\_\_\_

Date: \_\_\_\_\_



## Storm Water Low Impact Development Submittal Coversheet

*To be submitted with all SW LID submittals*

1. **Submittal Information:**

Submittal Date: \_\_\_\_\_

Initial SW LIDS

Final SW LIDS

**Design Manual Used for design:**

2005 Standard Urban Storm Water Mitigation Plan

2011 Storm Water Low Impact Development Technical Design Manual

2017 Storm Water Low Impact Development Technical Design Manual

2. **Applicant Information:**

Applicant Name (Owner or Developer): \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Phone/Email/Fax: \_\_\_\_\_

Project Name: \_\_\_\_\_

Date: \_\_\_\_\_



**Storm Water Low Impact Development Submittal Coversheet**

***To be submitted with all SW LID submittals***

**3. Project Information:**

**Project Name:**

**Site Address:**

**City/State/Zip:**

**APN (s):**

**Permit # (s):**

Subdivision                      Grading Permit                      Building Permit                      Design Review

Use Permit                      Hillside Development                      Encroachment                      Time Extension

Other:

Project Name: \_\_\_\_\_

Date: \_\_\_\_\_



## Storm Water Low Impact Development Submittal Coversheet

*To be submitted with all SW LID submittals*

### **4. Design Information:**

#### **Narrative:**

##### *Project Description*

Description of proposed project type, size, location, and any specific uses or features.

Description of any sensitive features (creeks, wetlands, trees, etc.) and whether they are going to be preserved, removed or altered.

Description of the existing site.

Description of how this project triggers these requirements (impervious area, CALGreen, 401 Permit, etc.).

Describe any "on-site offset" used.

##### *Pollution Prevention and Runoff Reduction Measures*

Description of all proposed pollution prevention measures (street sweeping, covered trash enclosures, indoor uses, etc).

Description of all Runoff Reduction Measures (Interceptor Trees, Impervious Area Disconnection, and/or Alternative Driveway Design).

##### *Type of BMPs Proposed*

Description of the types of BMPs selected including priority group that each is in.

Description of level of treatment and volume capture achieved for each BMP.

##### *Maintenance*

Description of maintenance for each type of BMP.

Description of funding mechanism.

Designation of Responsible Party.

Project Name: \_\_\_\_\_

Date: \_\_\_\_\_



## Storm Water Low Impact Development Submittal Coversheet

### *To be submitted with all SW LID submittals*

#### **Exhibits:**

##### *Proposed SW LID Exhibit:*

Exhibit should include: street names, property lines, storm drainage system, waterways, title block, scale and north arrow.

Tributary areas shown for all inlets (including off-site drainage areas).

C value for each tributary area.

Soil Type of existing site.

New or replaced impervious area shown.

All inlets and BMP, shown (including unique identifier).

All interceptor trees shown.

All proposed BMPs shown including dimensions.

##### *Existing Condition Exhibit*

Exhibit should include: street names, property lines, proposed storm drainage system, waterways, title block, scale, and north arrow.

Soil Type of existing site.

Proposed tributary areas shown for all proposed inlets (including offsite drainage areas). Existing impervious areas.

Existing impervious area.

#### **BMP Details:**

Detail for each type of BMP selected- provide a preliminary 8.5"x11" detail for each BMP type or include on submitted drawings. These can be taken straight from the Fact Sheets if no significant changes are proposed.

#### **On Plans:**

Show all applicable elements of the selected BMPs on the appropriate plan sheets.

#### **Calculations:**

Calculations, for each inlet, and summary sheet using the Storm Water Calculator found at [www.srcity.org/stormwaterLID](http://www.srcity.org/stormwaterLID)

Supplemental or supporting calculation if applicable.

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2017 STORM WATER LID DETERMINATION WORKSHEET

#### Appendix B

BMP SELECTION TABLES

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BMP SIZING CALCULATIONS

FINAL POST CONSTRUCTION BMP DETAILS

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USDA HYDROLOGIC SOILS GROUP SITE MAP

REFERENCE GIFFEN AVENUE PROPERTY EXHIBIT "A", DATED MARCH 8,  
2017 (PRJ16-023)

#### Appendix D

MAINTENANCE CHECKLISTS

BIORETENTION FACT SHEET

### ATTACHMENTS

Existing Conditions SWLID Exhibit (full size in back pocket)

Proposed Conditions SWLID Exhibit (full size in back pocket)

## 1. PROJECT DESCRIPTION

The Giffen Building 1 site is situated in a southwest section of the City of Santa Rosa and was originally a part of the Northpoint Business Park. The project site is part of the 11.71-acre parcel which holds 6 buildings on the campus formerly operated by JDS Uniphase Corporation. The project site is bounded by Giffen Ave to the south, an existing parking lot and Lombardi Lane to the East, Building 2 to the north, and Building 5 to the west. The existing topography is generally flat with mounded surfaces which splits slopes running from the center of the site to the northeast towards the existing parking lot and to the southwest towards Giffen Ave. The properties located in the immediate vicinity are fully developed (refer to Existing Conditions Exhibit).

The project site is undeveloped composed of native grasses and gravel surfacing. There is an existing storm drain system in Giffen Avenue which routes runoff from east to west where it ultimately connects to the storm drain system in Corporate Center Parkway. There is one existing roof drain from the southeast corner of Building 2 that drains to the south to an area drain which allows the runoff to flow through the existing concrete gutter of the parking lot to the east of the project site. Half of the existing project site sheet flows to the north east where it drains into the existing parking lot and is routed through a concrete gutter where it drains to Lombardi Lane before it flows south to Giffen Ave where it ultimately enters the existing storm drain system through an existing catch basin southwest of the site. The other half of the existing project site sheet flows to the southwest to Giffen Ave where it ultimately enters the existing storm drain system through an existing catch basin southwest of the site.

The proposed structures and features on the site will consist of a building, asphalt paving, concrete valley gutter, walkways and a Bioretention Planter. The proposed building has an approximately 18,440 sf footprint and consists of an additional 3,600 sf asphalt paved yard to the east of the proposed building. The proposed improvements will disturb an area of approximately 40,878 sf (0.94-acre) but will also include an additional approximately 8,640 sf of existing impervious area that will remain and drain through the project site. The project construction activities will include earthwork, grading, paving, and utility installations. Since the project will create more than 10,000 sq. ft. of impervious surface, it is subject to the requirements of the County of Sonoma's MS4 storm water permit. The proposed BMP is being installed to meet the City of Santa Rosa LID stormwater requirements.

Onsite stormwater runoff will be captured by a combination of storm drains and drop inlets. Storm drain improvements will convey the storm water to discharge to the finished grade of a bioretention planter to the east the proposed building. After runoff is treated in the bioretention planter a new storm drain system will route the treated runoff to the south then west where it will connect to the existing storm drain system through the existing catch basin located to the southwest of the project site.

The existing soil type according to the USDA soil survey is as follows:

Description	Hydrologic Group Rating	Approx. % of Site
CfA, Clear Lake clay, ponded, 0 to 2 percent slopes	C/D	100%

A soils map is included in Appendix C of this report.

