INITIAL
STORM WATER
LOW IMPACT DEVELOPMENT PLAN

JULY 2, 2018

YOLANDA APARTMENTS

APN 044-071-002, APN 044-041-010
325 YOLANDA AVENUE
SANTA ROSA, CA

PROJECT #: 2018010.00

CARLILE · MACY

15 Third Street, Santa Rosa, CA 95401
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CIVIL ENGINEERS ▪ URBAN PLANNERS ▪ LAND SURVEYORS ▪ LANDSCAPE ARCHITECTS

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PROJECT DESCRIPTION

Project Name: Yolanda Apartments

Assessor's Parcel Number: 044-071-002, 044-041-010

Total Area of Site: 8.57 acres

Proposed Development:
The project located at 325 Yolanda Avenue will develop the existing property into an apartment community of approximately eleven-three story buildings, a community building, and a recreational pool and spa. New streets, parking stalls, and non-contiguous sidewalks will be installed. Landscaped areas will be installed throughout the project to be used as playgrounds, gardens, open lawns, and community BBQ areas. There will be offsite improvements to widen Yolanda Ave.

The drainage of the project is divided into sub-drainage areas as shown on the Proposed Improvements, Drainage Sub-areas and BMP Exhibit. The areas are designated based on the proposed grading plan. The proposed stormdrain system will tie into the existing systems located along Yolanda Avenue at two locations. The offsite improvements will be treated using roadside bioretention and drain to a new catch basin.

Existing Conditions:
The existing site was previously used as a truck terminal and a used car lot. It currently consists of a large warehouse, smaller miscellaneous buildings, and asphalt throughout the site. The site drains in a southwesterly direction towards Yolanda Avenue and down towards Santa Rosa Avenue. There are existing swales that border the northern and eastern edges of the property. The northern swale and flows in a westerly direction towards Santa Rosa Avenue and the eastern swale flows southerly direction towards Yolanda Avenue. There is aThe USGS soil map for the project indicates that the site is under laid with Hydrologic Soil Group D soils. Group D soils have very low infiltration rates ranging between 0 to 0.05 in/hr.

Water Bodies Receiving Storm Water from the Project site include, in order of reception: Public storm drain; Todd Creek; Bellevue-Wilfred Channel; Laguna de Santa Rosa; and Russian River.

Project Triggers:
The Project will create more than one (1) acre of impervious surface and will therefore be conditioned to meet treatment and hydromodification control requirements. The hydromodification control design goal requires the project to capture and/or infiltrate and/or reuse one hundred percent (100%) of the post project volume.

This Project is designed to implement permanent water quality treatment and hydro-modification control BMPs set forth in the 2017 City of Santa Rosa's Storm Water Low Impact Development Technical Manual (SWLID); such Manual requires (i) treatment of all runoff generated by a one inch (1") rainfall event in a twenty-four (24) hour time period falling on all impermeable

surfaces, and (ii) the exit off the Project site of all such storm water at flow rates similar to pre-development conditions.

POLLUTION PREVENTION AND RUNOFF REDUCTION MEASURES

Within the Project, (i) interceptor trees will be planted along the private streets and within all of the lots, and (ii) runoff from Project rooftops will be disconnected from storm drain inlets and directed to infiltration areas, and (iii) permeable pavements will be used in parking areas. The total tributary area used for treatment calculations has been reduced by these measures. Runoff will be treated by bioretention measures and trash removed by hydrodynamic separators to reduce pollution prior to being discharged from the Project.

TYPES OF BMPS

Storm water generated by the Project will be captured and treated in a treatment train installed in the following order. Storm water runoff on the streets will be treated using either roadside bioretention basins installed in compliance with detail P2 “Roadside Bioretention – Curb Opening”, roadside bioretention installed similar to detail P2 “Roadside Bioretention – Contiguous Sidewalk”, basins in compliance with detail P2 “Roadside Bioretention – Flush Design, and P2 “Permeable Pavement”. Storm water runoff collected in the communal areas between buildings will be treated with bioretention basins installed similar to P1 “Roadside Bioretention – No curb and gutter.

All bioretention areas are sized for one hundred percent (100%) treatment and volume capture. Each BMP was sized to retain the entire volume from a 1 in - 24 hr storm rate for the tributary areas shown in the Initial SW LID Exhibits per City of Santa Rosa Standard. In all cases, higher flows will bypass the permeable gutter and flow to public catch basins.

Level of Treatment:

The Project will achieve the Design Goal of one hundred percent (100%) volume capture and one hundred percent (100%) of the runoff generated by the developed Project will be treated.

ASSIGNING LONG TERM BMPS MAINTENANCE

The long-term maintenance of the Roadside Bioretention, Rain Gardens, and Impervious Area Disconnections, as well as the Roadside Bioretention Planter located offsite on Yolanda Avenue will be the responsibility of the Apartment Management. The required maintenance is described in detail in the BMP Inspection and Maintenance Checklists section of this report. Funding for this maintenance will be provided by the Apartment Management.

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APPENDIX A

DETERMINATION WORKSHEET

FOR OFFICE USE ONLY:
Does this project require permanent storm water BMP's?

☐ Y ☐ N

Date Submitted: _____

Print Form

File No:	Quadrant
Related Files:	
Set:	
Department Use Only	

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

Yolanda Apartments Project Name	Wolff Enterprises II, LLC (Mark Kaminski) Applicant (owner or developer) Name
325 Yolanda Avenue Project Site Address	6710 East Camelback Road, Suite 100 Applicant Mailing Address
Santa Rosa CA 95404 Project City/State/Zip	Scottsdale, AZ 85251 Applicant City/State/Zip
	(480) 406-6818 / mkaminski@awolff.com Applicant Phone/Email/Fax
Permit Number(s) - (if applicable)	
Carlile Macy Designer Name	15 Third Street Designer Mailing Address
Santa Rosa CA 95401 Designer City/State/Zip	707-542-6451 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[1], 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.

2. Is this project a routine maintenance activity[2] 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[1] 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[3]? ☑ Yes ☐ No

3. Does this project create or replace a combined total of 1.0 acre or more of impervious surface[1] 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.**

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

2 "Rountine 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.

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

Part 4: Project Description

1. Total Project area: 8.57 ○ 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.:

large warehouse with 6 small misc. buildings

3. Existing impervious surface area: 5.3 ○ 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.:

1 community building with pool and rec areas, 11 three story apartment buildings.

5. Existing impervious surface area: 6.0 proposed ○ square feet ◉ acres

Project Name

2017 Storm Water LID Determination Worksheet | Yolanda Apartments

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

6/13/18
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.

Applicant Signature

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*

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

BMP Selection Table

Project Name: Yolanda Apartments

	Best Management Practice (BMP)	Detail Sheet	Detail Title	Can be used with...	High Ground Water	Contamination	Slope Constraints	Achieves...	Treatment	Volume Capture	Runoff Reduction Measure	BMP in priority selected?	Yes	No	Unique Identifier of BMP per planes	Explanation of selection	Other notes:
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 Bioretinton - Flush Design Roadside						X	X			X				
		P2-03	Roadside Bioretenion-Contiguous SW						X	X			X				
		P2-04	Roadside Bioretenion-Curb Opening						X	X			X				
		P2-05	Roadside Bioretenion- No C & G						X	X				X			
	Constructed Wetlands	N/A	N/A						X	X				X			

Date: December 2017

BMP Selection Table

	Best Management Practice (BMP)	Detail Sheet	Detail Title	Can be used with...	High Ground Water	Contamination	Slope Constraints	Achieves...	Treatment	Volume Capture	Runoff Reduction Measure	BMP in priority selected?	Yes	No	Unique Identifier of BMP per planes	Explanation of selection	Other notes:
Priority 3 BMPs- 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 Bioretinton - Flush Design Roadside		X	X	X		X					X			
		P3-03	Roadside Bioretenion- Contiguous SW		X	X	X		X					X			
		P3-04	Roadside Bioretenion- Curb Opening		X	X	X		X					X			
	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			
Priority 4 BMPs- 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			
Priority 5 BMPs- 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			
Priority 6 BMPs- see the "Offset Program" chapter for details.	Offset Program								N/A	N/A	N/A			X			
Other	Detention				X									X			

APPENDIX C

DRAINAGE AREA C-VALUE AND CURVE NUMBER CALCULATIONS

Yolanda Apartments

325 Yolanda Ave.
Prepared by Carlile Macy
June 28, 2018

Proposed C-Values and Curve Numbers for Preliminary Drainage Areas

Surface Type	Asphalt	Concrete	Permeable Pavement	Rooftop	Landscape
C-Value	0.70	0.80	0.60	0.90	0.55
Curve Number	98	98	88	98	80

Average Rainfall (in): 30
K-Factor: 1.00

Drainage Area	Surface Type					Total Area	Total Area	C-Value	Curve Number
	Asphalt ft^2	Concrete ft^2	Pavers ft^2	Rooftop ft^2	Landscape ft^2	ft^2	acres	C_{post}	CN_{Post}
A1	0	115	0	843	1,132	2,090	0.05	0.70	88.3
A2	4,074	1,333	2,241	1,962	5,030	14,641	0.34	0.67	90.3
A3	2,837	1,836	0	695	2,629	7,997	0.18	0.69	92.1
A4	4,376	1,836	0	2,840	2,843	11,895	0.27	0.73	93.7
A5	5,407	2,636	0	6,730	6,007	20,779	0.48	0.73	92.8
A6	5,033	693	0	4,549	7,666	17,941	0.41	0.69	90.3
A7	0	315	0	843	1,041	2,199	0.05	0.72	89.5
A8	7,458	2,737	0	1,755	4,106	16,056	0.37	0.70	93.4
A9	2,793	1,141	0	1,891	1,772	7,596	0.17	0.73	93.8
A10	0	806	0	4,227	2,484	7,517	0.17	0.77	92.1
A11	0	806	0	4,226	3,017	8,048	0.18	0.76	91.3
A12	0	528	0	2,063	1,503	4,094	0.09	0.76	91.4
A13	0	3,880	697	3,600	228	8,404	0.19	0.82	96.7
A14	4,438	4,256	702	3,705	1,232	14,334	0.33	0.76	96.0
A15	0	0	0	2,101	2,072	4,174	0.10	0.73	89.1
A16	0	0	0	2,126	1,806	3,932	0.09	0.74	89.7
A17	11,864	3,421	0	0	4,186	19,471	0.45	0.69	94.1
A18	0	476	1,242	0	464	2,182	0.05	0.63	88.5
A19	3,267	1,962	0	2,656	2,633	10,518	0.24	0.73	93.5
A20	4,592	5,980	0	9,232	2,342	22,146	0.51	0.79	96.1
A21	0	859	0	3,894	2,980	7,734	0.18	0.79	96.1
A22	0	0	0	4,200	2,502	6,702	0.18	0.75	91.1
A23	0	344	0	1,094	2,440	3,878	0.15	0.77	91.3
A24	0	3492	0	285	0	6163	0.09	0.67	86.7
A25	0	1,212	1,685	4,031	1,316	8,244	0.19	0.77	93.1
A26	0	2,150	0	9,550	8,124	19,824	0.46	0.75	90.6
A27	1,504	0	0	3,204	2,913	7,622	0.17	0.73	91.1
A28	5,100	2,892	0	7,142	1,381	16,515	0.38	0.79	96.5
A29	1,009	398	0	899	358	2,665	0.06	0.76	95.6
A30	0	285	0	3,801	2,452	6,538	0.15	0.76	91.2
A31	0	0	0	3,801	2,035	5,836	0.13	0.78	91.7
A32	3,217	706		3,490	2,991	10,403	0.24	0.73	92.8
A33	4,095	6,026	0	7,983	2,276	20,380	0.47	0.79	96.0
A34	0	0	0	1,765	1,442	3,207	0.07	0.74	89.9
A35	0	0	0	2,126	1,862	3,988	0.09	0.74	89.6
A36	0	0	0	3,801	1,874	5,675	0.13	0.78	92.1
A37	10,879	4,594	0	5,724	4,475	25,673	0.59	0.74	94.9
A38	3,254	176	0	0	3,065	6,495	0.15	0.63	89.5
A39	2,008	672	0	0	1,605	4,286	0.10	0.66	91.3
Total Site	**85,197**	**57,890**	**6,566**	**122,835**	**95,615**	**373,553**	**8.58**	**0.73**	**91.8**

