

INITIAL STORM WATER LOW IMPACT DEVELOPMENT SUBMITTAL  
**LOS PINOS APARTMENTS**

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MAY 2020

CIVIL DESIGN CONSULTANTS, INC.

2200 Range Avenue, Suite 204  
Santa Rosa, CA 95403  
(707) 542-4820



Project Name: Los Pinos Apartments

Date: May 4, 2020



**Storm Water Low Impact Development Submittal Coversheet**

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

**1. Submittal Information:**

Submittal Date: May 4, 2020

Initial SW LIDS  Final SW LIDS

**Design Manual Used for design:**

- 2005 Standard Urban Storm Water Mitigation Plan
- 2011 Storm Water Low Impact Development Technical Design Manual
- 2017 Storm Water Low Impact Development Technical Design Manual

**2. Applicant Information:**

Applicant Name (Owner or Developer): Los Pinos Apartments, LLC

Mailing Address: 5885 Mountain Hawk Drive

City/State/Zip: Santa Rosa / CA / 95409

Phone/Email/Fax: 707-954-6551

Project Name: Los Pinos Apartments

Date: May 4, 2020



**Storm Water Low Impact Development Submittal Coversheet**

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

**3. Project Information:**

**Project Name:** Los Pinos Apartments

**Site Address:** 3496 Santa Rosa Avenue

**City/State/Zip:** Santa Rosa / CA / 95407

**APN (s):** 134-132-015

**Permit # (s):** DRH19-0014

Subdivision       Grading Permit       Building Permit       Design Review

Use Permit       Hillside Development       Encroachment       Time Extension

Other:



## Storm Water Low Impact Development Submittal Coversheet

*To be submitted with all SW LID submittals*

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

#### **Narrative:**

##### *Project Description*

- Description of proposed project type, size, location, and any specific uses or features.
- Description of any sensitive features (creeks, wetlands, trees, etc.) and whether they are going to be preserved, removed or altered.
- Description of the existing site.
- Description of how this project triggers these requirements (impervious area, CALGreen, 401 Permit, etc.).
- Describe any "on-site offset" used.

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

- Description of all proposed pollution prevention measures (street sweeping, covered trash enclosures, indoor uses, etc).
- Description of all Runoff Reduction Measures (Interceptor Trees, Impervious Area Disconnection, and/or Alternative Driveway Design).

##### *Type of BMPs Proposed*

- Description of the types of BMPs selected including priority group that each is in.
- Description of level of treatment and volume capture achieved for each BMP.

##### *Maintenance*

- Description of maintenance for each type of BMP.
- Description of funding mechanism.
- Designation of Responsible Party.



## Storm Water Low Impact Development Submittal Coversheet

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

#### **Exhibits:**

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

- Exhibit should include: street names, property lines, storm drainage system, waterways, title block, scale and north arrow.
- Tributary areas shown for all inlets (including off-site drainage areas).
- C value for each tributary area.
- Soil Type of existing site.
- New or replaced impervious area shown.
- All inlets and BMP, shown (including unique identifier).
- All interceptor trees shown.
- All proposed BMPs shown including dimensions.

##### *Existing Condition Exhibit*

- Exhibit should include: street names, property lines, proposed storm drainage system, waterways, title block, scale, and north arrow.
- Soil Type of existing site.
- Proposed tributary areas shown for all proposed inlets (including offsite drainage areas). Existing impervious areas.
- Existing impervious area.

#### **BMP Details:**

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

#### **On Plans:**

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

#### **Calculations:**

- Calculations, for each inlet, and summary sheet using the Storm Water Calculator found at [www.srcity.org/stormwaterLID](http://www.srcity.org/stormwaterLID)
- Supplemental or supporting calculation if applicable.

**INITIAL  
STORM WATER LOW IMPACT DEVELOPMENT SUBMITTAL**

for

*Los Pinos Apartments*

*Located at  
3496 Santa Rosa Avenue  
Santa Rosa, CA*

*APN 134-132-015*

Prepared for

Los Pinos Apartments, LLC  
5885 Mountain Hawk Drive, Suite 100  
Santa Rosa, CA 95409

May 2020

Prepared by

*CIVIL DESIGN CONSULTANTS, INC.  
2200 RANGE AVENUE, SUITE 204  
SANTA ROSA, CA 95403*

18-138

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## **ATTACHMENTS**

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**Runoff Curve Number Worksheet**  
**Initial SW LID Hydrology Map**  
**BMP Details**  
**Stormwater Calculator Spreadsheets**  
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**BMP Selection Tables**  
**Maintenance Checklists**  
**Standard Maintenance/Monitoring Agreement**

## 1 INTRODUCTION

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The Los Pinos Apartments project site is within the permit boundary of the recently adopted National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Storm Water Permit which regulates discharges into the watershed with the intent to reduce storm water pollution and protect the water quality of our local creeks and waterways and continue to promote groundwater recharge. The City of Santa Rosa and the County of Sonoma have adopted the Storm Water Low Impact Development (LID) Technical Design Manual. This Initial Storm Water Low Impact Development Submittal (ISWLIDS) was developed to show compliance with its requirements.

Standard Urban Storm Water Mitigation Plan (SUSMP) requirements are part of the Storm Water Management Plan that is an enforceable part of the reissued municipal storm water NPDES permit for the City of Santa Rosa, the County of Sonoma and the Sonoma County Water Agency. Satisfying the SUSMP and the NPDES Permit will require meeting the following goals to the maximum extent practicable:

1. Prevent pollutants generated at the site from leaving the site.
2. Prevent increases in Storm Water runoff for the 85<sup>th</sup> percentile 24-hour storm.
3. Strive to maximize the amount of land left in a natural undisturbed condition.

This PSWMP will provide the following information:

- Project Description
- Pollution Prevention Measures
- Types of BMP selected to mitigate pollutants and provide volume capture.
- Responsibility for BMP maintenance
- Location and design of BMP (on project drawings)



## 2 PROJECT DESCRIPTION

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The Los Pinos Apartments project site is located at 3496 Santa Rosa Avenue, within the City of Santa Rosa.

The Los Pinos Apartments property contains an area of 2.47 acres and is contained within one assessor parcel, APN 143-132-015. The existing site features a single family house with a well house, a couple of sheds, and a paved driveway. The remainder of the lot is vacant, containing sensitive seasonal wetlands, a handful of trees, and grasses.

The project is proposed by Los Pinos Apartments, LLC as a single, non-phased development. The project proposes to construct 50 rental units and a leasing office within seven separate two story buildings. The project will also feature a parking lot and some site amenities, in addition to some minor improvements along the project frontage within the right of way of Santa Rosa Avenue.