The entire project site is within an area with contaminated soils. The State North Coast Regional Water Board has identified the area to be subjected to a contaminated groundwater plume. The State North Coast Regional Water Board ruled in an email letter dated October 13, 2015 that because of the contaminated groundwater plume, that infiltration should be avoided. With respect to storm water LID, treatment should still be required, but infiltration or storm water capture should not be required. This ruling from the State North Coast Regional Water Board carried over into the March 8, 2017, project Exhibit "A" for the neighboring Building on the same parcel (PRJ16-023). Condition 6 of the aforementioned Exhibit "A" stated, "The State North Coast Regional Water Board agreed that storm water infiltration at this project should not be required due to the nature of the contaminated groundwater plume. Treatment of storm water will still be required per the email letter dated October 13, 2015." See Appendix C for copy of PRJ16-023 Exhibit "A", dated March 8, 2017.

As mentioned previously, there is a portion of storm water run-on to this site from the existing southeast corner of Building 2. The proposed design will intercept the roof drains and discharge the runoff to the Bioretention Planter where the runoff will be treated. No on-site offset is being utilized on the site.

The site receives an estimated annual rainfall of 30 inches, which equates to a K factor of 1.0.



## **2. POLLUTION PREVENTION AND RUNOFF REDUCTION MEASURES**

The project design has incorporated pollution source controls intended to prevent pollutants from entering the storm drain system. These source controls include:

- Minimizing irrigation overspray and runoff from site;
- Utilizing minimal amounts of pesticides;
- Proper maintenance and cleaning of landscaped areas;
- Using the minimum parking stall and driveway widths practical;
- Sweeping parking lots and driveways on a regular basis;
- Gross pollutant control (trash capture);
- Clearly mark storm drain inlets with the words “No Dumping. Drains to Creek”;

No credits for runoff reduction measures are proposed on this project. All BMPs are designed to the full extent of runoff captured.

### 3. TYPES OF BMP'S PROPOSED

The MS4 Permit's goal is to treat, capture, and infiltrate 100% of the runoff generated by 1-inch of rain over a 24-hour period. (design storm) The LID Strategies and BMPs proposed for use on this project include a modified City of Santa Rosa Priority 3 Roadside Bioretention – Curb Opening BMP. A Priority 3 BMP is selected because the BMP shall only achieve treatment and is not intended to retain/infiltrate stormwater runoff. Priority 1 and 2 BMPs are designed to provide both Treatment and Volume Retention. The Proposed LID strategies and BMPs within the project are intended to treat 100% of the total runoff of the storm water generated by the impervious developed site for a 1-inch rain event in a 24-hour period.

#### **Bioretention Planters**

Proposed Roadside Bioretention planter area is designed in accordance with the 2017 City of Santa Rosa and County of Sonoma "Storm Water Low Impact Development Technical Design Manual". Proposed Roadside Bioretention planters are stand-alone BMPs, performing trash capture and treatment functions. The Bioretention planter will consist of excavated areas backfilled with an 18" minimum depth of sandy loam soils to promote vegetation growth that will receive storm water and allow it to treat the storm water runoff as it flows vertically through the sandy loam soil. A perforated subdrain with holes pointed down will be installed at the bottom of the BMP. Continuous 10 mil plastic barriers will be installed along the sides and bottom of the bioretention planter to block seepage from migrating under adjacent pavement and infiltration into the underlying contaminated soils. Proposed storm drain pipes are designed to discharge runoff to the surface of the BMP for runoff to enter into the BMP to be treated. The outside edges around the BMP will be sloped at a 2:1 max slope back up to finished grade of the surrounding surfaces. A storm drain structure serving the bioretention planter will feature side opening inlets set above the finished grade of the bioretention planter flowline in order to accept excess runoff due to storm event of higher intensity. Bioretention planters are landscaped based BMPs that are designed to intercept trash before it enters the storm drain which makes them acceptable to achieve the required level of trash capture per the Water Quality Control Board. Trash capture is achieved in the landscaped based BMP by directing runoff to the vegetated top surface of the BMP where larger trash and debris is captured. Trash and debris down to 100 microns are captured in the underlying layers of the BMP as the runoff penetrates through the BMP.

#### **4. LEVEL OF TREATMENT, DESIGN GOAL & CONCLUSIONS**

The design goal of 100% treatment for the impervious developed portions of the site will be achieved by routing 100% of event runoff through the Bioretention BMP located to the east of the proposed Building. In addition, the Bioretention BMP will be designed to treat at minimum the runoff flow from the newly developed portion and existing run-on portions of the site resulting from the 1-inch 24-hour storm event before bypassing any excess runoff. Excess runoff will be diverted into the on-site storm drain system. BMPs are summarized in the SWLID Calculator worksheets, showing that the BMPs will satisfy SWLID criteria. LID features are designed using City of Santa Rosa Storm Water BMP Calculator, ver. B.11.0 (verify calculator version).

## 5. MAINTENANCE ACTIVITIES & FUNDING

The routine inspection and upkeep of this facility will be provided by the property ownership. Maintenance personnel under contract to the property owners will be responsible for routine clean-up and maintenance of the parking lots, driveways, sidewalks, and landscaped areas. They will also be responsible for incidental maintenance of the BMPs on an as required basis, such as driveway and parking lot sweeping, maintenance and care of landscaping and removal of trash and debris from the top surface of the BMP.

Long-term funding for inspection, maintenance and repair of the BMP's shall be budgeted and carried out by the property owner, or its assigned successor(s).

### **BIORETENTION – COMMON MAINTENANCE CONCERNS:**

- Dry sweeping of all parking area and associated hardscape areas upon completion of construction.
- Dry sweeping annually, and
  - When water is observed flowing in the gutter during a low intensity storm.
  - Algae is observed in the gutter.
  - Sediment/debris covers 1/3 of the gutter width or more.
- Inspect twice annually for sedimentation and trash accumulation. Obstructions and trash shall be removed and properly disposed of.
- Inspect twice during the rainy season for ponded water.
- Pesticides and fertilizers shall not be used in the bioretention area.
- Plants shall be pruned, weeds pulled, and dead plants replaced as needed.

**APPENDIX A**  
**2017 STORM WATER LID DETERMINATION WORKSHEET**



# 2017 Storm Water LID Determination Worksheet



**PURPOSE AND APPLICABILITY:** This determination worksheet is intended to satisfy the specific requirements of “ORDER NO. R1-2015-0030, NPDES NO. CA0025054 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS.” Additional design requirements imposed by Governing Agencies, such as local grading ordinances, CAL Green, CEQA, 401 permitting, and hydraulic design for flood control still apply as appropriate. Additionally, coverage under another regulation may trigger the requirement to design in accordance with the Storm Water LID Technical Design Manual.

## Part 1: Project Information

Project Name Applicant (owner or developer) Name

Project Site Address Applicant Mailing Address

Project City/State/Zip Applicant City/State/Zip

Permit Number(s) - (if applicable) Applicant Phone/Email/Fax

Designer Name Designer Mailing Address

Designer City/State/Zip Designer Phone/Email

### **Type of Application/Project:**

Subdivison	Grading Permit	Building Permit	Hillside Development	
DesignReview	Use Permit	Encroachment	Time Extensions	Other : _____

## PART 2: Project Exemptions

1. Is this a project that creates or replaces *less than* 10,000 square feet of impervious surface<sup>1</sup>, including all project phases and off-site improvements?