Yolanda Apartments

325 Yolanda Ave.

Prepared by Carlile Macy

June 28, 2018

Interceptor Trees

Drainage Area	Evergreen	Deciduous	Existing Canopy
A1	0	2	0
A2	0	11	0
A3	0	3	0
A4	0	4	0
A5	0	12	0
A6	0	11	0
A7	0	3	0
A8	0	12	0
A9	0	6	0
A10	0	6	0
A11	0	10	0
A12	0	3	0
A13	0	10	0
A14	0	13	0
A15	0	4	0
A16	0	3	0
A17	0	11	0
A18	0	1	0
A19	0	4	0
A20	0	17	0
A21	0	8	0
A22	0	6	0
A23	0	6	0
A24	0	4	0
A25	0	4	0
A26	0	17	0
A27	0	4	0
A28	0	11	0
A29	0	2	0
A30	0	4	0
A31	0	4	0
A32	0	5	0
A33	0	15	0
A34	0	4	0
A35	0	3	0
A36	0	4	0
A37	0	21	0
A38	0	7	0
A39	0	3	0
Total Site	***0***	***124***	***0***

APPENDIX D

DRAINAGE AREA CALCULATIONS

Yolanda Apartments

325 Yolanda Ave.

Prepared by Carlile Macy

June 28, 2018

BMP Summary Table and Design Requirements

						Requirement: Hydromodification, 100% Volume Capture		
Drainage Area	**Treatment Type**	**Width** ft	**Length** ft	**Depth** ft	**$A_{Available}$** ft^2	**$V_{hydromod}$** ft^3	**$V_{achieved}$** ft^3	**% Achieved**
A1	Roadside Bioretention-No curb/gutter	5	13	1.5	63	36.69	37.50	102.2%
A2	Roadside Bioretention-Curb opening	14	31	2.0	434	335.82	347.20	103.4%
A3	Roadside Bioretention-Curb opening	14	24	2.0	336	255.10	268.80	105.4%
A4	Roadside Bioretention-Curb opening	14	40	2.0	560	437.98	448.00	102.3%
A5	Roadside Bioretention-Curb opening	14	59	2.0	826	656.64	660.80	100.6%
A6	Roadside Bioretention-Curb opening	14	39	2.0	546	433.90	436.80	100.7%
A7	Roadside Bioretention-No curb/gutter	5	15	2.0	109	734.49	750.40	102.2%
A8	Roadside Bioretention-Curb opening	14	51	2.0	714	565.72	571.20	101.0%
A9	Roadside Bioretention-Curb opening	14	24	2.0	336	267.70	268.80	100.4%
A10	Roadside Bioretention-No curb/gutter	15	23	1.5	345	198.71	207.00	104.2%
A11	Roadside Bioretention-No curb/gutter	15	21	1.5	315	185.63	189.00	101.8%
A12	Roadside Bioretention-No curb/gutter	10	17	1.5	170	98.00	102.00	104.1%
A13	Permeable Pavement	5	140	1.5	700	366.09	420.00	114.7%
A14	Permeable Pavement	5	140	2.5	700	620.92	700.00	112.7%
A15	Roadside Bioretention-No curb/gutter	10	15	1.5	150	78.11	90.00	115.2%
A16	Roadside Bioretention-No curb/gutter	10	15	1.5	150	82.77	90.00	108.7%
A17	Roadside Bioretention-Flush	15	43	3.0	664	771.40	774.00	100.3%
A18	Permeable Pavement	17	73	0.2	1241	37.64	82.73	219.8%
A19	Roadside Bioretention-Contiguous SW	10	48	2.0	480	375.32	384.00	102.3%
A20	Roadside Bioretention-Contiguous SW	6	134	3.0	804	952.25	964.80	101.3%
A21	Roadside Bioretention-No curb/gutter	15	36	1.5	540	312.95	324.00	103.5%
A22	Roadside Bioretention-No curb/gutter	15	20	1.5	300	152.97	162.00	105.9%
A23	Roadside Bioretention-No curb/gutter	10	16	1.5	160	93.09	96.00	103.1%
A24	Roadside Bioretention-No curb/gutter	5	36	1.5	180	102.34	108.00	105.5%
A25	Permeable Pavement	17	99	0.4	1683	231.20	280.50	121.3%
A26	Roadside Bioretention-No curb/gutter	18	45	1.5	810	449.92	486.00	108.0%
A27	Roadside Bioretention-Contiguous SW	10	25	2.0	250	192.24	200.00	104.0%
A28	Roadside Bioretention-Contiguous SW	10	90	2.0	900	715.57	720.00	100.6%
A29	Roadside Bioretention-Contiguous SW	10	15	2.0	150	112.49	120.00	106.7%
A30	Roadside Bioretention-No curb/gutter	10	28	1.5	280	155.33	168.00	108.2%
A31	Roadside Bioretention-No curb/gutter	10	25	1.5	250	145.44	150.00	103.1%
A32	Roadside Bioretention-Contiguous SW	10	42	2.0	420	331.35	336.00	101.4%
A33	Roadside Bioretention-Contiguous SW	6	124	3.0	744	886.40	892.80	100.7%
A34	Roadside Bioretention-No curb/gutter	10	12	1.5	120	63.15	72.00	114.0%
A35	Roadside Bioretention-No curb/gutter	10	15	1.5	150	84.26	90.00	106.8%
A36	Roadside Bioretention-No curb/gutter	10	25	1.5	250	146.66	150.00	102.3%
A37	Roadside Bioretention-Flush	10	96	3.0	960	942.34	960.00	101.9%
A38	Roadside Bioretention-Flush	10	21	3.0	210	243.33	252.00	103.6%
A39	Roadside Bioretention-Flush	8	15	3.0	120	123.49	144.00	116.6%
Total Site		**430**	**1750**	**72.6**	**18119**	**12975.40**	**13504.33**	**104.1%**

LID BMP Summary Page & Site Global Values

Welcome to the City of Santa Rosa Storm Water BMP Calculator. This calculator and it's worksheets are required to be submitted with all projects containing LID features.

NOTE: In order for this calculator to function properly, macros must be enabled.

Go to www.srcity.org/stormwaterlid for the latest version of this calculator.

Rev. 8.8.1 05012018

Project Information: (Required Information)

Project Name:	Yolanda Apartments
Address/Location:	Santa Rosa CA
Designer:	Carlile Macy
Date:	6/28/2018

Site Information:

Mean Seasonal Precipitation (MSP) of Project Site:	30.00	(inches)
K=MSP/30 K=	1.00	
Impervious area - Pre Project:	229,126	ft²
New or replaced impervious area - Post Project:	276,226	ft²

Click on Button to begin Calculations:

BMP Data Input

Based upon the pre and post development impervious area or special condition*, the design requirement is:

100% Capture & Treatment

*** Treatment Only Special Condition**

Check this box only if it has been determined by the North Coast Regional Water Quality Control Board that infiltration will not be required on this project. Documentation of NCRWQCB approval MUST be

Cell Color Key:

Yellow Cells	- Data Input. Require information. User input or pick from drop down list.
Blue Cells	- Calculated results by worksheet.
Green Cells	- Drop Down Value, Values/results from other worksheets.

Function Buttons Select a BMP ID (Green Heading below) and then choose function:

Retrieve BMP Saved Data	Retrieves the saved selected BMP data and loads into Input BMP Data worksheet(s). **Will overwrite existing unsaved data in worksheets!**
Delete Selected BMP	Will Delete the selected BMP and it's saved data. **Data Can Not be recovered!**
Print Selected BMP / Print All BMPs	Prints this page (Summary) and the **saved data** of the selected BMP ID or ALL BMPs listed. "Print Selected BMP" and "Print All BMPs" will not overwrite existing data in the worksheets.
Print Selected Worksheets	Prints the selected worksheet with the current data. Use the "Retrieve BMP Saved Data" to load data into worksheets.

Summary of BMPs Design: (saved data)

	Tributary Area		Requirements		Design Results						
						Hydromodification Control		Flow Base Treatmen		Delta Volume Capture	
BMP ID:	Tributary Area (ft²)	Runoff Reduction Measures (Y/N)	Type of Requirement Met:	Type of BMP Design	Percent Achieved	Required $V_{Hydromod}$ (ft³)	Achieved (ft³)	Required Q Treatment (cfs)	Achieved Q Treatment (cfs)	Required Vdelta (ft³)	Achieved Vdelta (ft³)
A-1	2090	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	102.22	36.6861	37.5000				
A-2	14641	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	103.39	335.8150	347.2000				
A-3	7997	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	105.37	255.1049	268.8000				
A-4	11895	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	102.29	437.9789	448.0000				
A-5	20779	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	100.63	656.6409	660.8000				
A-6	17941	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	100.67	433.9015	436.8000				
A-7	2199	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	105.83	42.5207	45.0000				
A-8	16056	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	100.97	565.7231	571.2000				
A-9	7596	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	100.38	267.7692	268.8000				
A-10	7517	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	104.17	198.7126	207.0000				
A-11	8048	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	101.81	185.6322	189.0000				
A-12	4094	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	103.93	98.1433	102.0000				
A-13	8404	Yes	Hydromod Volume Capture	Priority 2: P2-06 Permeable Pavement	114.73	366.0923	420.0000				
A-14	14334	Yes	Hydromod Volume Capture	Priority 2: P2-06 Permeable Pavement	112.74	620.9175	700.0000				
A-15	4174	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	116.64	77.1637	90.0000				
A-16	3932	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	108.74	82.7657	90.0000				
A-17	19471	Yes	Hydromod Volume Capture	Priority 2: P2-02 Roadside Bioretention - Flush Design	100.34	771.3983	774.0000				
A-18	2182	Yes	Hydromod Volume Capture	Priority 2: P2-06 Permeable Pavement	219.78	37.6437	82.7333				
A-19	10518	Yes	Hydromod Volume Capture	Priority 3: P3-03 Roadside Bioretention - Contiguous Sidewalk	96.73	396.9734	384.0000				
A-20	22146	Yes	Hydromod Volume Capture	Priority 3: P3-03 Roadside Bioretention - Contiguous Sidewalk	101.32	952.2450	964.8000				
A-21	7734	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	103.53	312.9525	324.0000				
A-22	6702	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	107.10	151.2569	162.0000				
A-23	3878	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	106.70	89.9697	96.0000				
A-24	6162.79004	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	101.63	106.2696	108.0000				
A-25	8244	Yes	Hydromod Volume Capture	Priority 2: P2-06 Permeable Pavement	121.32	231.1982	280.5000				
A-26	19824	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	103.15	471.1658	486.0000				
A-27	7622	Yes	Hydromod Volume Capture	Priority 2: P2-03 Roadside Bioretention - Contiguous Sidewalk	104.03	192.2447	200.0000				
A-28	16515	Yes	Hydromod Volume Capture	Priority 2: P2-03 Roadside Bioretention - Contiguous Sidewalk	100.62	715.5750	720.0000				
A-29	2665	Yes	Hydromod Volume Capture	Priority 2: P2-03 Roadside Bioretention - Contiguous Sidewalk	102.04	117.6	120				
A-30	6538	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	108.16	155.3287	168				
A-31	5836	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	99.75	150.3707	150				
A-32	10403	Yes	Hydromod Volume Capture	Priority 2: P2-03 Roadside Bioretention - Contiguous Sidewalk	99.16	338.8431	336				
A-33	20380	Yes	Hydromod Volume Capture	Priority 2: P2-03 Roadside Bioretention - Contiguous Sidewalk	100.72	886.41	892.8				
A-34	3207	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	114.02	63.14854	72				
A-35	3988	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	106.81	84.26033	90				
A-36	5675	Yes	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	102.28	146.6608	150				
A-37	25673	Yes	Hydromod Volume Capture	Priority 2: P2-02 Roadside Bioretention - Flush Design	101.87	942.3396	960				
A-38	6495	Yes	Hydromod Volume Capture	Priority 2: P2-02 Roadside Bioretention - Flush Design	103.56	243.332	252				
A-39	4286	Yes	Hydromod Volume Capture	Priority 2: P2-02 Roadside Bioretention - Flush Design	116.61	123.4863	144				

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-1
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter
BMP's Physical Tributary Area:	2,090.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 1,679.3 ft^2

Total Runoff Reduction Measures = 410.8 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	2
Square footage of qualifying **existing tree canopy**:	0.0 ft^2

Total Number of New trees in BMP Tributary Area: 2

Disconnected Roof Drains

Select disconnection condition: **Runoff is directed across landscape; Width of area: 5' to 9'**

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 843 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Select paved area type
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 36.69 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	88.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 102.22 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	5.00	ft	0.00	ft
Length:	12.50	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID: A-2