The project will collect overland flow and route it to a series of proposed stormwater treatment facilities before entering the underground drainage system. These features will be constructed over aggregate layers where stormwater will be retained. This pre-treatment design feature shall not only remove pollutants, but also will reduce the amount of runoff by capturing and infiltrating storm water onsite. The treatment facilities are proposed at various locations throughout the project site, providing treatment for each of the site tributaries. The purpose of these devices and their effect on the quality and quantity of runoff leaving the developed site will be further explained throughout this report.

The proposed project will create approximately 1.93 acres in impervious surfaces including roof tops, access drive aisles, parking spaces, and pedestrian areas. This triggers the requirement to provide 100% volume capture.

The proposed improvements will result in the filling in of approximately 13,200 square feet of existing seasonal wetlands and the removal of 10 existing trees. Any mitigation for the removal of these features is beyond the scope of this report.

The attached plan titled "Initial SW LID Hydrology Map" shows the proposed grading pattern for the project along with the drainage tributary areas and proposed treatment facilities. Treatment facility details showing volume capture designed to meet the 100% volume capture goal can be found in the attachments section of this document.

All storm water BMP's capable of meeting 100% volume capture are located within the project site and no offsite offsets are needed.

### **3 POLLUTION PREVENTION MEASURES**

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A portion of roof drains of the buildings will be disconnected from the storm drain system, allowing storm drainage to surface flow over landscaped areas to a stormwater treatment facility before entering the underground storm drain system.

The project will incorporate a robust Landscape plan including interceptor trees that will be planted throughout the project, and some existing trees will be preserved.

The total tributary area used for volume capture calculations has been reduced by taking credit for these measures.

Other Best Management Practices that will be incorporated include trash removal, covered trash enclosures, stenciling of drainage inlets, and sweeping the parking lot area.

#### **4 TYPES OF BMP'S SELECTED TO MITIGATE POLLUTANTS AND PROVIDE VOLUME CAPTURE**

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Best Management Practices (BMP's) are design features that address the quality and quantity of the storm waters that flow from a development. In most cases, these BMP's are used to mitigate a development's impact on the quality of storm water by treating or cleaning the storm water. Some controls have dual treatment control measure capabilities, not only treating, but also containing a required volume of storm water. The Los Pinos Apartments project will implement bio-retention beds to mitigate pollutants and provide volume capture for the 85<sup>th</sup> percentile 24-hour storm. Volume capture is accomplished by incorporating an area for storm water storage beneath the bio-retention beds.

Bio-retention beds have been selected for this project because of their ability to remove pollutants through a variety of natural physical, biological and chemical treatment processes. These BMP's are considered a Low Impact Development (LID) device for treatment control. They have also been selected because they provide an excellent opportunity for the runoff to settle any suspended solids and remove hydrocarbons, both of which have been identified as pollutants that can degrade the downstream receiving waters of the project. Compared to pipe networks, bio-retention beds with gravel storage areas will reduce runoff from the site and provide ground water recharge. This provides the opportunity to reduce the peak flow in a basin. For this project we have selected aggregate consisting of ¾ inch to 1-1/2 inch structural soil for the storage area. The structural soil has a porosity of 30%. This provides the opportunity to reduce the peak flow in a basin.

The structural soil shall meet standards set forth in the City of Santa Rosa Low Impact Development Design Manual reference document 'E' and geotechnical report. The structural soil will also provide an environment for landscaping to thrive as it is composed of angular rocks and fine organics, providing an excellent environment for water infiltration and plant growth.

This project meets the Design Goal by achieving 100% volume capture.

## **5 RESPONSIBILITY FOR BMP MAINTENANCE**

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All treatment control devices serving the Los Pinos Apartments project are located within the project site. The property owner will be responsible for the surface and sub-surface oversight and maintenance of the treatment control devices on site.

Maintenance activities shall include routine policing of the site and removal of any trash, graffiti, vandalism, or other damage. Plants shall be inspected for health and replaced as necessary, and weeds removed. The irrigation system shall be maintained in good working order. Any leaks, broken lines and emitters, misdirected spray patterns, or other deficiencies shall be repaired.

Prior to the start of the rainy season and following significant rainfall events, the surface of facilities shall be inspected to confirm there is no ponding. All surface water shall drain within 72 hours. Inlets shall be inspected, and any accumulation of debris shall be removed. Any growth or spread of planting that blocks inlets or movement of runoff across the surface of treatment facilities shall be cut back and removed. The surface of the mulch layer shall be inspected for movement of material. Mulch shall be replaced and raked smooth as necessary to maintain design elevations.

Property owner shall be responsible for establishing a private mechanism to ensure adequate funding for BMP maintenance in perpetuity.

Attached is a Draft of the Maintenance Agreement for Monitoring Storm Water BMP Facilities and Declaration of Covenants.

## ATTACHMENTS

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**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

Los Pinos Apartments

Project Name

3496 Santa Rosa Avenue

Project Site Address

Santa Rosa / CA / 95407

Project City/State/Zip

Permit Number(s) - (if applicable)

Civil Design Consultants, Inc.

Designer Name

Santa Rosa / CA / 95403

Designer City/State/Zip

Los Pinos Apartments, LLC

Applicant (owner or developer) Name

5885 Mountain Hawk Drive

Applicant Mailing Address

Santa Rosa / CA / 95409

Applicant City/State/Zip

707-954-6551

Applicant Phone/Email/Fax

2200 Range Avenue, Suite 204

Designer Mailing Address

707-542-4820

Designer Phone/Email

### Type of Application/Project:

Subdivision   
 Grading Permit   
 Building Permit   
 Hillside Development  
 Design Review   
 Use Permit   
 Encroachment   
 Time Extensions   
 Other : \_\_\_\_\_

### PART 2: Project Exemptions

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

Yes  No

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

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

Yes  No

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

Yes  No

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

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

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

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

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

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

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

Yes  No

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

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

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

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

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

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

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

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

**Part 4: Project Description**

1. Total Project area:   square feet  
 acres

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

Commercial  Industrial  Residential  Public  Other

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

The lot currently contains a single house with a well house and a couple of sheds. A paved driveway provides access to the house from Santa Rosa Avenue. The majority of the lot appears to be vacant, containing some seasonal wetlands, a handful of trees, and grasses.

3. Existing impervious surface area:   square feet  
 acres

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

Commercial  Industrial  Residential  Public  Other

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

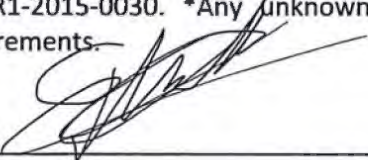
The proposed project will create 50 apartment units and a leasing office in 7 two story buildings. The site will also feature a parking lot and some site amenities.

5. Existing impervious surface area:   square feet  
 acres



**Acknowledgment Signature Section:**

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


  
 Applicant Signature

 10-23-19  
 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.