Yes                  No

1 Impervious surface replacement, such as the reconstruction of parking lots or excavation to roadway subgrades, is not a routine maintenance activity. Reconstruction is defined as work that replaces surfaces down to the subgrade. Overlays, resurfacing, trenching and patching are defined as maintenance activities per section VI.D.2.b.

## 2017 Storm Water LID Determination Worksheet

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2. Is this project a routine maintenance activity<sup>2</sup> that is being conducted to maintain original line and grade, hydraulic capacity, and original purpose of facility such as resurfacing existing roads and parking lots?

Yes            No

3. Is this project a stand alone pedestrian pathway, trail or off-street bike lane?

Yes            No

4. **Did you answer "YES" to any of the questions in Part 2?**

**YES:** This project will *not* need to incorporate permanent Storm Water BMP's as required by the NPDES MS4 Permit. **Please complete the "Exemption Signature Section" on Page 4.**

**NO:** Please complete the remainder of this worksheet.

### **Part 3: Project Triggers**

#### **Projects that Trigger Requirements:**

Please answer the following questions to determine whether this project requires permanent Storm Water BMP's and the submittal of a SW LIDs as required by the NPDES MS4 Permit order No. R1-2015-0030.

1. Does this project create or replace a combined total of 10,000 square feet or more of impervious surface<sup>1</sup> including all project phases and off-site improvements?

Yes            No

2. Does this project create or replace a combined total or 10,000 square feet or more of impervious streets, roads, highways, or freeway construction or reconstruction<sup>3</sup>?            Yes            No

3. Does this project create or replace a combined total of 1.0 acre or more of impervious surface<sup>1</sup> including all project phases and off-site improvements?            Yes            No

4. **Did you answer "YES" to any of the above questions in Part 3?**

**YES:** This project will need to incorporate permanent Storm Water BMP's as required by the NPDES MS4 Permit. **Please complete remainder of worksheet and sign the "Acknowledgement Signature Section" on Page 4.**

**NO:** This project will *not* need to incorporate permanent Storm Water BMP's as required by the NPDES MS4 permit. **Please complete the "Exemption Signature Section" on Page 4.**

<sup>1</sup> Impervious surface replacement, such as the reconstruction of parking lots or excavation to roadway subgrades, is not a routine maintenance activity. Reconstruction is defined as work that replaces surfaces down to the subgrade. Overlays, resurfacing, trenching and patching are defined as maintenance activities per section VI.D.2.b.

<sup>2</sup> "Routine Maintenance Activity" includes activities such as overlays and/or resurfacing of existing roads or parking lots as well as trenching and patching activities and reroofing activities per section VI.D.2.b.

<sup>3</sup> "Reconstruction" is defined as work that extends into the subgrade of a pavement per section VI.D.2.b.

2017 Storm Water LID Determination Worksheet

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**Part 4: Project Description**

1. Total Project area: square feet  
acres

2. Existing land use(s): (check all that apply)

Commercial    Industrial    Residential    Public    Other

Description of buildings, significant site features (creeks, wetlands, heritage trees), etc.:

3. Existing impervious surface area: square feet  
acres

4. Proposed Land Use(s): (check all that apply)

Commercial    Industrial    Residential    Public    Other

Description of buildings, significant site features (creeks, wetlands, heritage trees), etc.:

5. ~~Existing~~ <sup>Proposed</sup> impervious surface area: square feet  
acres

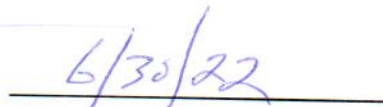


**Acknowledgment Signature Section:**

As the property owner or developer, I understand that this project is required to implement permanent Storm Water Best Management Practices and provide a Storm Water Low Impact Development Submittal (SW LIDS) as required by the City's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer Systems (MS4) Permit Order No. R1-2015-0030. \*Any unknown responses must be resolved to determine if the project is subject to these requirements.



Applicant Signature



Date

**Exemption Signature Section:**

As the property owner or developer, I understand that this project as currently designed does not require permanent Storm Water BMP's nor the submittal of a Storm Water Low Impact Development Submittal (SW LIDS) as required by the City's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer Systems (MS4) Permit\*. I understand that redesign may require submittal of a new Determination Worksheet and may require permanent Storm Water BMP's.

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 Applicant Signature

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 Date

\* This determination worksheet is intended to satisfy the specific requirements of "ORDER NO. R1-2015-0030, NPDES NO. CA0025054 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS." Additional design requirements imposed by Governing Agencies, such as local grading ordinances, CAL Green, CEQA, 401 permitting, and hydraulic design for flood control still apply as appropriate. Additionally, coverage under another regulation may trigger the requirement to design in accordance with the Storm Water LID Technical Design Manual.

**Implementation Requirements:** All calculations shall be completed using the "Storm Water Calculator" available at: [www.srcity.org/stormwaterLID](http://www.srcity.org/stormwaterLID)

**Hydromodification Control/100% Volume Capture:** Capture (infiltration and/or reuse) of 100% of the volume of runoff generated by a 1.0" 24-hour storm event, as calculated using the "Urban Hydrology for Small Watersheds" TR-55 Manual method. This is a retention requirement.

**Treatment Requirement:** Treatment of 100% of the flow calculated using the modified Rational Method and a known intensity of 0.20 inches per hour.

**Delta Volume Capture Requirement:** Capture (infiltration and/or reuse) of the increase in volume of storm water due to development generated by a 1.0" 24-hour storm event, as calculated using the "Urban Hydrology for Small Watersheds" TR-55 Manual method. This is a retention requirement.

**APPENDIX B**  
**BMP SELECTION TABLES**  
**COMPOSITE C-FACTOR AND CN CALCULATIONS**  
**BMP SIZING CALCULATIONS**  
**FINAL POST CONSTRUCTION BMP DETAILS**

Project Name: GIFFEN BUILDING 1

Best Management Practice (BMP)	Detail Sheet	Detail Title	Can be used with...			Achieves...			BMP in priority selected?		Unique Identifier of BMP per planes	Explanation of selection	Other notes:
			High Ground Water Contamination	Slope Constraints	Treatment	Volume Capture	Runoff Reduction Measure	Yes	No				
Universal BMP- to be considered on all projects.	Living Roof	N/A	N/A	X	X	X	X	X		X			
	Rainwater Harvesting	N/A	N/A	X	X	X		X		X			
Runoff Reduction Measures	Interceptor Trees	N/A	N/A	X	X	X			X	X			
	Bovine Terrace	RRM-01	Bovine Terrace	X					X	X			
	Vegetated Buffer Strip	RRM-02	Vegetated Buffer Strip						X	X			
	Impervious Area Disconnection	N/A	N/A	X	X	X			X	X			
Priority 1- to be installed with no underdrains or liners. Must drain all stading water within 72 hours.	Bioretention	P1-02	Roadside Bioretention - no C & G					X	X		X		
	Vegetated Swale-with Bioretention	P1-06	Swale with Bioretention					X	X		X		
	Constructed Wetlands	N/A	N/A					X	X		X		
Priority 2 BMPs- with subsurface drains installed above the capture volume.	Bioretention	P2-02	Roadside Bioretention - Flush Design Roadside					X	X		X		
		P2-03	Roadside Bioretention- Contiguous SW					X	X		X		
		P2-04	Roadside Bioretention- Curb Opening					X	X		X		
		P2-05	Roadside Bioretention- No C & G					X	X		X		
	Constructed Wetlands	N/A	N/A					X	X		X		