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 2: P2-04 Roadside Bioretention - Curb Opening

BMP's Physical Tributary Area: 14,641.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 12,154.1 ft^2

Total Runoff Reduction Measures = 2,486.9 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 0

Number of ***new*** interceptor ***Deciduous Trees***: 11

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 11

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 1,962 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Cobblestone/pavers/block

Alternatively designed paved area: 2,241.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 335.82 ft^3

Post development hydrologic soil type within tributary area: A: greater than 0.30 in/hr infiltration (transmission) rate

Post development ground cover description: Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)

CN_{POST}:

User Composite post development CN: 90.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 103.39 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	2.00	ft		
Depth:			0.00	ft
Width:	14.00	ft	0.00	ft
Length:	31.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID:	A-3
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 2: P2-04 Roadside Bioretention - Curb Opening
BMP's Physical Tributary Area:	7,997.0 ft²
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 7,523.3 ft²

Total Runoff Reduction Measures = 473.8 ft²

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0	
Number of ***new*** interceptor ***Deciduous Trees***:	3	
Square footage of qualifying **existing tree canopy**:	0.0 ft²	
Total Number of New trees in BMP Tributary Area:		3

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 695 ft²

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft²

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft²

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 255.10 ft³

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	92.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 105.37 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	2.00	ft		
Depth:			0.00	ft
Width:	14.00	ft	0.00	ft
Length:	24.00	ft	0.00	ft
Area:	0.00	ft²	0.00	ft²

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-4
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 2: P2-04 Roadside Bioretention - Curb Opening
BMP's Physical Tributary Area:	11,895.0 ft²
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 10,785.0 ft²

Total Runoff Reduction Measures = 1,110.0 ft²

Interceptor Trees

Number of *new* interceptor ***Evergreen Trees*** :	0	
Number of *new* interceptor ***Deciduous Trees*** :	4	
Square footage of qualifying **existing tree canopy**:	0.0 ft²	
Total Number of New trees in BMP Tributary Area:	4	

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 2,840 ft²

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft²

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft²

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 437.98 ft³

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	94.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 102.29 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	2.00	ft		
Depth:			0.00	ft
Width:	14.00	ft	0.00	ft
Length:	40.00	ft	0.00	ft
Area:	0.00	ft²	0.00	ft²

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID: A-5

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 2: P2-04 Roadside Bioretention - Curb Opening

BMP's Physical Tributary Area: 20,779.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 17,896.5 ft^2

Total Runoff Reduction Measures = 2,882.5 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 0

Number of ***new*** interceptor ***Deciduous Trees***: 12

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 12

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 6,730 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Cobblestone/pavers/block

Alternatively designed paved area: 0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 656.64 ft^3

Post development hydrologic soil type within tributary area: A: greater than 0.30 in/hr infiltration (transmission) rate

Post development ground cover description: Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)

CN_{POST}:

User Composite post development CN: 93.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 100.63 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	2.00	ft		
Depth:			0.00	ft
Width:	14.00	ft	0.00	ft
Length:	59.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-6
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 2: P2-04 Roadside Bioretention - Curb Opening
BMP's Physical Tributary Area:	17,941.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 15,703.8 ft^2

Total Runoff Reduction Measures = 2,237.3 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	11
Square footage of qualifying **existing tree canopy**:	0.0 ft^2

Total Number of New trees in BMP Tributary Area: 11

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 4,549 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 433.90 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	90.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 100.67 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	2.00	ft	Depth: 0.00	ft
Width:	14.00	ft	Width: 0.00	ft
Length:	39.00	ft	Length: 0.00	ft
Area:	0.00	ft^2	Area: 0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID: A-7

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter

BMP's Physical Tributary Area: 2,199.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 1,688.3 ft^2

Total Runoff Reduction Measures = 510.8 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 0

Number of ***new*** interceptor ***Deciduous Trees***: 3

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 3

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 843 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Cobblestone/pavers/block

Alternatively designed paved area: 0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 42.52 ft^3

Post development hydrologic soil type within tributary area: A: greater than 0.30 in/hr infiltration (transmission) rate

Post development ground cover description: Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)

CN_{POST}:

User Composite post development CN: 90.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 105.83 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	5.00	ft	0.00	ft
Length:	15.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID: A-8

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 2: P2-04 Roadside Bioretention - Curb Opening

BMP's Physical Tributary Area: 16,056.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 14,417.3 ft^2

Total Runoff Reduction Measures = 1,638.8 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 0

Number of ***new*** interceptor ***Deciduous Trees***: 12

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 12

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 1,755 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Cobblestone/pavers/block

Alternatively designed paved area: 0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 565.72 ft^3

Post development hydrologic soil type within tributary area: A: greater than 0.30 in/hr infiltration (transmission) rate

Post development ground cover description: Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)

CN_{POST}:

User Composite post development CN: 93.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 100.97 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	2.00	ft		
Depth:			0.00	ft
Width:	14.00	ft	0.00	ft
Length:	51.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-9
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 2: P2-04 Roadside Bioretention - Curb Opening
BMP's Physical Tributary Area:	7,596.0 ft²
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 6,523.3 ft²

Total Runoff Reduction Measures = 1,072.8 ft²

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	6
Square footage of qualifying **existing tree canopy**:	0.0 ft²

Total Number of New trees in BMP Tributary Area: 6

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 1,891 ft²

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft²

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft²

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 267.77 ft³

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	94.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 100.38 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	2.00	ft		
Depth:			0.00	ft
Width:	14.00	ft	0.00	ft
Length:	24.00	ft	0.00	ft
Area:	0.00	ft²	0.00	ft²

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID: A-10

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter

BMP's Physical Tributary Area: 7,517.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 5,860.3 ft^2

Total Runoff Reduction Measures = 1,656.8 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 0

Number of ***new*** interceptor ***Deciduous Trees***: 6

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 6

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 4,227 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Cobblestone/pavers/block

Alternatively designed paved area: 0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 198.71 ft^3

Post development hydrologic soil type within tributary area: A: greater than 0.30 in/hr infiltration (transmission) rate

Post development ground cover description: Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)

CN_{POST}:

User Composite post development CN: 92.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 104.17 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	15.00	ft	0.00	ft
Length:	23.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID: A-11

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter

BMP's Physical Tributary Area: 8,048.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 5,991.5 ft^2

Total Runoff Reduction Measures = 2,056.5 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 0

Number of ***new*** interceptor ***Deciduous Trees***: 10

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 10

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 4,226 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Cobblestone/pavers/block

Alternatively designed paved area: 0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 185.63 ft^3

Post development hydrologic soil type within tributary area: A: greater than 0.30 in/hr infiltration (transmission) rate

Post development ground cover description: Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)

CN_{POST}:

User Composite post development CN: 91.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 101.81 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	15.00	ft	0.00	ft
Length:	21.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID:	A-12
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter
BMP's Physical Tributary Area:	4,094.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 3,278.3 ft^2

Total Runoff Reduction Measures = 815.8 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees*** :	0
Number of ***new*** interceptor ***Deciduous Trees*** :	3
Square footage of qualifying **existing tree canopy**:	0.0 ft^2

Total Number of New trees in BMP Tributary Area: 3

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 2,063 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 98.14 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST} :	
User Composite post development CN:	91.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 103.93 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	10.00	ft	0.00	ft
Length:	17.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-13
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 2: P2-06 Permeable Pavement
BMP's Physical Tributary Area:	8,404.0 ft²
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 6,225.4 ft²

Total Runoff Reduction Measures = 2,178.6 ft²

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	10
Square footage of qualifying **existing tree canopy**:	0.0 ft²

Total Number of New trees in BMP Tributary Area: 10

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 3,600 ft²

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	696.5 ft²

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft²

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 366.09 ft³

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	97.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 114.73 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	5.00	ft	0.00	ft
Length:	140.00	ft	0.00	ft
Area:	0.00	ft²	0.00	ft²

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-14
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 2: P2-06 Permeable Pavement
BMP's Physical Tributary Area:	14,334.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 11,827.0 ft^2

Total Runoff Reduction Measures = 2,507.1 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0	
Number of ***new*** interceptor ***Deciduous Trees***:	13	
Square footage of qualifying **existing tree canopy**:	0.0 ft^2	
Total Number of New trees in BMP Tributary Area:		13

Disconnected Roof Drains

Select disconnection condition: **Runoff is directed across landscape; Width of area: 5' to 9'**

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 3,705 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	702.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 620.92 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	96.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 112.74 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	2.50	ft		
Depth:			0.00	ft
Width:	5.00	ft	0.00	ft
Length:	140.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID: A-15

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter

BMP's Physical Tributary Area: 4,174.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 3,248.8 ft^2

Total Runoff Reduction Measures = 925.3 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 0

Number of ***new*** interceptor ***Deciduous Trees***: 4

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 4

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 2,101 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Cobblestone/pavers/block

Alternatively designed paved area: 0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 77.16 ft^3

Post development hydrologic soil type within tributary area: A: greater than 0.30 in/hr infiltration (transmission) rate

Post development ground cover description: Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)

CN_{POST}:

User Composite post development CN: 89.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 116.64 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	10.00	ft	0.00	ft
Length:	15.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-16
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter
BMP's Physical Tributary Area:	3,932.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 3,100.5 ft^2

Total Runoff Reduction Measures = 831.5 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	3
Square footage of qualifying **existing tree canopy**:	0.0 ft^2

Total Number of New trees in BMP Tributary Area: 3

Disconnected Roof Drains

Select disconnection condition: **Runoff is directed across landscape; Width of area: 5' to 9'**

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 2,126 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 82.77 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	90.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 108.74 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	10.00	ft	0.00	ft
Length:	15.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-17
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 2: P2-02 Roadside Bioretention - Flush Design
BMP's Physical Tributary Area:	19,471.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 18,371.0 ft^2

Total Runoff Reduction Measures = 1,100.0 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	11
Square footage of qualifying **existing tree canopy**:	0.0 ft^2

Total Number of New trees in BMP Tributary Area: 11

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 0 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 771.40 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	94.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 100.34 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	3.00	ft	Depth: 0.00	ft
Width:	15.00	ft	Width: 0.00	ft
Length:	43.00	ft	Length: 0.00	ft
Area:	0.00	ft^2	Area: 0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID: A-18

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 2: P2-06 Permeable Pavement

BMP's Physical Tributary Area: 2,182.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 1,585.2 ft^2

Total Runoff Reduction Measures = 596.8 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 0

Number of ***new*** interceptor ***Deciduous Trees***: 1

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 1

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 0 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Cobblestone/pavers/block

Alternatively designed paved area: 1,242.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 37.64 ft^3

Post development hydrologic soil type within tributary area: A: greater than 0.30 in/hr infiltration (transmission) rate

Post development ground cover description: Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)

CN_{POST}:

User Composite post development CN: 89.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 219.78 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	0.17	ft	Depth: 0.00	ft
Width:	17.00	ft	Width: 0.00	ft
Length:	73.00	ft	Length: 0.00	ft
Area:	0.00	ft^2	Area: 0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-19
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 3: P3-03 Roadside Bioretention - Contiguous Sidewalk
BMP's Physical Tributary Area:	10,518.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 9,454.0 ft^2

Total Runoff Reduction Measures = 1,064.0 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	4
Square footage of qualifying **existing tree canopy**:	0.0 ft^2

Total Number of New trees in BMP Tributary Area: 4

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 2,656 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 396.97 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	94.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 96.73 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	2.00	ft		
Depth:			0.00	ft
Width:	10.00	ft	0.00	ft
Length:	48.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID:	A-20
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 3: P3-03 Roadside Bioretention - Contiguous Sidewalk
BMP's Physical Tributary Area:	22,146.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 18,138.0 ft^2

Total Runoff Reduction Measures = 4,008.0 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	17
Square footage of qualifying **existing tree canopy**:	0.0 ft^2

Total Number of New trees in BMP Tributary Area: 17

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 9,232 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 952.25 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	96.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 101.32 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	3.00	ft	Depth: 0.00	ft
Width:	6.00	ft	Width: 0.00	ft
Length:	134.00	ft	Length: 0.00	ft
Area:	0.00	ft^2	Area: 0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID:	A-21
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter
BMP's Physical Tributary Area:	7,734.0 ft²
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 5,960.5 ft²

Total Runoff Reduction Measures = 1,773.5 ft²

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	8
Square footage of qualifying **existing tree canopy**:	0.0 ft²