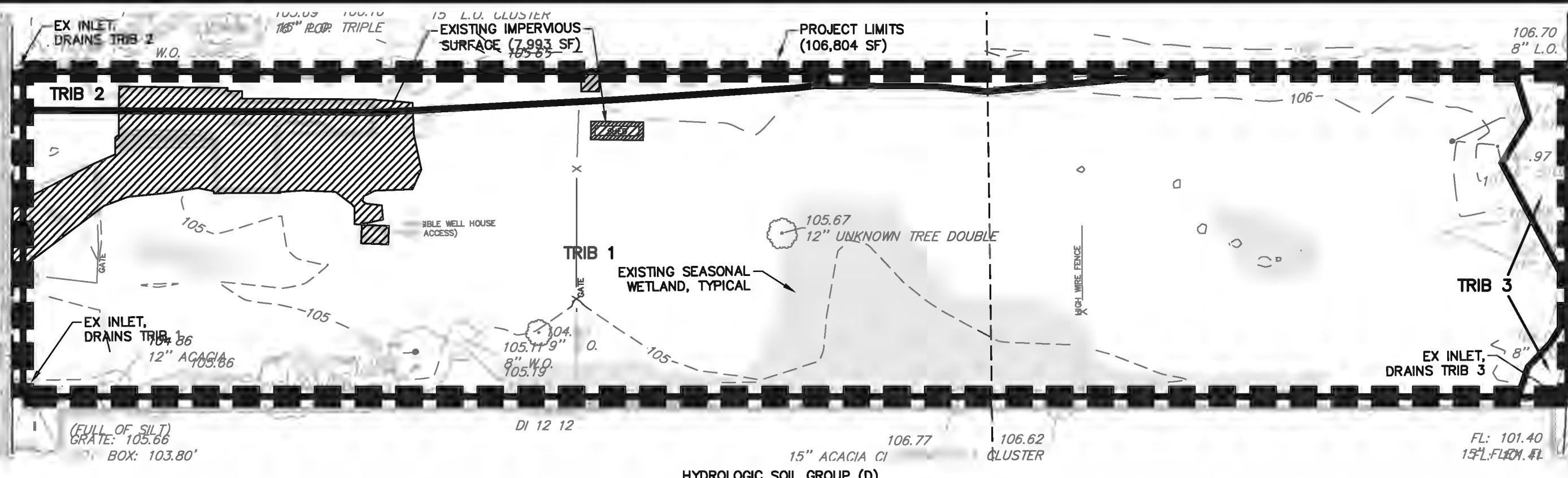
**Implementation Requirements:** All calculations shall be completed using the "Storm Water Calculator" available at: [www.srcity.org/stormwaterLID](http://www.srcity.org/stormwaterLID)

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

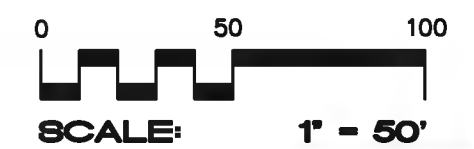
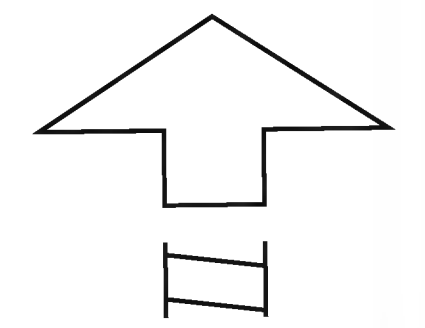
**Treatment Requirement:** Treatment of 100% of the flow calculated using the modified Rational Method and a known intensity of 0.20 inches per hour.

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

SANTA ROSA AVENUE

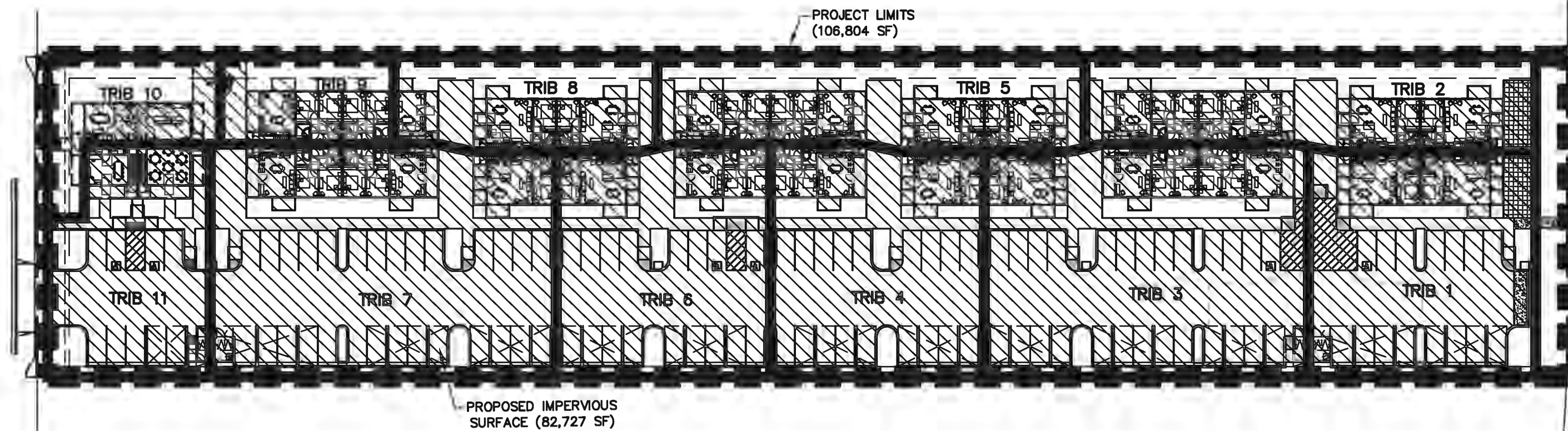


TRIBUTARY	TRIBUTARY SURFACE AREA
TRIB 1	70075 SF
TRIB 2	31821 SF
TRIB 3	31821 SF



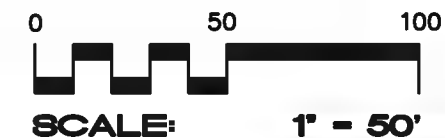
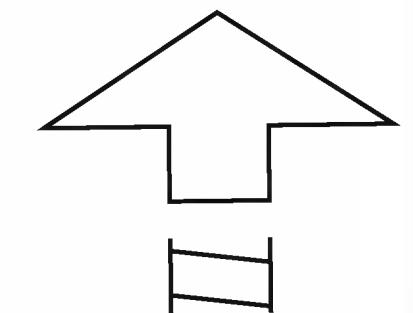
<b>CIVIL DESIGN CONSULTANTS, INC.</b> 2200 Range Avenue, Suite 204 Santa Rosa, CA 95403 (707) 542-4820		<b>PRE PROJECT IMPERVIOUS AREA EXHIBIT          LOS PINOS APARTMENTS</b> 3496 SANTA ROSA AVENUE SANTA ROSA, CALIFORNIA		DATE NO. 18-138
		MAY 2020		SHEET NO. <b>1</b> OF 1 SHEET