Date: \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_

Best Management Practice (BMP)	Detail Sheet	Detail Title	Can be used with...			Achieves...			Volume Capture		BMP in priority selected?		Unique Identifier of BMP per planes	Explanation of selection	Other notes:	
			High Ground Water	Contamination	Slope Constraints	Treatment	Runoff Reduction Measure	Yes	No							
<b>Priority 3 BMPs-</b> installed with subdrains and/or impermeable liner. Does not achieve volume capture and must be used as part of a treatment train.	Bioretention	P3-02	Roadside Bioretention - Flush Design Roadside	X	X	X	X				X					
		P3-03	Roadside Bioretention-Contiguous SW	X	X	X	X				X					
		P3-04	Roadside Bioretention-Curb Opening	X	X	X	X				X		BMP 1	No infiltration allowed. BMP shall be treatment only.	BMP is modified from City of Santa Rosa Detail. No curb openings are used. Direct storm drain discharge to surface of BMP.	
	Flow Through Planters	P3-05	Flow Through Planters	X	X	X	X				X					
	Vegetated Swale	P3-06	With Bioretention	X	X	X	X	X				X				
		P3-07	Vegetated Swale	X	X	X	X					X				
	<b>Priority 4 BMPs-</b> does not achieve volume capture and must be used as part of a	Tree Filter Unit			X	X	X	X				X				
Modular Bioretention				X	X	X	X				X					
<b>Priority 5 BMPs-</b> does not achieve volume capture and must be used as part of a treatment train.	Chambered Separator Units			X	X	X	X				X					
	Centrifugal Separator Units			X	X	X	X				X					
	Trash Excluders			X	X	X	X				X					
	Filter Inserts			X	X	X	X				X					
<b>Priority 6 BMPs-</b> see the "Offset Program" chapter for details.	Offset Program						N/A	N/A	N/A		X					
Other	Detention		X								X					

## CN Composite Work Sheet

**Project:** Giffen Building 1  
**Address/Location:** Giffen Ave  
**Designer:** AJF  
**Date:** June 15, 2022

**INSTRUCTIONS:** Please refer to the "Urban Hydrology for Small Watersheds" (TR-55 manual).

**Inlet Number/Tributary Area/BMP:** BMP 1

Soil Type (Infiltration Rate)	Cover Description	CN	Area ft <sup>2</sup>	Product of CN x Area
D: 0 - 0.05 in/hr infiltration (transmission) rate	Impervious - Paved Parking, Rooftop, Driveways	98	45957	4,503,786.0
D: 0 - 0.05 in/hr infiltration (transmission) rate	Brush: weed-grass mixture with brush major element - Good (>75% ground cover)	73	3558	259,734.0
No Entry	No Entry	0	0	0.0
No Entry	No Entry	0	0	0.0
No Entry	No Entry	0	0	0.0
No Entry	No Entry	0	0	0.0
No Entry	No Entry	0	0	0.0
No Entry	No Entry	0	0	0.0
No Entry	No Entry	0	0	0.0
No Entry	No Entry	0	0	0.0
No Entry	No Entry	0	0	0.0
		<b>Totals =</b>	<b>49515</b>	<b>4,763,520.0</b>

$CN_{COMPOSIT} = \frac{(CN \times Area) + (CN \times Area) + (CN \times Area) + (CN \times Area) \dots}{Total \text{ Tributary Area}} = \text{Use this } CN_{COMPOSIT} = \mathbf{96.2}$

**C Factor Composite Work Sheet**

**Project:** Giffen Building 1  
**Address/Location:** Giffen Ave  
**Designer:** AJF  
**Date:** June 15, 2022  
  
**Inlet Number/Tributary Area/BMP:** BMP 1

**INSTRUCTIONS:** From "Using Site Design to Meet Development Standards For Storm water Quality" by the Bay Area Storm water Management Agencies Association (BASMAA).

Paving Surface	C Number	Area ft <sup>2</sup>	Product of C x Area
Concrete	0.80	3,296	2,636.80
Building Roof	0.80	24,884	19,907.20
Asphalt	0.70	17,777	12,443.90
Grass	0.10	3,558	355.80
No Entry	-	-	-
No Entry	-	-	-
No Entry	-	-	-
No Entry	-	-	-
No Entry	-	-	-
No Entry	-	-	-
Totals		49,515.00	35,343.70

$$C_{\text{FACTOR COMPOSIT}} = \frac{(C \times \text{Area}) + (C \times \text{Area}) + (C \times \text{Area}) + (C \times \text{Area}) \dots}{\text{Total Tributary Area}} = C_{\text{FACTOR COMPOSIT}} = \boxed{0.71}$$



## STORM WATER CALCULATOR

### LID BMP Summary Page & Site Global Values

<b>Project Information:</b> Project Name: <span style="border: 1px solid black; padding: 2px;">Giffen Building 1</span> Address/Location: <span style="border: 1px solid black; padding: 2px;">Giffen Ave</span> Designer: <span style="border: 1px solid black; padding: 2px;">AJF</span> Date: <span style="border: 1px solid black; padding: 2px;">6/15/2022</span>	<b>Site Information:</b> Mean Seasonal Precipitation (MSP) of Project Site: <span style="border: 1px solid black; padding: 2px;">30.00</span> (inches) K=MSP/30      K= <span style="border: 1px solid black; padding: 2px;">1.00</span>  Impervious area - pre development: <span style="border: 1px solid black; padding: 2px;">12,172.0</span> ft <sup>2</sup> Impervious area - post development: <span style="border: 1px solid black; padding: 2px;">37,320.0</span> ft <sup>2</sup>	Based upon the pre and post development impervious area, the post construction BMP requirement is:  <div style="text-align: center; color: red; font-weight: bold; font-size: 1.2em;">Treatment Only</div>
--	---	--