Total Number of New trees in BMP Tributary Area: 8

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 3,894 ft²

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft²

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft²

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 312.95 ft³

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	96.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 103.53 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	15.00	ft	0.00	ft
Length:	36.00	ft	0.00	ft
Area:	0.00	ft²	0.00	ft²

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID: A-22

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter

BMP's Physical Tributary Area: 6,702.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 5,052.0 ft^2

Total Runoff Reduction Measures = 1,650.0 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 0

Number of ***new*** interceptor ***Deciduous Trees***: 6

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 6

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 4,200 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Cobblestone/pavers/block

Alternatively designed paved area: 0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 151.26 ft^3

Post development hydrologic soil type within tributary area: A: greater than 0.30 in/hr infiltration (transmission) rate

Post development ground cover description: Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)

CN_{POST}:

User Composite post development CN: 91.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 107.10 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	15.00	ft	0.00	ft
Length:	18.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-23
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter
BMP's Physical Tributary Area:	3,878.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 3,004.5 ft^2

Total Runoff Reduction Measures = 873.5 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0	
Number of ***new*** interceptor ***Deciduous Trees***:	6	
Square footage of qualifying **existing tree canopy**:	0.0 ft^2	
Total Number of New trees in BMP Tributary Area:	6	

Disconnected Roof Drains

Select disconnection condition: **Runoff is directed across landscape; Width of area: 5' to 9'**

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 1,094 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 89.97 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	91.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 106.70 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	10.00	ft	0.00	ft
Length:	16.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID: A-24

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter

BMP's Physical Tributary Area: 6,162.8 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 5,691.6 ft^2

Total Runoff Reduction Measures = 471.2 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 0

Number of ***new*** interceptor ***Deciduous Trees***: 4

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 4

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 285 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Cobblestone/pavers/block

Alternatively designed paved area: 0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 106.27 ft^3

Post development hydrologic soil type within tributary area: A: greater than 0.30 in/hr infiltration (transmission) rate

Post development ground cover description: Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)

CN_{POST}:

User Composite post development CN: 87.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 101.63 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	5.00	ft	0.00	ft
Length:	36.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID:	A-25
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 2: P2-06 Permeable Pavement
BMP's Physical Tributary Area:	8,244.0 ft²
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 6,162.3 ft²

Total Runoff Reduction Measures = 2,081.8 ft²

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0	
Number of ***new*** interceptor ***Deciduous Trees***:	4	
Square footage of qualifying **existing tree canopy**:	0.0 ft²	
Total Number of New trees in BMP Tributary Area:	4	

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 4,031 ft²

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	1,685.0 ft²

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft²

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 231.20 ft³

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	93.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 121.32 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	0.42	ft		
Depth:			0.00	ft
Width:	17.00	ft	0.00	ft
Length:	99.00	ft	0.00	ft
Area:	0.00	ft²	0.00	ft²

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID:	A-26
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter
BMP's Physical Tributary Area:	19,824.0 ft²
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 15,736.5 ft²

Total Runoff Reduction Measures = 4,087.5 ft²

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	17
Square footage of qualifying **existing tree canopy**:	0.0 ft²

Total Number of New trees in BMP Tributary Area: 17

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 9,550 ft²

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft²

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft²

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 471.17 ft³

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	91.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 103.15 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	18.00	ft	0.00	ft
Length:	45.00	ft	0.00	ft
Area:	0.00	ft²	0.00	ft²

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID:	A-27
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 2: P2-03 Roadside Bioretention - Contiguous Sidewalk
BMP's Physical Tributary Area:	7,622.0 ft²
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 6,421.0 ft²

Total Runoff Reduction Measures = 1,201.0 ft²

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	4
Square footage of qualifying **existing tree canopy**:	0.0 ft²

Total Number of New trees in BMP Tributary Area: 4

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 3,204 ft²

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft²

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft²

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 192.24 ft³

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	91.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 104.03 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	2.00	ft		
Depth:			0.00	ft
Width:	10.00	ft	0.00	ft
Length:	25.00	ft	0.00	ft
Area:	0.00	ft²	0.00	ft²

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID: A-28

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 2: P2-03 Roadside Bioretention - Contiguous Sidewalk

BMP's Physical Tributary Area: 16,515.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 13,629.5 ft^2

Total Runoff Reduction Measures = 2,885.5 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 0

Number of ***new*** interceptor ***Deciduous Trees***: 11

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 11

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 7,142 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Cobblestone/pavers/block

Alternatively designed paved area: 0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 715.58 ft^3

Post development hydrologic soil type within tributary area: A: greater than 0.30 in/hr infiltration (transmission) rate

Post development ground cover description: Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)

CN_{POST}:

User Composite post development CN: 96.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 100.62 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	2.00	ft	Depth: 0.00	ft
Width:	10.00	ft	Width: 0.00	ft
Length:	90.00	ft	Length: 0.00	ft
Area:	0.00	ft^2	Area: 0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-29
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 2: P2-03 Roadside Bioretention - Contiguous Sidewalk
BMP's Physical Tributary Area:	2,665.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 2,240.3 ft^2

Total Runoff Reduction Measures = 424.8 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	2
Square footage of qualifying **existing tree canopy**:	0.0 ft^2

Total Number of New trees in BMP Tributary Area: 2

Disconnected Roof Drains

Select disconnection condition: **Runoff is directed across landscape; Width of area: 5' to 9'**

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 899 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 117.60 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	96.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 102.04 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	2.00	ft	Depth: 0.00	ft
Width:	10.00	ft	Width: 0.00	ft
Length:	15.00	ft	Length: 0.00	ft
Area:	0.00	ft^2	Area: 0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID: **A-30**

BMP Design Criteria: **100% Capture & Treatment**

Type of BMP Design: **Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter**

BMP's Physical Tributary Area: **6,538.0** ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = **5,187.8** ft^2

Total Runoff Reduction Measures = **1,350.3** ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: **0**

Number of ***new*** interceptor ***Deciduous Trees***: **4**

Square footage of qualifying **existing tree canopy**: **0.0** ft^2

Total Number of New trees in BMP Tributary Area: **4**

Disconnected Roof Drains

Select disconnection condition: **Runoff is directed across landscape; Width of area: 5' to 9'**

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: **3,801** ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: **0** %

Select Density: **1** Units per Acre

Paved Area Disconnection

Paved Area Type: **Cobblestone/pavers/block**

Alternatively designed paved area: **0.0** ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: **0.0** ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = **155.33** ft^3

Post development hydrologic soil type within tributary area: **A: greater than 0.30 in/hr infiltration (transmission) rate**

Post development ground cover description: **Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)**

CN_{POST}:

User Composite post development CN: **91.0**

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = **108.16** %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	10.00	ft	0.00	ft
Length:	28.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-31
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter
BMP's Physical Tributary Area:	5,836.0 ft²
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 4,485.8 ft²

Total Runoff Reduction Measures = 1,350.3 ft²

Interceptor Trees

Number of *new* interceptor ***Evergreen Trees*** :	0
Number of *new* interceptor ***Deciduous Trees*** :	4
Square footage of qualifying **existing tree canopy**:	0.0 ft²

Total Number of New trees in BMP Tributary Area: 4

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 3,801 ft²

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft²

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft²

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 150.37 ft³

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST} :	
User Composite post development CN:	92.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 99.75 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	10.00	ft	0.00	ft
Length:	25.00	ft	0.00	ft
Area:	0.00	ft²	0.00	ft²

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-32
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 2: P2-03 Roadside Bioretention - Contiguous Sidewalk
BMP's Physical Tributary Area:	10,403.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 9,030.5 ft^2

Total Runoff Reduction Measures = 1,372.5 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0	
Number of ***new*** interceptor ***Deciduous Trees***:	5	
Square footage of qualifying **existing tree canopy**:	0.0 ft^2	
		Total Number of New trees in BMP Tributary Area: 5

Disconnected Roof Drains

Select disconnection condition: **Runoff is directed across landscape; Width of area: 5' to 9'**

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 3,490 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 338.84 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	93.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 99.16 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	2.00	ft	Depth: 0.00	ft
Width:	10.00	ft	Width: 0.00	ft
Length:	42.00	ft	Length: 0.00	ft
Area:	0.00	ft^2	Area: 0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID: A-33

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 2: P2-03 Roadside Bioretention - Contiguous Sidewalk

BMP's Physical Tributary Area: 20,380.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 16,884.3 ft^2

Total Runoff Reduction Measures = 3,495.8 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 0

Number of ***new*** interceptor ***Deciduous Trees***: 15

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 15

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 7,983 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Cobblestone/pavers/block

Alternatively designed paved area: 0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 886.41 ft^3

Post development hydrologic soil type within tributary area: A: greater than 0.30 in/hr infiltration (transmission) rate

Post development ground cover description: Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)

CN_{POST}:

User Composite post development CN: 96.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 100.72 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	3.00	ft	Depth: 0.00	ft
Width:	6.00	ft	Width: 0.00	ft
Length:	124.00	ft	Length: 0.00	ft
Area:	0.00	ft^2	Area: 0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **Yolanda Apartments**

BMP ID:	A-34
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter
BMP's Physical Tributary Area:	3,207.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 2,365.8 ft^2

Total Runoff Reduction Measures = 841.3 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0	
Number of ***new*** interceptor ***Deciduous Trees***:	4	
Square footage of qualifying **existing tree canopy**:	0.0 ft^2	
		Total Number of New trees in BMP Tributary Area: 4

Disconnected Roof Drains

Select disconnection condition: **Runoff is directed across landscape; Width of area: 5' to 9'**

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 1,765 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 63.15 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	90.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 114.02 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft	Depth: 0.00	ft
Width:	10.00	ft	Width: 0.00	ft
Length:	12.00	ft	Length: 0.00	ft
Area:	0.00	ft^2	Area: 0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID:	A-35
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter
BMP's Physical Tributary Area:	3,988.0 ft²
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 3,156.5 ft²

Total Runoff Reduction Measures = 831.5 ft²

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	3
Square footage of qualifying **existing tree canopy**:	0.0 ft²

Total Number of New trees in BMP Tributary Area: 3

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 2,126 ft²

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft²

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft²

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 84.26 ft³

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	90.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 106.81 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft		
Depth:			0.00	ft
Width:	10.00	ft	0.00	ft
Length:	15.00	ft	0.00	ft
Area:	0.00	ft²	0.00	ft²

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID:	A-36
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter
BMP's Physical Tributary Area:	5,675.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 4,324.8 ft^2

Total Runoff Reduction Measures = 1,350.3 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees*** :	0	
Number of ***new*** interceptor ***Deciduous Trees*** :	4	
Square footage of qualifying **existing tree canopy**:	0.0 ft^2	
		Total Number of New trees in BMP Tributary Area: 4

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 3,801 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 146.66 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST} :	
User Composite post development CN:	92.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 102.28 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	1.50	ft	Depth: 0.00	ft
Width:	10.00	ft	Width: 0.00	ft
Length:	25.00	ft	Length: 0.00	ft
Area:	0.00	ft^2	Area: 0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID:	A-37
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 2: P2-02 Roadside Bioretention - Flush Design
BMP's Physical Tributary Area:	25,673.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 22,442.0 ft^2

Total Runoff Reduction Measures = 3,231.0 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	18
Square footage of qualifying **existing tree canopy**:	0.0 ft^2

Total Number of New trees in BMP Tributary Area: 18

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 5,724 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 942.34 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	94.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 101.87 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	3.00	ft	Depth: 0.00	ft
Width:	10.00	ft	Width: 0.00	ft
Length:	80.00	ft	Length: 0.00	ft
Area:	0.00	ft^2	Area: 0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID: A-38

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 2: P2-02 Roadside Bioretention - Flush Design

BMP's Physical Tributary Area: 6,495.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 5,795.0 ft^2

Total Runoff Reduction Measures = 700.0 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***: 0

Number of ***new*** interceptor ***Deciduous Trees***: 7

Square footage of qualifying **existing tree canopy**: 0.0 ft^2

Total Number of New trees in BMP Tributary Area: 7

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 0 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type: Cobblestone/pavers/block

Alternatively designed paved area: 0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 243.33 ft^3

Post development hydrologic soil type within tributary area: A: greater than 0.30 in/hr infiltration (transmission) rate

Post development ground cover description: Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)

CN_{POST}:

User Composite post development CN: 94.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 103.56 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	3.00	ft		
Depth:			0.00	ft
Width:	10.00	ft	0.00	ft
Length:	21.00	ft	0.00	ft
Area:	0.00	ft^2	0.00	ft^2