SANTA ROSA AVENUE



HYDROLOGIC SOIL GROUP (D)

	TRIBUTARY SURFACE AREA
TRIB 1	11252 SF
TRIB 2	9024 SF
TRIB 3	16373 SF
TRIB 4	10762 SF
TRIB 5	8550 SF
TRIB 6	10762 SF
TRIB 7	17511 SF
TRIB 8	5369 SF
TRIB 9	3354 SF
TRIB 10	3888 SF
TRIB 11	7709 SF



**CML DESIGN CONSULTANTS, INC.**  
 2200 Range Avenue, Suite 204  
 Santa Rosa, CA 95408  
 (707) 542-4820



POST PROJECT IMPERVIOUS AREA EXHIBIT  
 LOS PINOS APARTMENTS  
 3496 SANTA ROSA AVENUE  
 SANTA ROSA, CALIFORNIA

18-138  
 SHEET NO.  
**1**  
 OF 1 SHEET

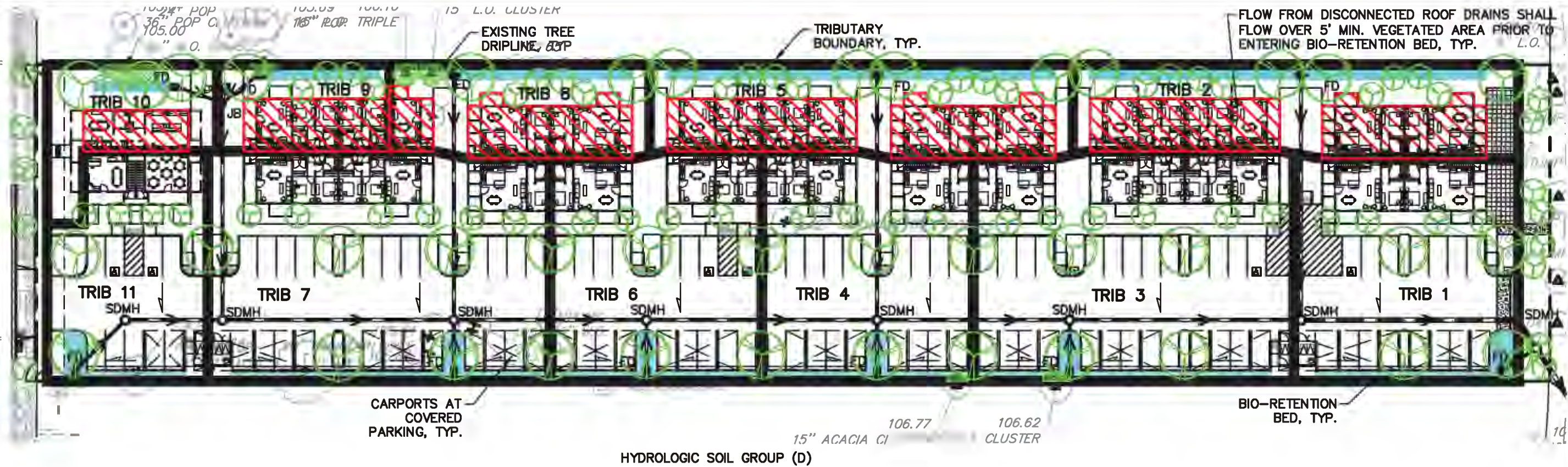
MAY 2020

## Worksheet 2: Runoff curve number and runoff





Project Los Pinos Apartments		By ML		Date 10/15/19		
Location 3496 Santa Rosa Avenue		Checked		Date		
Check One: <input type="checkbox"/> Present <input checked="" type="checkbox"/> Developed						
<b>1. Runoff curve number</b>						
Soil Name and hydrologic group (appendix A)	Cover Description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN <sup>1/</sup>			Area <input type="checkbox"/> acres <input type="checkbox"/> sf <input type="checkbox"/> %	Product of CN x area
		Table 2-2	Figure 2-3	Figure 2-4		
D	ROOF, PARKING LOT, HARDSCAPE	98			82727	8107246
D	LANDSCAPE	80			24077	1926160
<sup>1/</sup> Use only one CN source per line CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{10033406}{106804} = 93.94$					106804	10033406
					<b>Totals ▶</b> <b>Use CN ▶</b>	
					<b>94</b>	

The project tributary areas are relatively uniform regarding the percent of impervious and pervious area therefore and average CN of 94 will be applied to each tributary.

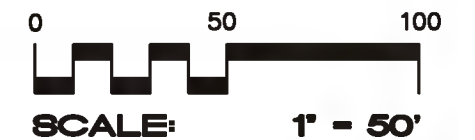
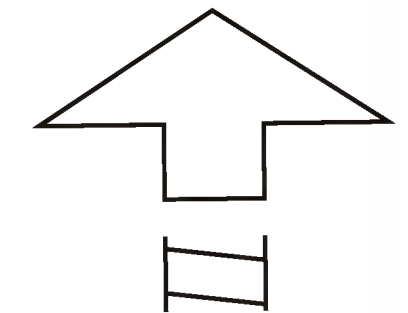
SANTA ROSA AVENUE



## LEGEND

-  DISCONNECTED ROOF AREA
-  EXISTING TREE DRIPLINE
-  BIO-RETENTION BED
-  TRIBUTARY BOUNDARY
-  PROPOSED INTERCEPTOR TREE

	TRIBUTARY SURFACE AREA	CURVE NUMBER	BMP AREA
TRIB 1	11252 SF	94.0	400 SF
TRIB 2	9024 SF	94.0	752 SF
TRIB 3	16373 SF	94.0	480 SF
TRIB 4	10762 SF	94.0	373 SF
TRIB 5	8550 SF	94.0	737 SF
TRIB 6	10762 SF	94.0	373 SF
TRIB 7	17511 SF	94.0	506 SF
TRIB 8	5369 SF	94.0	357 SF
TRIB 9	3354 SF	94.0	237 SF
TRIB 10	3888 SF	94.0	164 SF
TRIB 11	7709 SF	94.0	292 SF