#### Summary of Saved BMP Results:

BMP ID:	Tributary Area		Requirements		BMP Design Results							
	Tributary Area (ft <sup>2</sup> )	Runoff Reduction Measures (Y/N)	Type of Requirement Met	Type of BMP Design	Percent Achieved	Hydromodification Control		Flow Base Treatment		Delta Volume Capture		
						Required V <sub>Hydromod</sub> (ft <sup>3</sup> )	Achieved (ft <sup>3</sup> )	Required Q Treatment (cfs)	Achieved (ft <sup>3</sup> )	Required Vdelta (ft <sup>3</sup> )	Achieved (ft <sup>3</sup> )	
1	BMP 1	49,515	No	100% Vertical Flow Treatment	Priority 3: P3-04 Roadside Bioretention - Curb Opening	111.4			0.1614	0.1799		
2												
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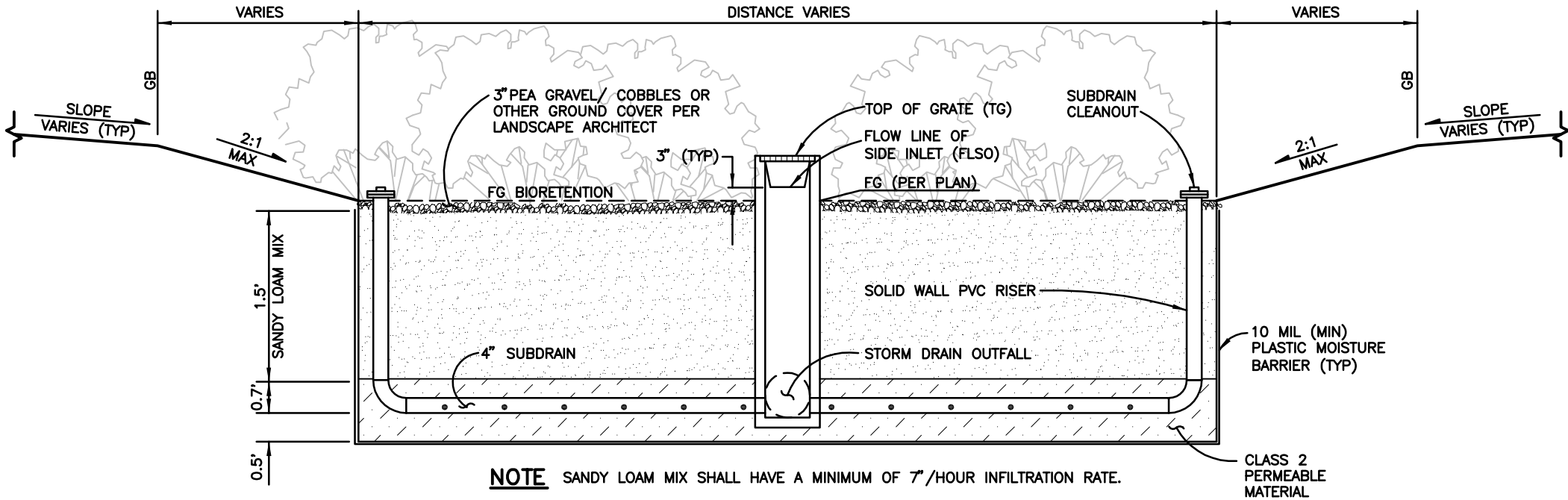
# STORM WATER CALCULATOR

<b>BMP Tributary Parameters</b>		Project Name:	Giffen Building 1
BMP ID:	BMP 1		
BMP Design Criteria:	Treatment Only		
Type of BMP Design:	Priority 3: P3-04 Roadside Bioretention - Curb Opening		
BMP's Physical Tributary Area:	49,515.0	ft <sup>2</sup>	
Description/Notes:			

<b>100% Treatment</b>		$Q_{TREATMENT} =$	0.1614	cfs
Post surface type:	Concrete			
User Composite post development $C_{POST}$ :				
User Input $I_{Historical}$ :	0.71			
	0.00	in./hr.	Treatment Factor (Tf):	1
			Design Storm:	0.20
				in./hr.
				Calculated

<b>BMP Sizing 100% Treatment Vertical</b>		Percent of Goal Achieved =	111.43	%
Infiltration rate of the specified BMP soil:	7.00	in./hr.		
Depth of drainage pipe:	1.50	ft		
BMP Length:	40.00	ft		
BMP Width:	27.75	ft		





# BIORETENTION AREA

NOT TO SCALE

**APPENDIX C**  
**USDA HYDROLOGIC SOILS GROUP SITE MAP**  
**REFERENCE GIFFEN AVENUE PROPERTY EXHIBIT "A", DATED**  
**MARCH 8, 2017 (PRJ16-023)**



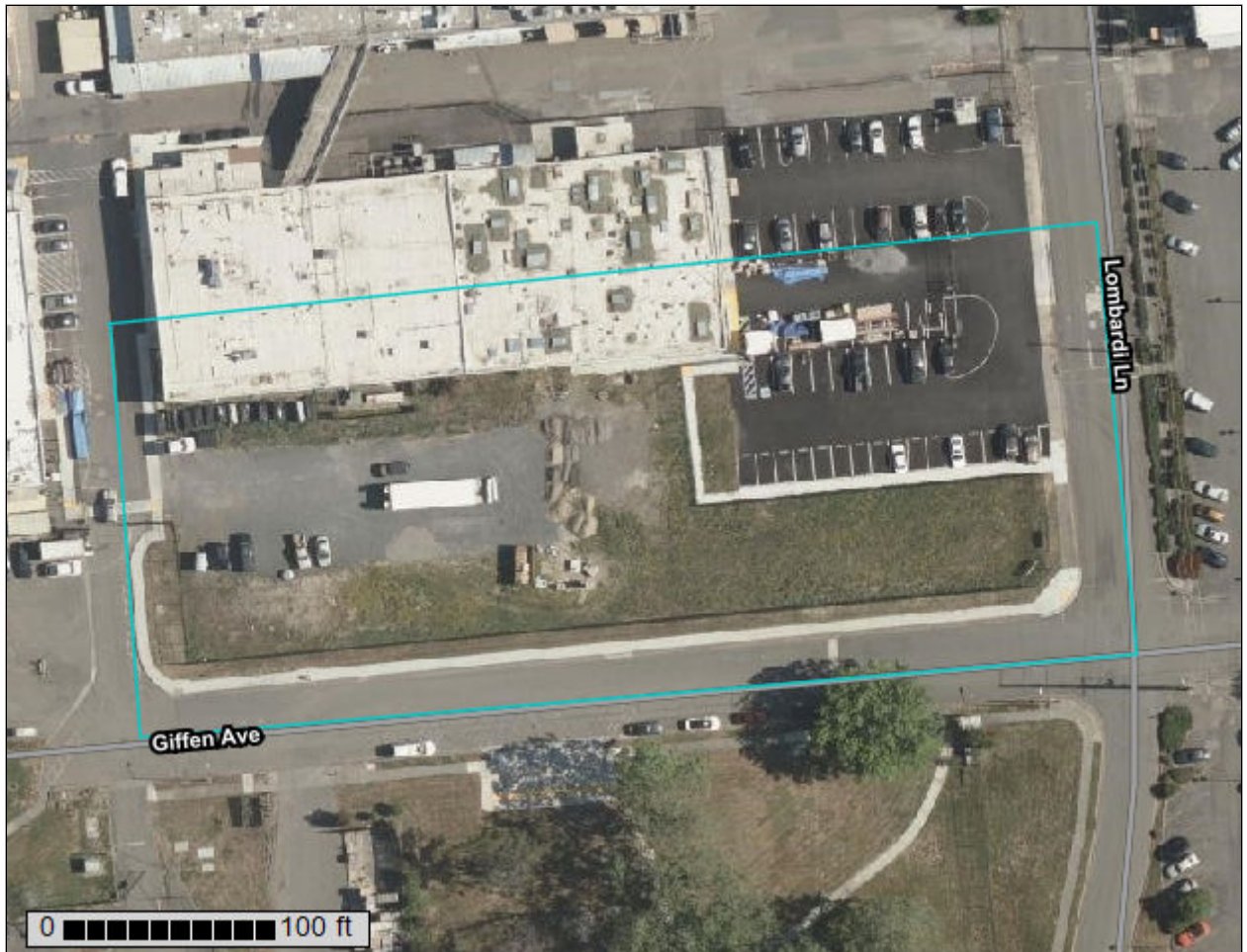
United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for Sonoma County, California



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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Map Unit Descriptions.....	8
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CfA—Clear Lake clay, ponded, 0 to 2 percent slopes.....	10

# Soil Map

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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report Soil Map



Map Scale: 1:815 if printed on A landscape (11" x 8.5") sheet.