City of Santa Rosa WATER

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Yolanda Apartments

BMP ID:	A-39
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 2: P2-02 Roadside Bioretention - Flush Design
BMP's Physical Tributary Area:	4,286.0 ft^2
Description/Notes:	

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 3,986.0 ft^2

Total Runoff Reduction Measures = 300.0 ft^2

Interceptor Trees

Number of ***new*** interceptor ***Evergreen Trees***:	0
Number of ***new*** interceptor ***Deciduous Trees***:	3
Square footage of qualifying **existing tree canopy**:	0.0 ft^2

Total Number of New trees in BMP Tributary Area: 3

Disconnected Roof Drains

Select disconnection condition: Runoff is directed across landscape; Width of area: 5' to 9'

Disconnected Roof Drains Method 1

Roof area of disconnected downspouts: 0 ft^2

Disconnected Roof Drains Method 2

Percent of rooftop area: 0 %

Select Density: 1 Units per Acre

Paved Area Disconnection

Paved Area Type:	Cobblestone/pavers/block
Alternatively designed paved area:	0.0 ft^2

Buffer Strips & Bovine Terraces

Area draining to a Buffer Strip or Bovine Terrace: 0.0 ft^2

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 123.49 ft^3

Post development hydrologic soil type within tributary area:	A: greater than 0.30 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	91.0

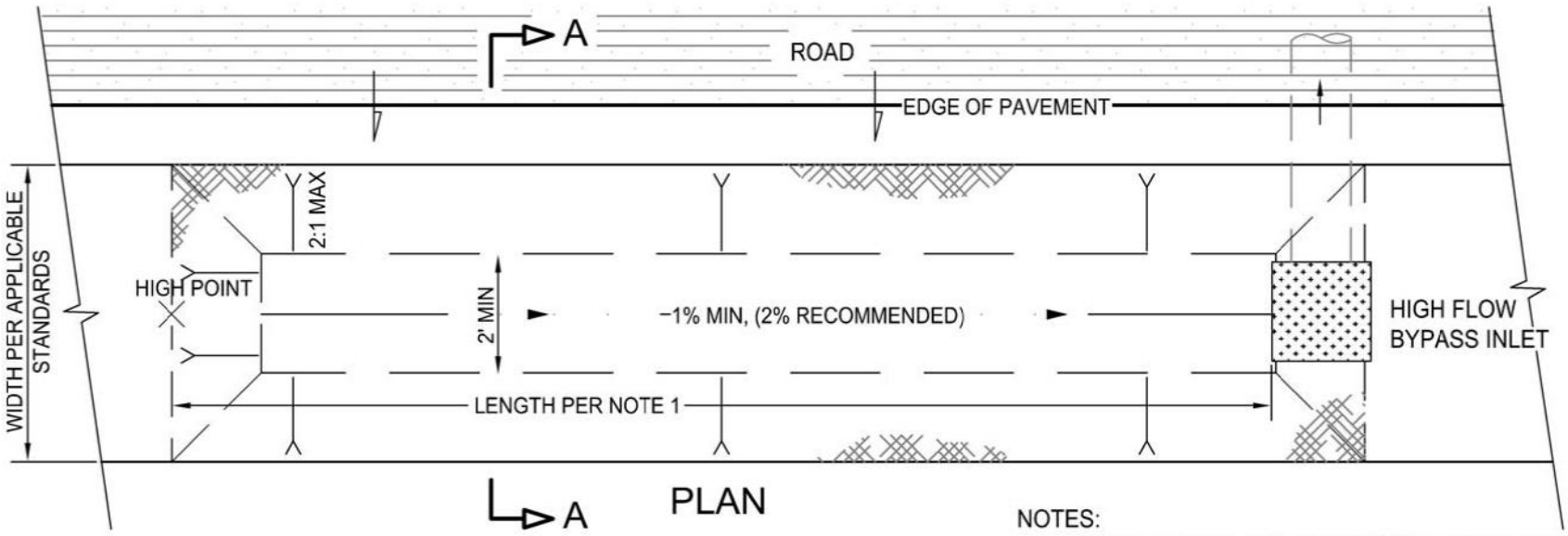
BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 116.61 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	3.00	ft	Depth: 0.00	ft
Width:	8.00	ft	Width: 0.00	ft
Length:	15.00	ft	Length: 0.00	ft
Area:	0.00	ft^2	Area: 0.00	ft^2

APPENDIX E

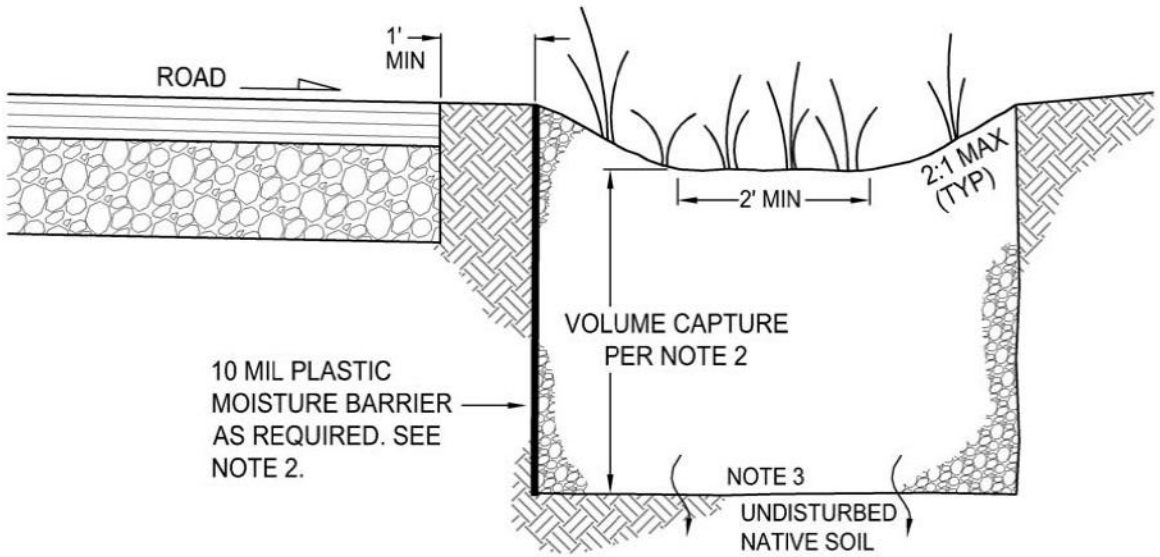
BMP DETAILS



PLAN

NOTES:

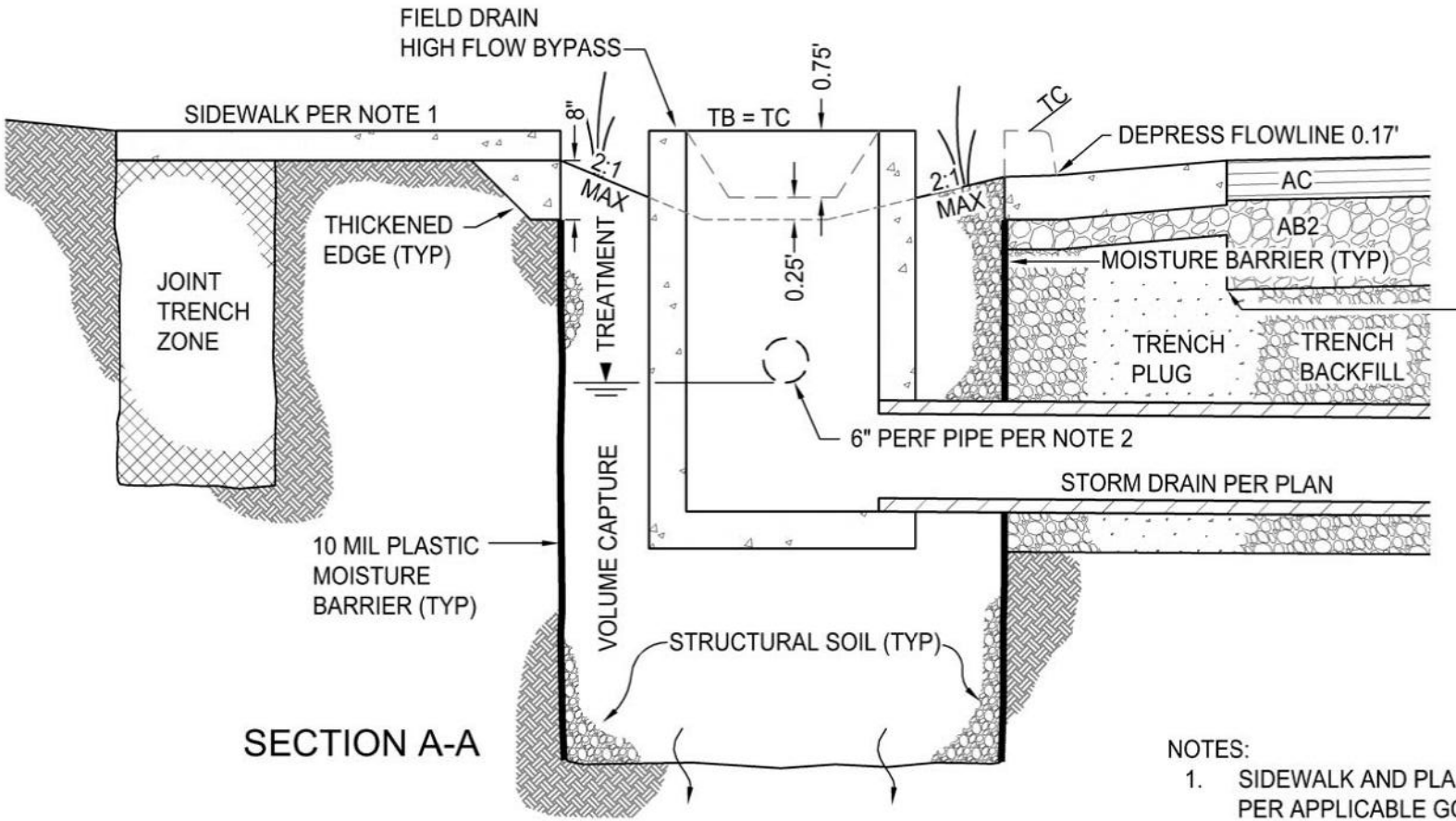
1. IF SWALE PROVIDES TREATMENT, LENGTH SHALL BE DESIGNED TO PROVIDE 12 MINUTES OF CONTACT TIME IF FLOW ENTERS UNIFORMLY ALONG LENGTH. LENGTH SHALL PROVIDE 5 MINUTES OF CONTACT TIME IF 90% OR MORE OF THE FLOW ENTERS AT THE UPSTREAM END.
2. SOIL TO BE SPECIFIED BY DESIGN ENGINEER TO MEET VOLUME CAPTURE AND GOVERNING AGENCY REQUIREMENTS. IF NON-STRUCTURAL SOIL IS SELECTED A CUTOFF WALL IS REQUIRED IN PLACE OF A MOISTURE BARRIER.
3. SWALE MUST CONVEY HIGH FLOWS PER GOVERNING AGENCY DESIGN STANDARDS.



SECTION A-A

Not to Scale

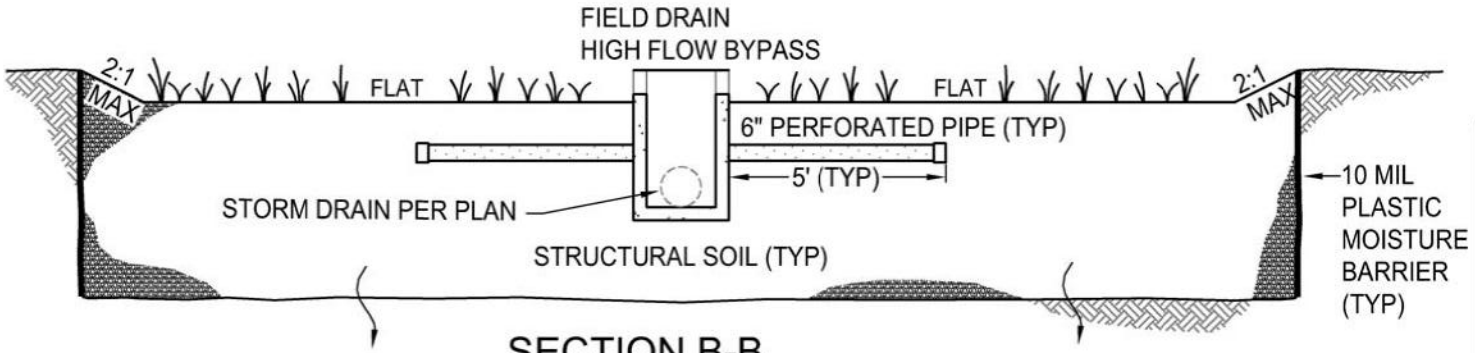
PRIORITY 1 ROADSIDE BIORETENTION - NO CURB AND GUTTER		
SCALE: *NONE*	DATE: *03/29/17*	
DWN. *DIT* CHK. *HM*		P1–02



SECTION A-A

NOTES:

1. SIDEWALK AND PLANTER WIDTHS PER APPLICABLE GOVERNING AGENCY STANDARDS (TYP).
2. TOP OF 6" PERFORATED PIPE TO BE SET 6" BELOW BOTTOM OF ROAD STRUCTURAL SECTION.