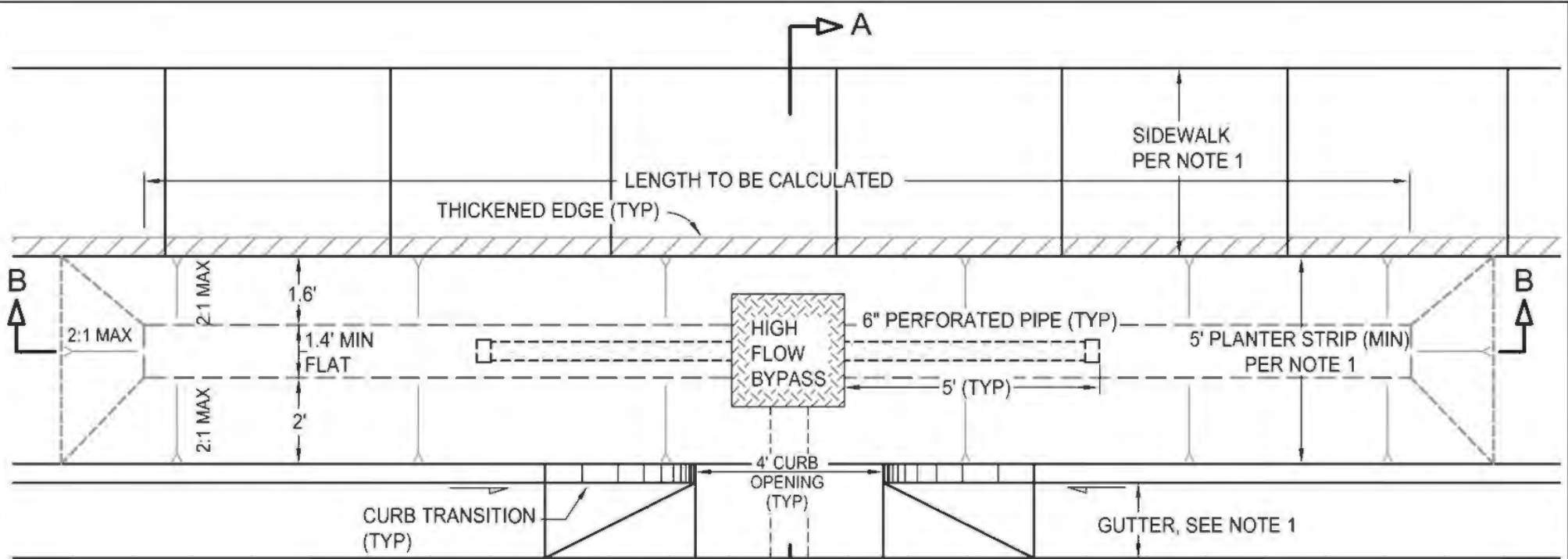
CIVIL DESIGN CONSULTANTS, INC.  
 2200 Range Avenue, Suite 204  
 Santa Rosa, CA 95403  
 (707) 542-4820



INITIAL SW LID HYDROLOGY MAP  
 LOS PINOS APARTMENTS  
 3496 SANTA ROSA AVENUE  
 SANTA ROSA, CALIFORNIA

JOB NO.  
18-138  
 SHEET NO.  
**1**  
 OF 1 SHEET

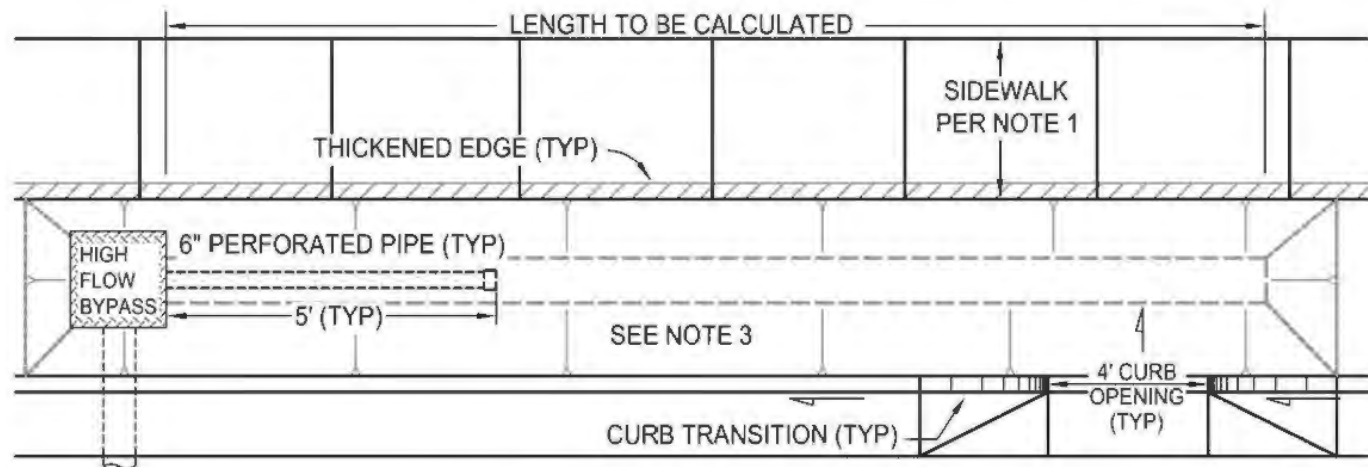
MAY 2020



PLAN  
TYPE A - CURB OPENING AT LOW POINT

NOTE:

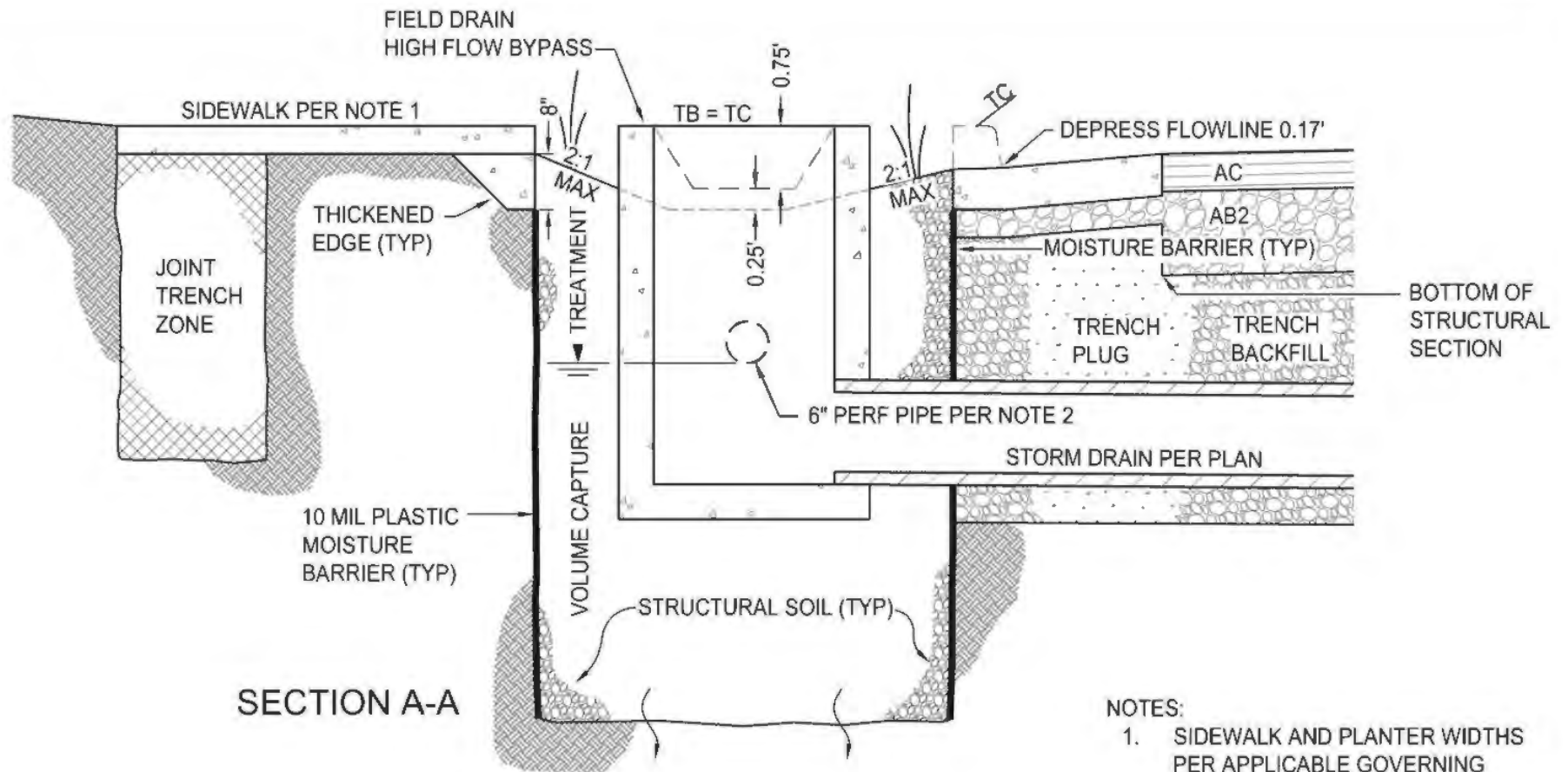
1. SIDEWALK, GUTTER AND PLANTER WIDTHS PER APPLICABLE MUNICIPAL STANDARDS (TYP).
2. TOP OF 6" PERFORATED PIPE TO BE SET 6" BELOW ROAD STRUCTURAL SECTION, MIN.
3. TYPE A MINIMUM DIMENSIONS AND GRADES APPLY TO TYPE B.