0 10 20 40 60 Meters

0 35 70 140 210 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84



### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

**Special Point Features**

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

**Water Features**

 Streams and Canals

**Transportation**

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sonoma County, California  
 Survey Area Data: Version 15, Sep 10, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 1, 2020—Oct 30, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CfA	Clear Lake clay, ponded, 0 to 2 percent slopes	2.2	100.0%
<b>Totals for Area of Interest</b>		<b>2.2</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

## Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Sonoma County, California

### CfA—Clear Lake clay, ponded, 0 to 2 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2y8vg

*Elevation:* 50 to 210 feet

*Mean annual precipitation:* 27 to 40 inches

*Mean annual air temperature:* 57 to 58 degrees F

*Frost-free period:* 265 to 315 days

*Farmland classification:* Farmland of statewide importance

#### Map Unit Composition

*Clear lake and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Clear Lake

##### Setting

*Landform:* Basin floors

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Parent material:* Alluvium derived from volcanic and sedimentary rock

##### Typical profile

*Apg - 0 to 8 inches:* clay

*Assg - 8 to 25 inches:* clay

*Bssg - 25 to 46 inches:* clay

*Bkssg - 46 to 52 inches:* clay

*2Bkg - 52 to 60 inches:* clay loam

*2Btg - 60 to 72 inches:* clay loam

##### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Poorly drained

*Runoff class:* Negligible

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 0 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Calcium carbonate, maximum content:* 7 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 10.0

*Available water supply, 0 to 60 inches:* High (about 9.7 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 2s

*Land capability classification (nonirrigated):* 3s

*Hydrologic Soil Group:* C/D

*Ecological site:* R014XG907CA - Loamy Bottom

## Custom Soil Resource Report

*Hydric soil rating:* Yes

### Minor Components

#### **Huichica**

*Percent of map unit:* 6 percent

*Landform:* Flood plains

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Hydric soil rating:* No

#### **Wright**

*Percent of map unit:* 6 percent

*Landform:* Stream terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Hydric soil rating:* No

#### **Zamora**

*Percent of map unit:* 3 percent

*Landform:* Alluvial fans

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Hydric soil rating:* No

**CITY OF SANTA ROSA, CALIFORNIA  
PLANNING & ECONOMIC DEVELOPMENT DEPARTMENT  
ENGINEERING DEVELOPMENT SERVICES DIVISION**

**EXHIBIT "A"  
March 8, 2017**

**GIFFEN AVENUE PROPERTY  
MEDICINAL CANNABIS CULTIVATION  
2739 and 2747 GIFFEN AVENUE  
PRJ16-023  
CUP16-065  
DR16-057**

- I. Developer's engineer shall obtain the current City Design and Construction Standards and the Community Development Department's Standard Conditions of Approval dated August 27, 2008 and comply with all requirements therein unless specifically waived or altered by written variance by the City Engineer.
- II. Giffen Avenue and Lombardi Lane are private streets and have development restrictions imposed by the North Coast Water Control Board due to the hazardous waste soil conditions in the area. See the Declaration of Environmental Restriction documents OR 07-094872 recorded August 27, 2007.
- III. In addition, the following summary constitutes the recommended conditions of approval on the subject application/development based on the plans submitted /stamped received January 5, 2017:

**PARCELS AND EASEMENT DEDICATIONS**

1. Per the title report, legal private access easements over the private street from adjacent property owners from the project to the City Right of way of Northpoint Parkway or Corporate Center Parkway exist. Provide a copy of the private easements to the City of Santa Rosa for their files prior to issuance of building permit. All parcels require legal access rights from their parcel to the Public Right of way to remain for perpetuity.

2. Giffen Avenue and Lombardi Lane shall not be dedicated to the City of Santa Rosa as Right of way without written consent and acceptance by the City of Santa Rosa and evidence presented of a clear environmental review.
3. If applicable, the applicant shall dedicate to the City of Santa Rosa Water, a revised public water main easement that shall be extended to cover the new water and fire main connections and double detector check or backflow valves as needed to meet current City Standards.

### **TRAFFIC**

4. Submit a signing and striping plan with the building plans depicting the proposed and/or repainted parking lot striping and ADA compliant parking lot signing and striping and addressing other traffic needs. Install travel directional arrows, fire lane signing and striping at the gates and traffic guidelines adjacent to the fences.

### **PRIVATE DRIVEWAYS AND STREETS**

5. Post signs along Giffen Avenue and Lombardi Lane frontage to indicate the street is private.

### **STORM WATER COMPLIANCE (SUSMP)**

6. If applicable, then the developer's engineer shall comply with all requirements of the latest edition of the City Storm Water Low Impact Development Technical Design Manual. Final Plans shall incorporate all Standard Urban Storm Drain Management Plans (SUSMP) Best Management Practices (BMP's) and shall be accompanied by a Final Storm Water Mitigation Plan which shall address the storm water quality and quantity. Final Plans shall be accompanied by a City approved Declaration of Maintenance Agreement to assure continuous maintenance in perpetuity of the SUSMP BMP's, and shall include a maintenance schedule by the owner. Note that soil contamination and ground water monitoring wells to examine possible contamination is present onsite and offsite/near the project site and water infiltration BMPs may not be installed or permitted without State Water Board approval. The State North Coast Regional Water Board agreed that storm water infiltration at this project should not be required due to the nature of the contaminated groundwater plume. Treatment of storm water will still be required per the email letter dated October 13, 2015.
7. If applicable, then perpetual maintenance of SUSMP Best Management Practices (BMP's) shall be the responsibility of the owner of these BMP's, even

**APPENDIX D**  
**MAINTENANCE CHECKLIST**  
**BIORETENTION FACT SHEET**





### Storm Water Quality Special Feature Maintenance Check List

Date: \_\_\_\_\_  
 Start Time: \_\_\_\_\_  
 Stop Time: \_\_\_\_\_

Inspector: \_\_\_\_\_  
 Project: \_\_\_\_\_  
 Address: \_\_\_\_\_

Inspection Status Codes:  
**S = Satisfactory**      \* - See Notes on Form C  
**D = Deficient**

#### Special Feature or Conditions

Reference code	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11
Additional Special Maintenance Inspection Criteria	Add special inspection requirements in addition to Form A here.	Add special inspection requirements in addition to Form A here.	Add special inspection requirements in addition to Form A here.	Add special inspection requirements in addition to Form A here.	Add special inspection requirements in addition to Form A here.	Add special inspection requirements in addition to Form A here.	Add special inspection requirements in addition to Form A here.	Add special inspection requirements in addition to Form A here.	Add special inspection requirements in addition to Form A here.	Add special inspection requirements in addition to Form A here.	Add special inspection requirements in addition to Form A here.
BMP ID:											

Office Use: \_\_\_\_\_  
 Complete: \_\_\_\_\_      Issues Corrective Action: \_\_\_\_\_      Re-Inspection Required: \_\_\_\_\_



# FACT SHEET- BIORETENTION

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## BIORETENTION

Also known as: Rain garden, roadside bioretention, and bioretention cell



## DESCRIPTION

The bioretention area best management practice (BMP) functions as a soil and plant-based filtration and infiltration feature that removes pollutants through a variety of natural physical, biological, and chemical treatment processes.