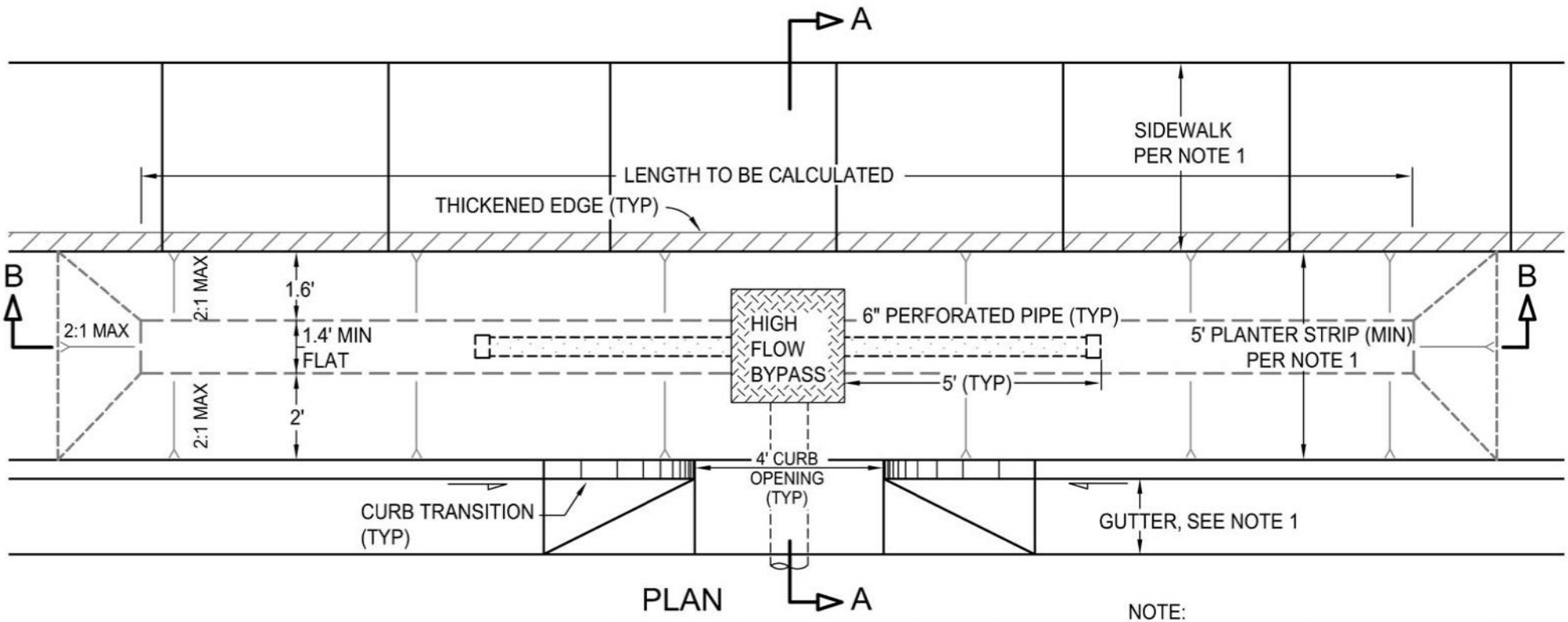


SECTION B-B

Not to Scale

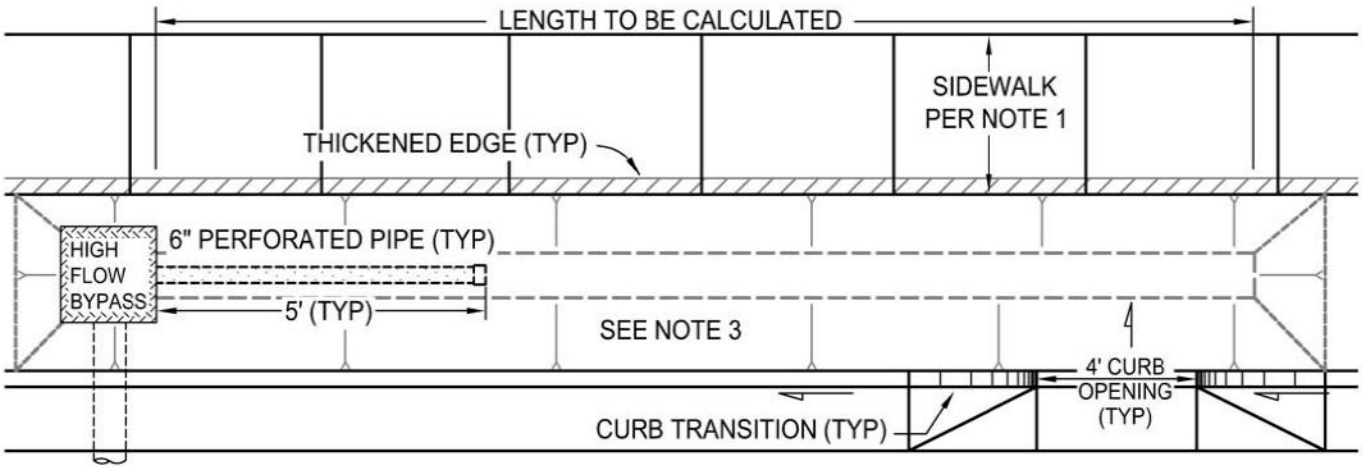
PRIORITY 2
ROADSIDE BIORETENTION
- CURB OPENING
SECTION A-A & B-B

SCALE: *NONE*	DATE: *04/06/17*	
DWN. *DIT* CHK. *HM*	SHEET 2 of 2	P2–04



PLAN

TYPE A - CURB OPENING AT LOW POINT



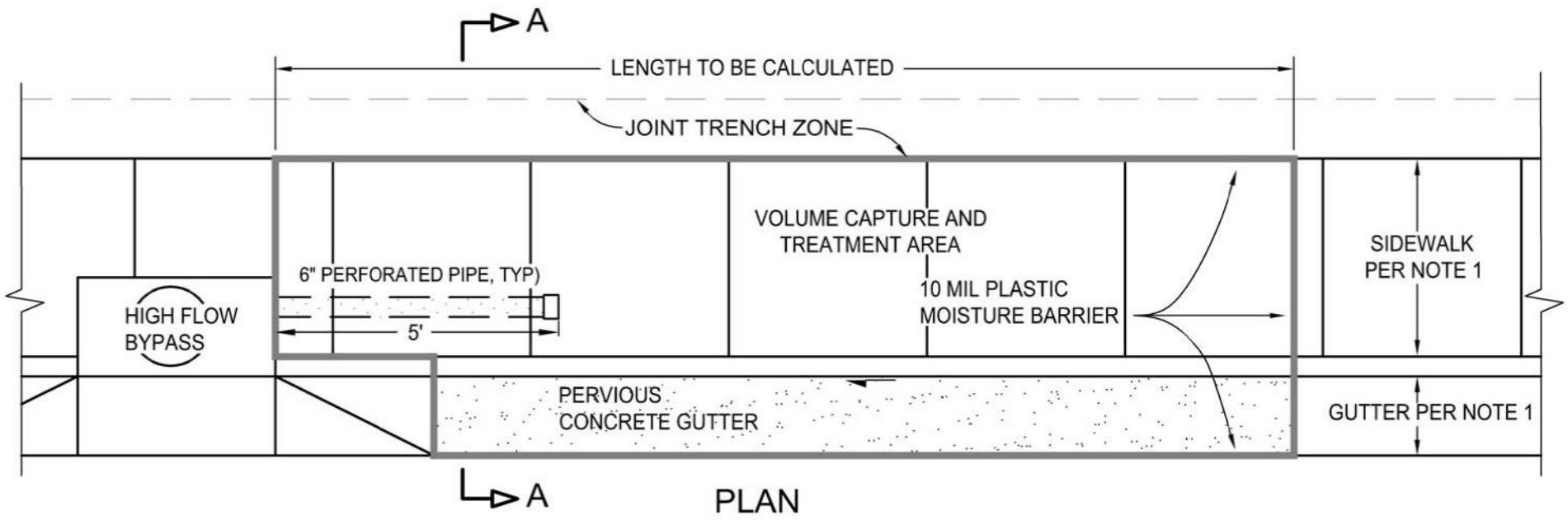
TYPE B -CURB OPENING ALONG A SLOPE

NOTE:

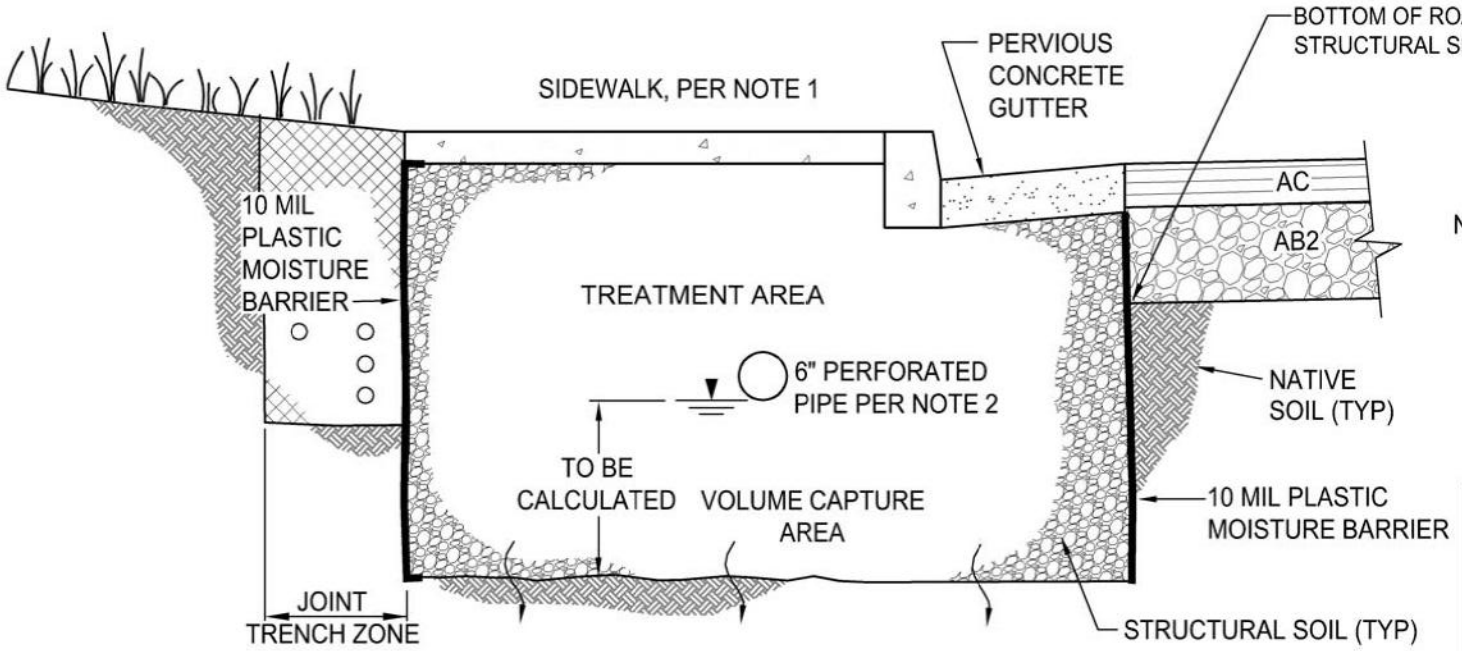
1. SIDEWALK, GUTTER AND PLANTER WIDTHS PER APPLICABLE MUNICIPAL STANDARDS (TYP).
2. TOP OF 6" PERFORATED PIPE TO BE SET 6" BELOW ROAD STRUCTURAL SECTION, MIN.
3. TYPE A MINIMUM DIMENSIONS AND GRADES APPLY TO TYPE B.