TYPE B - CURB OPENING ALONG A SLOPE

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

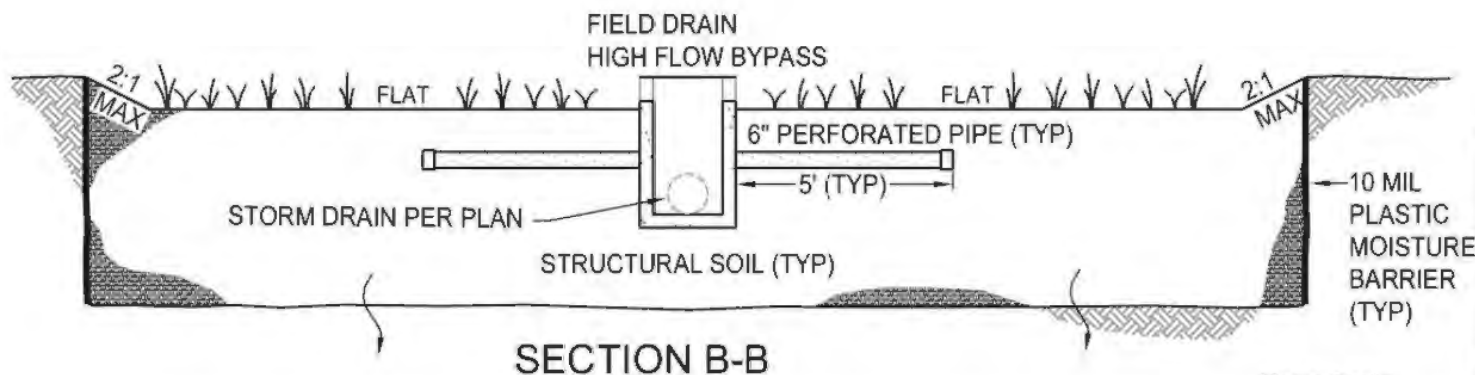
Not to Scale



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

<p>PRIORITY 2 ROADSIDE BIORETENTION - CURB OPENING SECTION A-A &amp; B-B</p>		
SCALE: NONE		DATE: 04/06/17
DWN. DIT CHK. HM	SHEET 2 of 2	P2-04



## STORM WATER CALCULATOR

### LID BMP Summary Page & Site Global Values

<b>Project Information:</b> Project Name: <u>Los Pinos Apartments</u> Address/Location: <u>3496 Santa Rosa Avenue</u> Designer: <u>Matt Lawton</u> Date: <u>5/4/2020</u>	<b>Site Information:</b> Mean Seasonal Precipitation (MSP) of Project Site: <u>30.00</u> (inches) K=MSP/30      K= <u>1.00</u>  Impervious area - pre development: <u>7,993.0</u> ft <sup>2</sup> Impervious area - post development: <u>83,925.0</u> ft <sup>2</sup>	Based upon the pre and post development impervious area, the post construction BMP requirement is:  <div style="text-align: center; color: red; font-weight: bold; font-size: 1.2em;">100% Capture &amp; Treatment</div>
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#### Summary of Saved BMP Results:

BMP ID:	Tributary Area		Requirements			BMP Design Results						
	Tributary Area (ft <sup>2</sup> )	Runoff Reduction Measures (Y/N)	Type of Requirement Met	Type of BMP Design	Percent Achieved	Hydromodification Control		Flow Base Treatment		Delta Volume Capture		
						Required V <sub>Hydromod</sub> (ft <sup>3</sup> )	Achieved (ft <sup>3</sup> )	Required Q Treatment (cfs)	Achieved (ft <sup>3</sup> )	Required Vdelta (ft <sup>3</sup> )	Achieved (ft <sup>3</sup> )	
1	TRIB 1	11,252	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	101.8	422.0835	429.6000				
2	TRIB 2	9,024	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	105.9	266.2586	282.0000				
3	TRIB 3	16,373	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	100.7	619.3525	623.5200				
4	TRIB 4	10,762	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	102.4	400.8785	410.6730				
5	TRIB 5	8,550	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	105.0	246.3553	258.6870				
6	TRIB 6	10,762	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	102.3	401.5084	410.6730				
7	TRIB 7	17,511	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	102.2	668.1029	683.1000				
8	TRIB 8	5,369	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	100.4	160.0239	160.6500				
9	TRIB 9	3,354	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	104.7	96.4090	100.9620				
10	TRIB 10	3,888	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	103.0	123.2826	126.9360				
11	TRIB 11	7,709	Yes	Hydromod Volume Capture	Priority 2: P2-04 Roadside Bioretention - Curb Opening	102.0	285.9099	291.7080				
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# STORM WATER CALCULATOR

**BMP Tributary Parameters** Project Name: **Los Pinos Apartments**

BMP ID: **TRIB 1**

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

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

BMP's Physical Tributary Area: **11,252.0** ft<sup>2</sup>

Description/Notes:

**Runoff Reduction Measures** Resulting reduced Tributary Area used for BMP sizing = **10,052.0** ft<sup>2</sup>

Total Runoff Reduction Measures = **1,200.0** ft<sup>2</sup>

**Interceptor Trees**

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

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

Square footage of qualifying **existing tree canopy**: **0.0** ft<sup>2</sup>

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** **Disconnected Roof Drains Method 2**

Roof area of disconnected downspouts: **0** ft<sup>2</sup> Percent of rooftop area: **0** %

Select Density: **1** Units per Acre

**Paved Area Disconnection**

Paved Area Type: **Porous Pavement**

Alternatively designed paved area: **0.0** ft<sup>2</sup>

**Buffer Strips & Bovine Terraces**

Area draining to a Buffer Strip or Bovine Terrace: **0.0** ft<sup>2</sup>

**Hydromodification Requirement: 100% Volume Capture; V<sub>HYDROMOD</sub>** V<sub>HYDROMOD</sub> = **422.08** ft<sup>3</sup>

Post development hydrologic soil type within tributary area: **D: 0 - 0.05 in/hr infiltration (transmission) rate**

Post development ground cover description: **Urban districts - Commercial and business**

CN<sub>POST</sub>: **94.0**

User Composite post development CN: **94.0**

**BMP Sizing Tool: Hydromodification Requirement** Percent of Goal Achieved = **101.78** %

<p><b>BMP Volume Below Ground</b></p> <p>Porosity: <b>0.30</b></p> <p>Depth below perforated pipe if present: <b>3.58</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>400.00</b> ft<sup>2</sup></p>	<p><b>Ponded Water Above Ground</b></p> <p>Depth: <b>0.00</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>0.00</b> ft<sup>2</sup></p>
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# STORM WATER CALCULATOR

<b>BMP Tributary Parameters</b>		Project Name: <b>Los Pinos Apartments</b>
BMP ID:	<b>TRIB 2</b>	
BMP Design Criteria:	<b>100% Capture &amp; Treatment</b>	
Type of BMP Design:	<b>Priority 2: P2-04 Roadside Bioretention - Curb Opening</b>	
BMP's Physical Tributary Area:	<b>9,024.0</b>	ft <sup>2</sup>
Description/Notes:		

<b>Runoff Reduction Measures</b>	Resulting reduced Tributary Area used for BMP sizing =	<b>6,341.0</b>	ft <sup>2</sup>
	Total Runoff Reduction Measures =	<b>2,683.0</b>	ft <sup>2</sup>

<b>Interceptor Trees</b>		Total Number of <u>New</u> trees in BMP Tributary Area: <b>12</b>
Number of <i>new</i> interceptor <b>Evergreen Trees</b> :	<b>4</b>	
Number of <i>new</i> interceptor <b>Deciduous Trees</b> :	<b>8</b>	
Square footage of qualifying <b>existing tree canopy</b> :	<b>0.0</b>	ft <sup>2</sup>

<b>Disconnected Roof Drains</b>		Select disconnection condition: <b>Runoff is directed across landscape; Width of area: 5' to 9'</b>
<b>Disconnected Roof Drains Method 1</b>	Roof area of disconnected downspouts: <b>4,332</b>	ft <sup>2</sup>
<b>Disconnected Roof Drains Method 2</b>	Percent of rooftop area:	<b>0</b> %
	Select Density:	<b>1</b> Units per Acre

<b>Paved Area Disconnection</b>		Paved Area Type: <b>Porous Pavement</b>
Alternatively designed paved area:	<b>0.0</b>	ft <sup>2</sup>

<b>Buffer Strips &amp; Bovine Terraces</b>	Area draining to a Buffer Strip or Bovine Terrace: <b>0.0</b>	ft <sup>2</sup>
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<b>Hydromodification Requirement: 100% Volume Capture; V<sub>HYDROMOD</sub></b>		V <sub>HYDROMOD</sub> = <b>266.26</b>	ft <sup>3</sup>
Post development hydrologic soil type within tributary area:	<b>D: 0 - 0.05 in/hr infiltration (transmission) rate</b>		
Post development ground cover description:	<b>Urban districts - Commercial and business</b>		
CN <sub>POST</sub> :			
User Composite post development CN:	<b>94.0</b>		

<b>BMP Sizing Tool: Hydromodification Requirement</b>		Percent of Goal Achieved = <b>105.91</b>	%
<b>BMP Volume Below Ground</b>		<b>Ponded Water Above Ground</b>	
Porosity:	<b>0.30</b>	Depth:	<b>0.00</b> ft
Depth below perforated pipe if present:	<b>1.25</b> ft	Width:	<b>0.00</b> ft
Width:	<b>0.00</b> ft	Length:	<b>0.00</b> ft
Length:	<b>0.00</b> ft	Area:	<b>0.00</b> ft <sup>2</sup>
Area:	<b>752.00</b> ft <sup>2</sup>		



# STORM WATER CALCULATOR

<b>BMP Tributary Parameters</b>		Project Name: <b>Los Pinos Apartments</b>
BMP ID:	<b>TRIB 3</b>	
BMP Design Criteria:	<b>100% Capture &amp; Treatment</b>	
Type of BMP Design:	<b>Priority 2: P2-04 Roadside Bioretention - Curb Opening</b>	
BMP's Physical Tributary Area:	<b>16,373.0</b>	ft <sup>2</sup>
Description/Notes:		

<b>Runoff Reduction Measures</b>	Resulting reduced Tributary Area used for BMP sizing =	<b>14,749.5</b>	ft <sup>2</sup>
	Total Runoff Reduction Measures =	<b>1,623.5</b>	ft <sup>2</sup>

<b>Interceptor Trees</b>		Total Number of <u>New</u> trees in BMP Tributary Area: <b>11</b>
Number of <i>new</i> interceptor <b>Evergreen Trees</b> :	<b>5</b>	
Number of <i>new</i> interceptor <b>Deciduous Trees</b> :	<b>6</b>	
Square footage of qualifying <b>existing tree canopy</b> :	<b>47.0</b>	ft <sup>2</sup>

<b>Disconnected Roof Drains</b>		Select disconnection condition: <b>Runoff is directed across landscape; Width of area: 5' to 9'</b>
<b>Disconnected Roof Drains Method 1</b>	Roof area of disconnected downspouts: <b>0</b>	ft <sup>2</sup>
<b>Disconnected Roof Drains Method 2</b>	Percent of rooftop area: <b>0</b>	%
	Select Density: <b>1</b>	Units per Acre

<b>Paved Area Disconnection</b>		Paved Area Type: <b>Porous Pavement</b>
Alternatively designed paved area:	<b>0.0</b>	ft <sup>2</sup>