## ADVANTAGES

- Can be designed to achieve Treatment, Delta Volume Capture, or Hydromodification requirements.
- Enhances water quality of downstream water bodies through natural processes.
- Aesthetically pleasing.
- The vegetation can provide shade and wind breaks, absorbs noise, reduces heat island effects and improves an area's landscape.
- Provides habitat for birds and attracts other pollinators like butterflies and bees.
- Does not interrupt utility installation.
- Does not interfere with tree planting.

# FACT SHEET- BIORETENTION

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## LIMITATIONS

- Specialized design is required for areas where street slopes exceed 10%.
- Should not be used in areas of known contamination. If soil and/or groundwater contamination is present on the site or within a 100' radius of the proposed BMP location, the North Coast Regional Water Quality Control Board will need to be contacted and the site reviewed.
- Should not be used in areas of high groundwater. In general a minimum of 2' of clearance should be provided between the bottom of the bioretention cell and seasonal high groundwater.
- Should not be used in areas of slope instability where infiltrated storm water may cause failure. Slope stability should be determined by a licensed geotechnical engineer.
- Do not use in locations that can negatively impact building foundation or footings. Location shall be approved by a licensed Geotechnical Engineer.

## KEY DESIGN FEATURES

### ALL BIORETENTION

- Structural soil should be used within the bioretention area requiring load bearing capacity (adjacent to roadways and/or buildings).
- Structural soil, if used, shall be installed as described in Appendix E.
- Some BMPs may not require the use of structural soil and a more organic type planting soil and/or treatment media may be used in its place. It may be possible in some cases to use native soil or to amend the native soil so that it is suitable. Use of non-structural soil will depend on evaluation of the criteria in "Chapter 4-Site Assessment" as well as consideration of structural needs and may require evaluation by a licensed Geotechnical Engineer.
- Underlying native soil should remain un-compacted to preserve infiltration capacity. Fence off the area during construction to protect it from compaction.
- Bottom of bioretention should be un-lined to allow infiltration into native soil.
- Moisture barrier must be installed vertically to protect road sub-base and any trenches adjacent to the bioretention area.
- If used, pervious concrete shall be designed and installed as described in Appendix E and protected during construction to prevent sediment loading.
- If the porous gutter design option is used additional trash and sediment capture BMPs is required.
- A curb opening type design may be used in place of a porous gutter if appropriate for the project and does not require additional trash capture.
- Bioretention areas shall be planted with plants from the approved **Plant List** and **Tree List** included in Appendix F and shall be planted to achieve 51% cover.
- All bioretention areas shall be designed with a designated high flow bypass inlet for storms larger than the design storm.

# FACT SHEET- BIORETENTION

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- For designs that include perforated pipe, the 6” perforated pipe must be installed a minimum of 6” below the adjacent road structural section.
- Perforated pipe shall be installed in straight runs only.
- The volume below the perforated pipe must be sufficient to hold and infiltrate the design volume.

## SIZING DESIGN- GOAL AND REQUIREMENTS

- **For all projects:** The treatment component requires that all of the runoff generated by this water quality design storm from impermeable surfaces must be treated on site for the pollutants of concern.
- **For projects that increase the amount of impervious surface, but create or replace less than a total of one acre:** The **Delta Volume Capture** component requires that any increase in volume due to development for the water quality design storm must be infiltrated and/or reused on site. Further discussion of the Treatment and Delta Volume Capture requirements and the accompanying formulas can be found in Chapter 6.
- **For projects that create or replace one acre or more of impervious surface:** These larger projects must mitigate their impacts by meeting the **Hydromodification Requirement** by capturing 100% of the post development volume generated by the water quality rain event.
- All calculations shall be completed using the “Storm Water Calculator” available at [www.srcity.org/stormwaterLID](http://www.srcity.org/stormwaterLID).

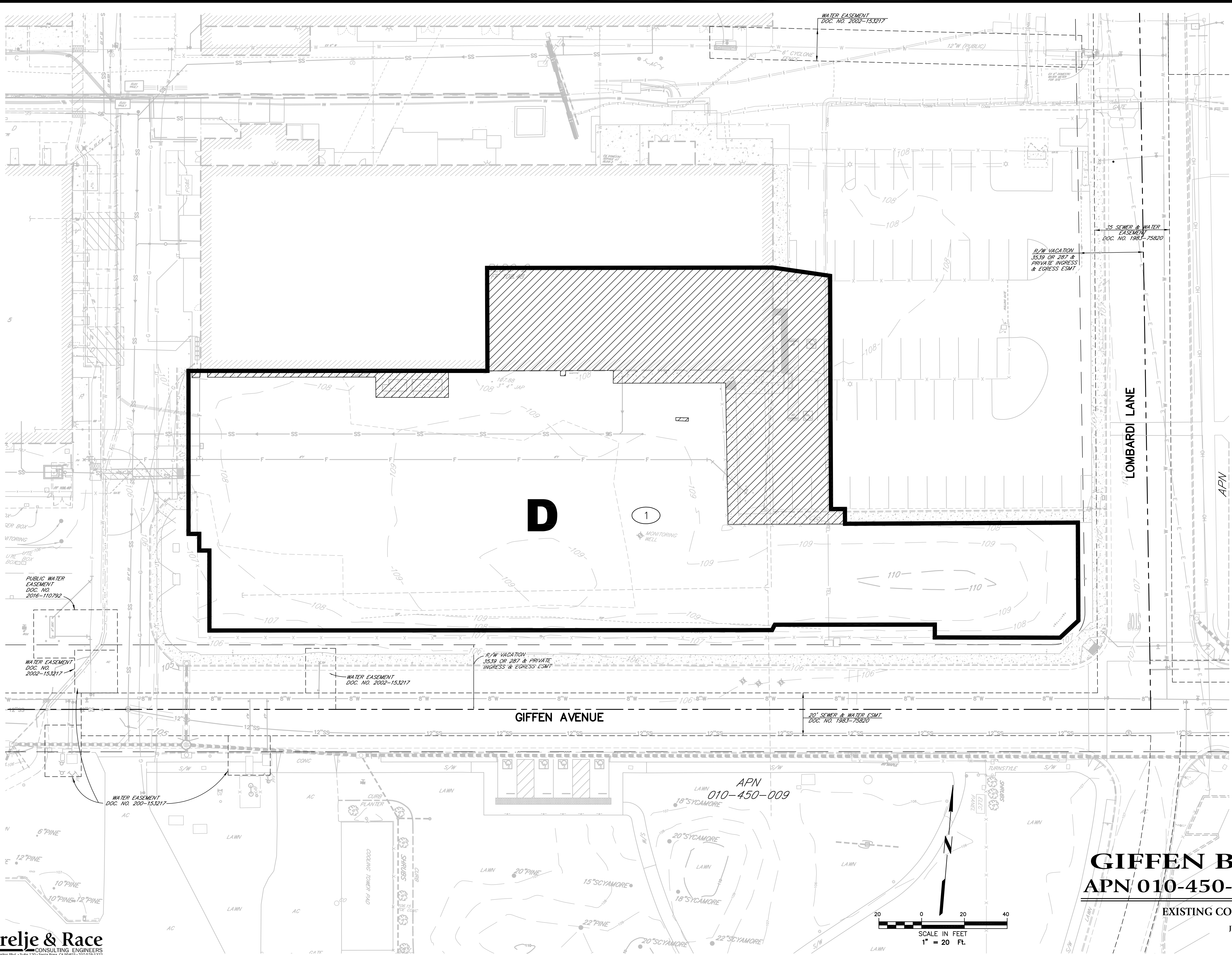
## INSPECTION AND MAINTENANCE REQUIREMENTS

A maintenance plan shall be provided with the Final SWLID Submittal. The maintenance plan shall include recommended maintenance practices, state the parties responsible for maintenance and upkeep, specify the funding source for ongoing maintenance with provisions for full replacement when necessary and provide site specific inspection checklist.