Not to Scale

PRIORITY 2 ROADSIDE BIORETENTION - CURB OPENING		
SCALE: *NONE*	DATE: *04/06/17*	
DWN. *DIT* CHK. *HM*	SHEET 1 of 2	P2–04



PLAN



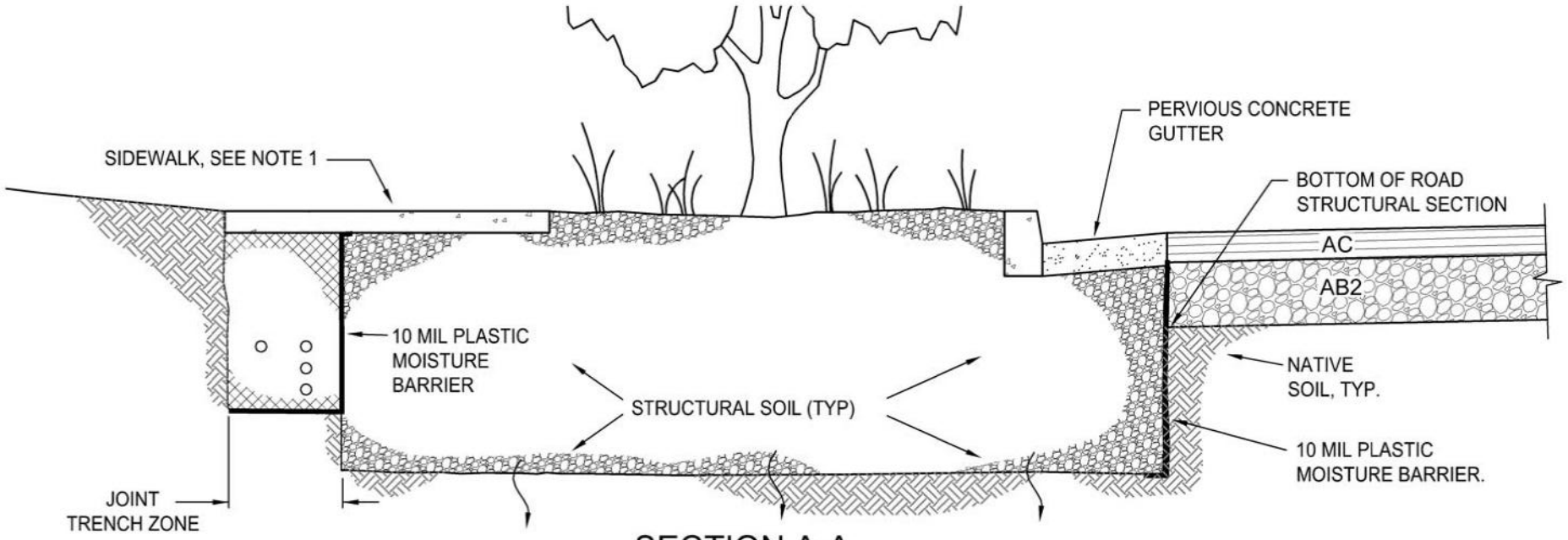
SECTION A-A

NOTE:

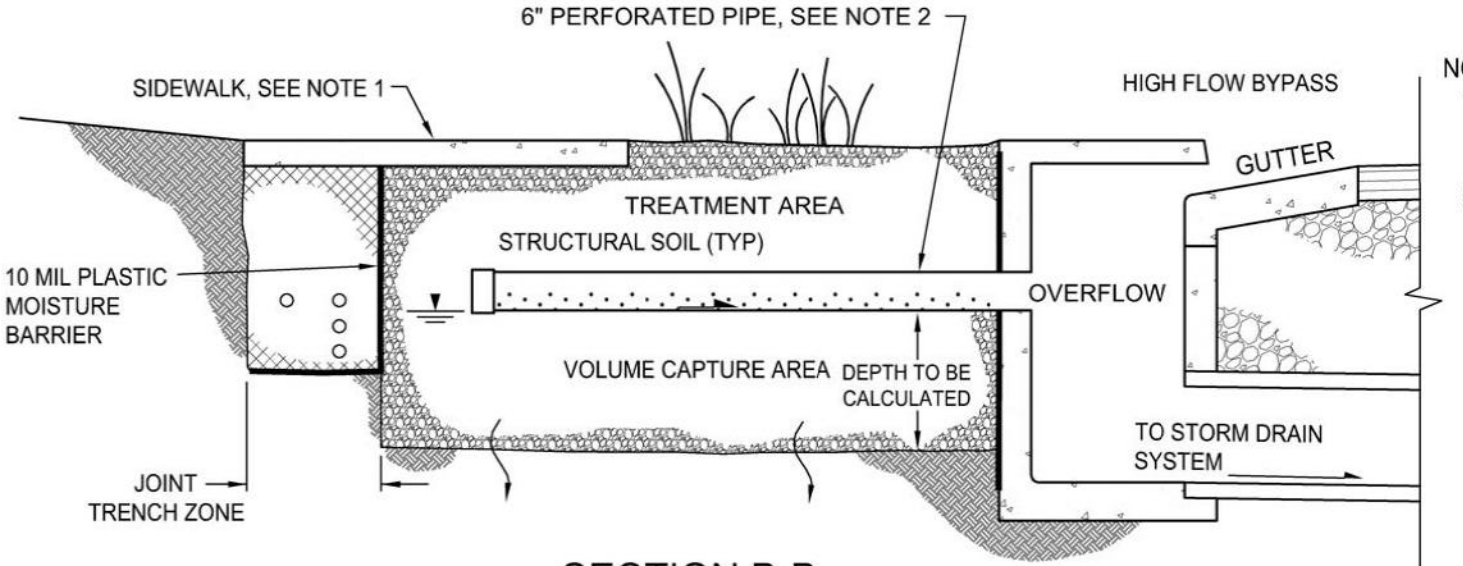
1. SIDEWALK AND CURB AND GUTTER WIDTHS PER APPLICABLE GOVERNING AGENCY STANDARDS (TYP).
2. TOP OF 6" PERFORATED PIPE TO BE SET 6" BELOW BOTTOM OF ROAD STRUCTURAL SECTION, MIN.

Not to Scale

PRIORITY 2 ROADSIDE BIORETENTION - CONTIGUOUS SIDEWALK		
SCALE: *NONE*	DATE: *04/06/17*	
DWN. *DIT* CHK. *HM*	SHEET 1 of 1	P2–03



SECTION A-A



SECTION B-B

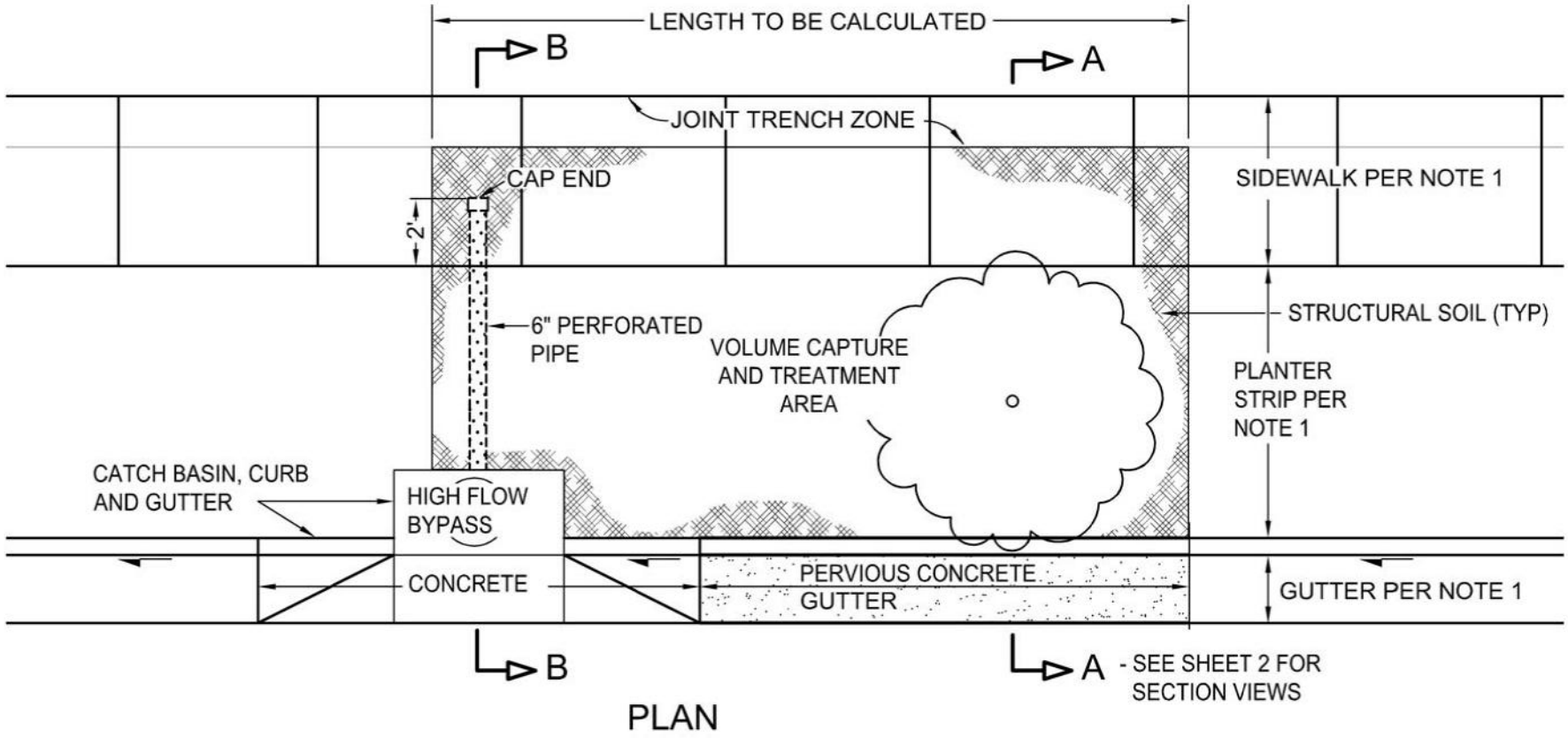
NOTES:

1. SIDEWALK, GUTTER AND PLANTER WIDTHS PER APPLICABLE GOVERNING AGENCY STANDARDS (TYP).
2. TOP OF 6" PERFORATED PIPE TO BE SET 6" BELOW BOTTOM OF ROAD STRUCTURAL SECTION, MIN.

Not to Scale

PRIORITY 2
ROADSIDE BIORETENTION
- FLUSH DESIGN

SCALE: *NONE*	DATE: *04/06/17*	
DWN. *DIT* CHK. *HM*	SHEET 2 of 2	P2–02



PLAN

NOTES:

1. SIDEWALK, GUTTER AND PLANTER WIDTHS PER APPLICABLE GOVERNING AGENCY STANDARDS (TYP).

Not to Scale

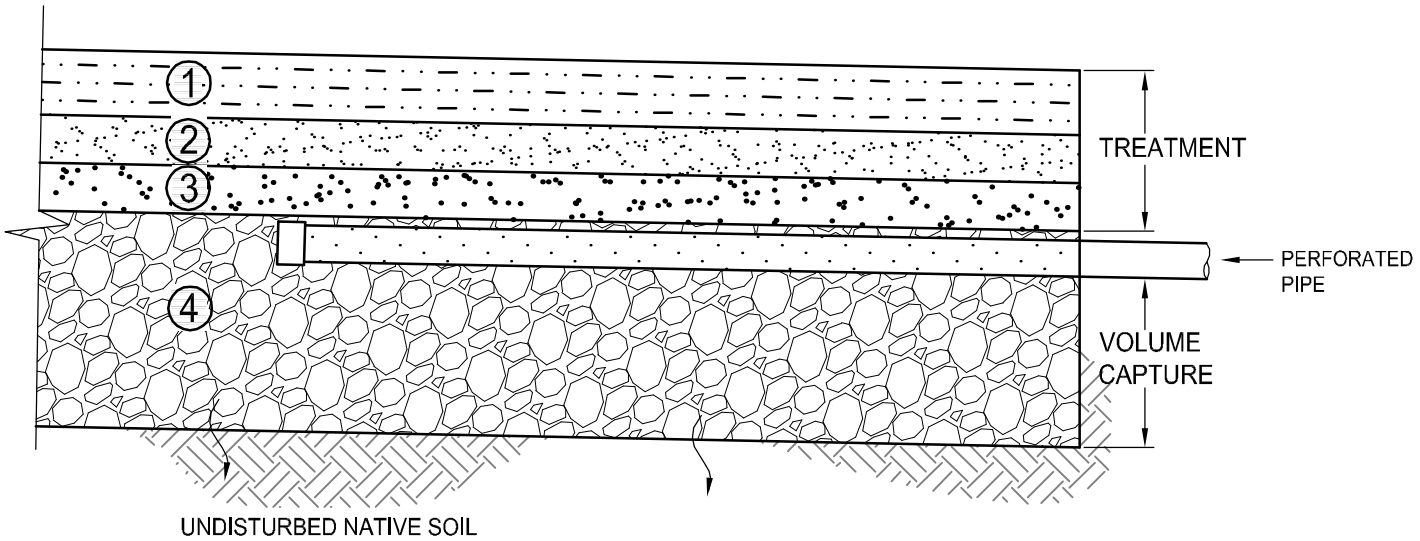
PRIORITY 2 ROADSIDE BIORETENTION - FLUSH DESIGN		
SCALE: *NONE*	DATE: *04/06/17*	
DWN. *DIT* CHK. *HM*	SHEET 1 of 2	P2–02