At a minimum maintenance shall include the following:

- Dry street sweeping upon completion of construction
- Dry street sweeping annually, and
  - When water is observed flowing in the gutter during a low intensity storm.
  - Algae is observed in the gutter.
  - Sediment/debris covers 1/3 of the gutter width or more.
- Inspect twice annually for sedimentation and trash accumulation in the gutter. Obstructions and trash shall be removed and properly disposed of.
- Inspect twice during the rainy season for ponded water.
- Pesticides and fertilizers shall not be used in the bioretention area.
- Plants should be pruned, weeds pulled and dead plants replaced as needed.

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**LEGEND**

- 1 (DMA) DRAINAGE MANAGEMENT AREA NUMBER
- EXISTING IMPERVIOUS AREA
- TRIBUTARY AREA BOUNDARY
- D** HYDROLOGIC SOIL GROUP CLASSIFICATION

K=1.00=30 INCH/YEAR

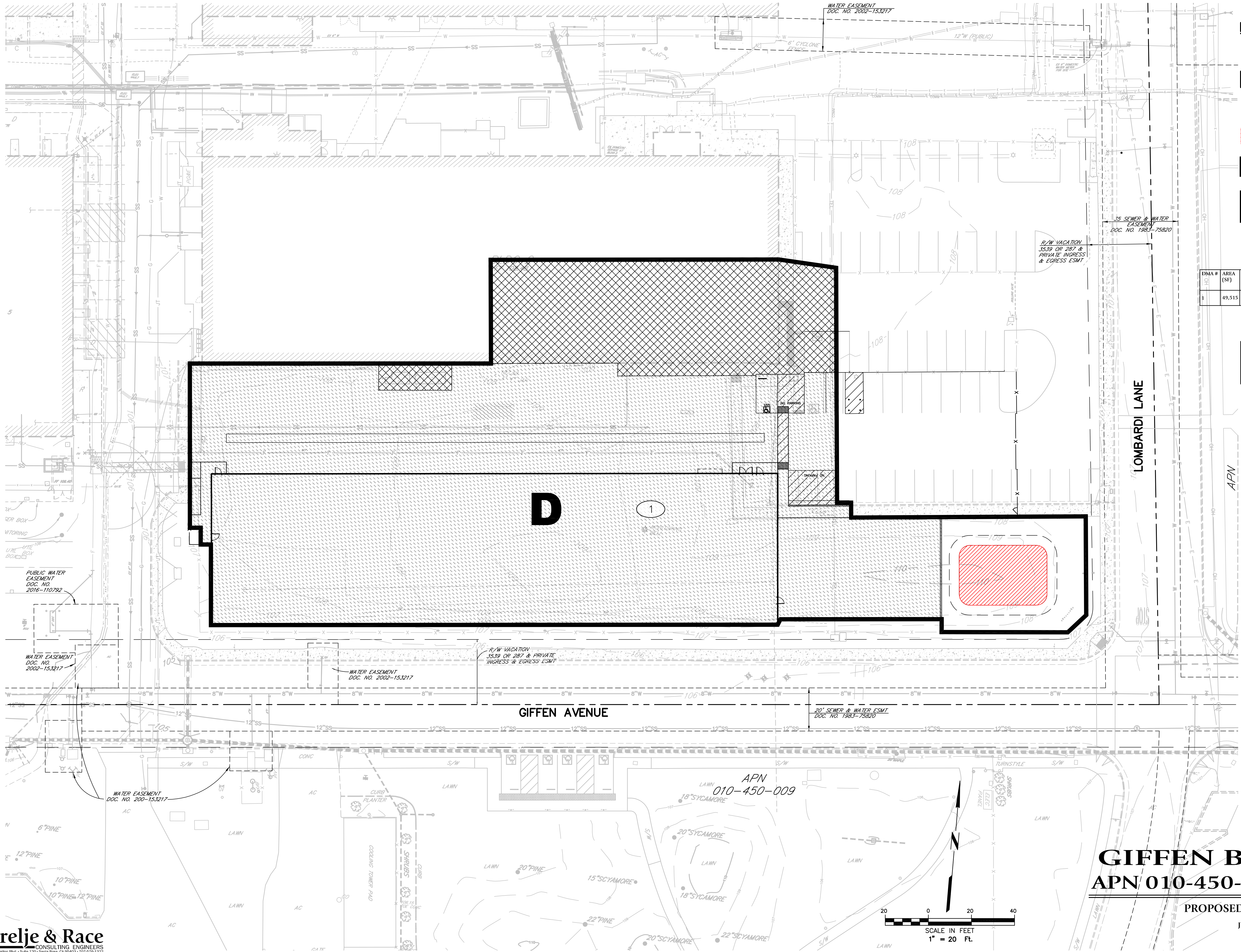
# GIFFEN BUILDING 1

## APN 010-450-008 GIFFEN AVE

EXISTING CONDITIONS EXHIBIT

JUNE 2022

06-16-22 ferrol \\3163\cwg\3163\_33\EXHIBIT\3163.33\_EXHIBIT-SWLID.dwg TAB: PROPOSED



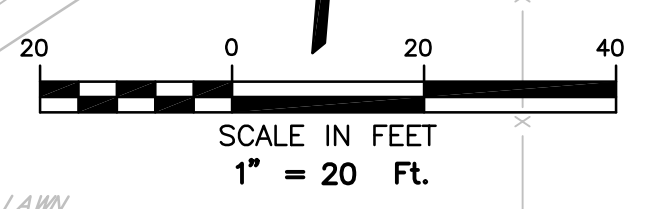
**LEGEND**

- ① (DMA) DRAINAGE MANAGEMENT AREA NUMBER
- [Hatched Box] NEW OR REPLACED IMPERVIOUS AREA
- [Cross-hatched Box] EXISTING IMPERVIOUS AREA TO REMAIN
- [Red Hatched Box] BIORETENTION AREA
- [Dashed Line] TRIBUTARY AREA BOUNDARY
- D** HYDROLOGIC SOIL GROUP CLASSIFICATION

K=1.00=30 INCH/YEAR

DMA #	AREA (SF)	CN POST	C POST	PROPOSED BMP SIZE
1	49,515	96.2	0.71	AREA = 1,110 SF; AVG WIDTH = 27.75 FE; AVG LENGTH = 40 FE; TREATMENT ONLY; MIN DEPTH = 1.5 FT

PROJECT SITE HAS CONTAMINATED SOILS. NO INFILTRATION IS ALLOWED. ONLY TREATMENT IS REQUIRED.



**GIFFEN BUILDING 1**  
**APN 010-450-008 GIFFEN AVE**

PROPOSED SWLID EXHIBIT  
JUNE 2022