① PERMEABLE PAVEMENT OR SURFACE PER GOVERNING AGENCY STANDARDS

② SAND LAYER (FINE SAND)

③ TRANSITION LAYER (COARSE SAND) AS NEEDED FOR CONVEYANCE AND TREATMENT

④ STRUCTURAL SOIL OR DRAIN ROCK



Not to Scale

PRIORITY 2 PERMEABLE PAVEMENT		
SCALE: *NONE*	DATE: *05/10/11*	
DWN. *DIT* CHK. *HH*		P2–06

APPENDIX F

BMP INSPECTION AND MAINTENANCE CHECKLISTS

Form A
Storm Water Quality Feature Maintenance Check List
- Standard Conditions -

Date: _____ Inspector: _____

Start Time: _____ Project: _____

Stop Time: _____ Address: _____

Inspection Status Codes:
S = Satisfactory * = Refer to Form B (Specials) and/or Form C (Notes).
D = Deficient

Are there any special conditions and/or maintenance requirements noted for BMP(s)? Y N (circle one)
If Yes, attach Form B for Project.

	Drainage				Erosion						Vegetation				General			Special Features
	Drawdown - Drainage - Vector Risk - Pump Out-Blockage				Hydraulic Function - Failure - Sediment Clogging						Excessive Mowing - Herbicide Overuse - Health of Desired Vegetation -				Trash and Debris - Improper Modifications - Damage			
Reference code	D1	D2	D3	D4	E1	E2	E3	E4	E5	E6	V1	V2	V3	V4	G1	G2	G4	S
BMP ID:	Evidence of standing or ponding of water in the BMP area after 72 hours of dry weather?	Does the high flow bypass function as designed?	Is there sediment acumination in or around BMP?	Has water been observed flowing in the pervious concrete section during a low intensity storm?	Is there under cutting or washouts along the sidewalks and/or curbs abutting the planter area?	Is there channelization (gully) forming along the length of the planter area?	Is there accumulation of sediment (sand, dirt, mud) in the planter area ?	Observed or potential transport of mulch to drainage system?	Are there voids or holes present in the BMP?	Is there evidence of animal activity?	Is the vegetation clogging the inlet or flow path?	Evidence of Excessive Mowing and/or Herbicide Overuse?	Are there dead or dry plants or excessive weeds?	Is there an absence of correct vegetation?	Is there debris/trash accumulation in the BMP or high flow by pass?	Missing or damage structural features? (Grates, pipes, walls, curbs, etc.)	Evidence of improper modifications or removal of BMP?	**See Additional Special Conditions or Features Check List Requirement Form B**

Office Use:
Complete: _____ Issues Corrective Action: _____ Re-Inspection Required: _____

Storm Water Quality Special Feature Maintenence 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 Criterial	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: _____

Form C
Storm Water Quality Feature Maintenence Check List
- Inspection Notes -

Date: _____

Inspector: _____

Project: _____

Address: _____

BMP ID:	Reference Code	**Notes**

APPENDIX G

SUSMP EXHIBITS

LEGEND

EXISTING ASPHALT OFFSITE . . = 0.21 AC

CONCRETE . . . . . = 0.04 AC

ROOFTOP . . . . . = 0.50 AC

ASPHALT . . . . . = 4.66 AC

GRAVEL . . . . . = 0.06 AC

TRIBUTARY AREA . . . . . TRIB AREA

EXISTING IMPERVIOUS SURFACE ONSITE = 5.26 AC

TOTAL SITE = 8.57 AC

IMPERVIOUSNESS BEFORE CONSTRUCTION = 50%

A1 0.05 AC
A2 0.34 AC
A3 0.18 AC
A4 0.27 AC
A5 0.48 AC
A6 0.41AC
A7 0.05 AC
A8 0.37 AC
A9 0.17 AC
A10 0.17 AC
A11 0.18 AC
A12 0.09 AC
A12-A 0.06 AC
A12-B 0.05 AC
A13 0.19 AC
A14 0.33 AC
A15 0.10 AC
A16 0.09 AC
A17 0.45 AC
A18 0.05 AC
A19 0.24 AC
A20 0.51 AC
A21 0.18 AC
A22 0.18 AC
A23 0.15 AC
A24 0.58 AC
A25 0.19 AC
A26 0.46 AC
A27 0.17 AC
A28 0.38 AC
A29 0.06 AC
A30 0.15 AC
A31 0.13 AC
A32 0.24 AC
A33 0.47 AC
A34 0.07 AC
A35 0.09 AC
A36 0.13 AC
A37 0.59 AC
A38 0.15 AC
A39 0.10 AC

YOLANDA AVENUE

0 30 60
scale 1" = 30' feet

PREPARED BY:

CARLILE • MACY

CIVIL ENGINEERS • URBAN PLANNERS • LAND SURVEYORS • LANDSCAPE ARCHITECTS

15 THIRD STREET, SANTA ROSA, CA 95401

TEL (707) 542-6451 FAX (707) 542-5212

PROJECT No. 20180100

EXISTING SOIL

SOIL TYPE . . . . . WRIGHT LOAM, CLEAR LAKE CLAY

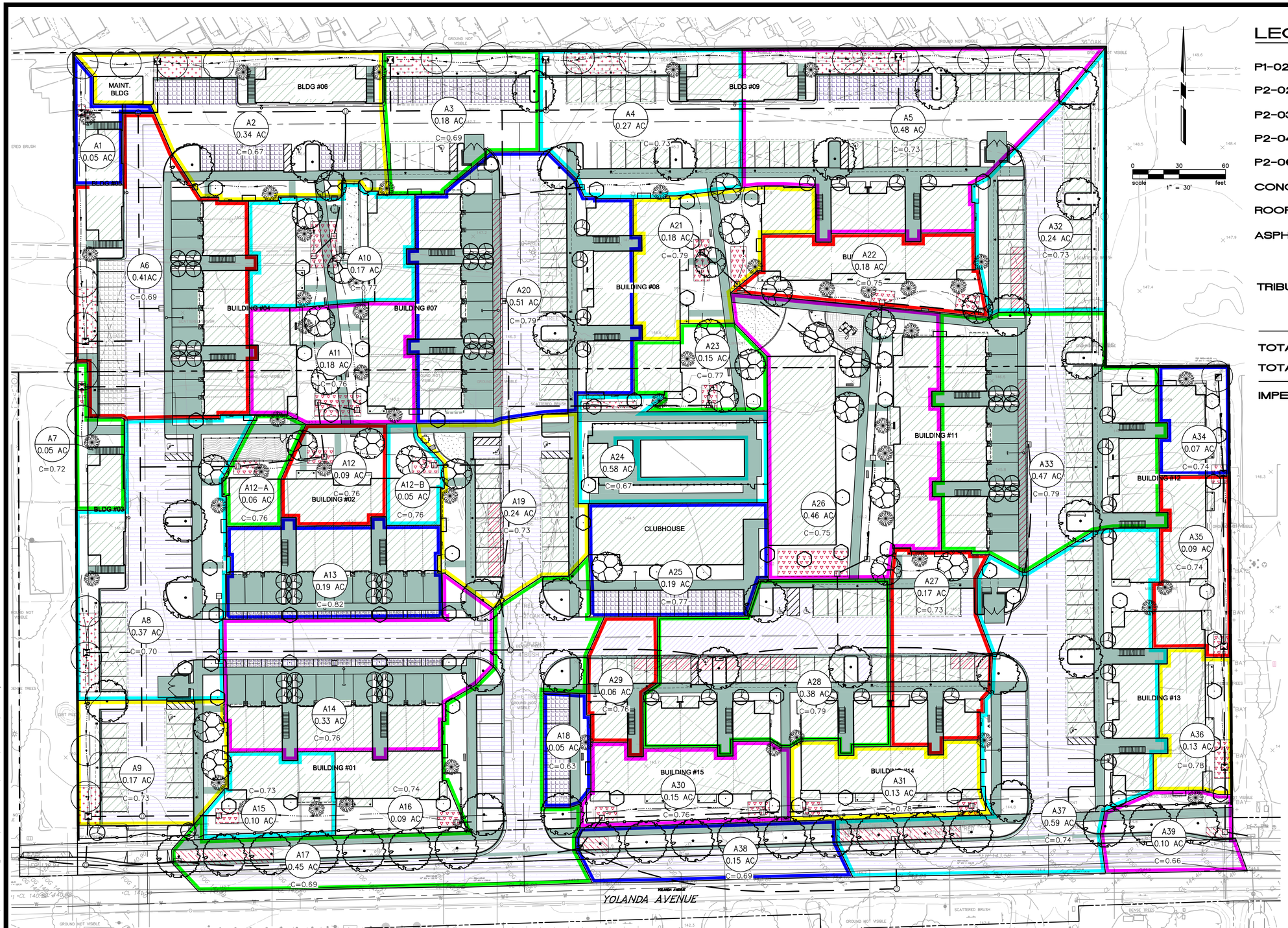
HYDROLOGIC SOIL GROUP . . . . . D

EXISTING IMPERVIOUS SURFACES

YOLANDA APARTMENTS

SANTA ROSA, CALIFORNIA

JULY, 2018



LEGEND

P1-02 BIORETENTION . . . . . .

P2-02 BIORETENTION . . . . . .

P2-03 BIORETENTION . . . . . .

P2-04 BIORETENTION . . . . . .

P2-06 PAVERS . . . . . .

CONCRETE . . . . . = 1.34 AC

ROOFTOP . . . . . = 2.85 AC

ASPHALT . . . . . = 1.93 AC

TRIBUTARY AREA . . . . . TRIB AREA

TOTAL IMPERVIOUS SURFACE ONSITE = 6.12 AC

TOTAL SITE = 8.57 AC

IMPERVIOUSNESS BEFORE CONSTRUCTION = 71%

BMP SIZING

Drainage Area	Width	Length	Depth
	ft	ft	ft
A1	5	13	1.5
A2	14	31	2.0
A3	14	24	2.0
A4	14	40	2.0
A5	14	59	2.0
A6	14	39	2.0
A7	5	15	2.0
A8	14	51	2.0
A9	14	24	2.0
A10	15	23	1.5
A11	15	21	1.5
A12	10	17	1.5
A13	5	140	1.5
A14	5	140	2.5
A15	10	15	1.5
A16	10	15	1.5
A17	15	43	3.0
A18	17	73	0.2
A19	10	48	2.0
A20	6	134	3.0

Drainage Area	Width	Length	Depth
	ft	ft	ft
A21	15	36	1.5
A22	15	20	1.5
A23	10	16	1.5
A24	5	36	1.5
A25	17	99	0.4
A26	18	45	1.5
A27	10	25	2.0
A28	10	90	2.0
A29	10	15	2.0
A30	10	28	1.5
A31	10	25	1.5
A32	10	42	2.0
A33	6	124	3.0
A34	10	12	1.5
A35	10	15	1.5
A36	10	25	1.5
A37	10	96	3.0
A38	10	21	3.0
A39	8	15	3.0

PREPARED BY:

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PROJECT No. 2018010.00

INITIAL SWLID IMPERVIOUS SURFACES, TRIBUTARY AREAS AND BMPs

YOLANDA APARTMENTS

SANTA ROSA, CALIFORNIA

JULY, 2018