<b>Buffer Strips &amp; Bovine Terraces</b>	Area draining to a Buffer Strip or Bovine Terrace: <b>0.0</b>	ft <sup>2</sup>
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<b>Hydromodification Requirement: 100% Volume Capture; V<sub>HYDROMOD</sub></b>		V <sub>HYDROMOD</sub> = <b>619.35</b>	ft <sup>3</sup>
Post development hydrologic soil type within tributary area:	<b>D: 0 - 0.05 in/hr infiltration (transmission) rate</b>		
Post development ground cover description:	<b>Urban districts - Commercial and business</b>		
CN <sub>POST</sub> :			
User Composite post development CN:	<b>94.0</b>		

<b>BMP Sizing Tool: Hydromodification Requirement</b>		Percent of Goal Achieved = <b>100.67</b>	%
<b>BMP Volume Below Ground</b>		<b>Ponded Water Above Ground</b>	
Porosity:	<b>0.30</b>	Depth:	<b>0.00</b> ft
Depth below perforated pipe if present:	<b>4.33</b> ft	Width:	<b>0.00</b> ft
Width:	<b>0.00</b> ft	Length:	<b>0.00</b> ft
Length:	<b>0.00</b> ft	Area:	<b>0.00</b> ft <sup>2</sup>
Area:	<b>480.00</b> ft <sup>2</sup>		



# STORM WATER CALCULATOR

**BMP Tributary Parameters** Project Name: **Los Pinos Apartments**

BMP ID: **TRIB 4**

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

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

BMP's Physical Tributary Area: **10,762.0** ft<sup>2</sup>

Description/Notes:

**Runoff Reduction Measures** Resulting reduced Tributary Area used for BMP sizing = **9,547.0** ft<sup>2</sup>

Total Runoff Reduction Measures = **1,215.0** ft<sup>2</sup>

**Interceptor Trees**

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

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

Square footage of qualifying **existing tree canopy**: **30.0** ft<sup>2</sup>

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** **Disconnected Roof Drains Method 2**

Roof area of disconnected downspouts: **0** ft<sup>2</sup> Percent of rooftop area: **0** %

Select Density: **1** Units per Acre

**Paved Area Disconnection**

Paved Area Type: **Porous Pavement**

Alternatively designed paved area: **0.0** ft<sup>2</sup>

**Buffer Strips & Bovine Terraces**

Area draining to a Buffer Strip or Bovine Terrace: **0.0** ft<sup>2</sup>

**Hydromodification Requirement: 100% Volume Capture; V<sub>HYDROMOD</sub>** V<sub>HYDROMOD</sub> = **400.88** ft<sup>3</sup>

Post development hydrologic soil type within tributary area: **D: 0 - 0.05 in/hr infiltration (transmission) rate**

Post development ground cover description: **Urban districts - Commercial and business**

CN<sub>POST</sub>: **94.0**

User Composite post development CN: **94.0**

**BMP Sizing Tool: Hydromodification Requirement** Percent of Goal Achieved = **102.44** %

<p><b>BMP Volume Below Ground</b></p> <p>Porosity: <b>0.30</b></p> <p>Depth below perforated pipe if present: <b>3.67</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>373.00</b> ft<sup>2</sup></p>	<p><b>Ponded Water Above Ground</b></p> <p>Depth: <b>0.00</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>0.00</b> ft<sup>2</sup></p>
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# STORM WATER CALCULATOR

**BMP Tributary Parameters** Project Name: **Los Pinos Apartments**

BMP ID: **TRIB 5**

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

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

BMP's Physical Tributary Area: **8,550.0** ft<sup>2</sup>

Description/Notes:

**Runoff Reduction Measures** Resulting reduced Tributary Area used for BMP sizing = **5,867.0** ft<sup>2</sup>

Total Runoff Reduction Measures = **2,683.0** ft<sup>2</sup>

**Interceptor Trees**

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

Number of *new* interceptor **Deciduous Trees**: **8**

Square footage of qualifying **existing tree canopy**: **0.0** ft<sup>2</sup>

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** **Disconnected Roof Drains Method 2**

Roof area of disconnected downspouts: **4,332** ft<sup>2</sup> Percent of rooftop area: **0** %

Select Density: **1** Units per Acre

**Paved Area Disconnection**

Paved Area Type: **Porous Pavement**

Alternatively designed paved area: **0.0** ft<sup>2</sup>

**Buffer Strips & Bovine Terraces**

Area draining to a Buffer Strip or Bovine Terrace: **0.0** ft<sup>2</sup>

**Hydromodification Requirement: 100% Volume Capture; V<sub>HYDROMOD</sub>** V<sub>HYDROMOD</sub> = **246.36** ft<sup>3</sup>

Post development hydrologic soil type within tributary area: **D: 0 - 0.05 in/hr infiltration (transmission) rate**

Post development ground cover description: **Urban districts - Commercial and business**

CN<sub>POST</sub>: **94.0**

User Composite post development CN: **94.0**

**BMP Sizing Tool: Hydromodification Requirement** Percent of Goal Achieved = **105.01** %

<p><b>BMP Volume Below Ground</b></p> <p>Porosity: <b>0.30</b></p> <p>Depth below perforated pipe if present: <b>1.17</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>737.00</b> ft<sup>2</sup></p>	<p><b>Ponded Water Above Ground</b></p> <p>Depth: <b>0.00</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>0.00</b> ft<sup>2</sup></p>
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# STORM WATER CALCULATOR

**BMP Tributary Parameters** Project Name: **Los Pinos Apartments**

BMP ID: **TRIB 6**

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

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

BMP's Physical Tributary Area: **10,762.0** ft<sup>2</sup>

Description/Notes:

**Runoff Reduction Measures** Resulting reduced Tributary Area used for BMP sizing = **9,562.0** ft<sup>2</sup>

Total Runoff Reduction Measures = **1,200.0** ft<sup>2</sup>

**Interceptor Trees**

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

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

Square footage of qualifying **existing tree canopy**: **0.0** ft<sup>2</sup>

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** **Disconnected Roof Drains Method 2**

Roof area of disconnected downspouts: **0** ft<sup>2</sup> Percent of rooftop area: **0** %

Select Density: **1** Units per Acre

**Paved Area Disconnection**

Paved Area Type: **Porous Pavement**

Alternatively designed paved area: **0.0** ft<sup>2</sup>

**Buffer Strips & Bovine Terraces**

Area draining to a Buffer Strip or Bovine Terrace: **0.0** ft<sup>2</sup>

**Hydromodification Requirement: 100% Volume Capture; V<sub>HYDROMOD</sub>** V<sub>HYDROMOD</sub> = **401.51** ft<sup>3</sup>

Post development hydrologic soil type within tributary area: **D: 0 - 0.05 in/hr infiltration (transmission) rate**

Post development ground cover description: **Urban districts - Commercial and business**

CN<sub>POST</sub>: **94.0**

User Composite post development CN: **94.0**

**BMP Sizing Tool: Hydromodification Requirement** Percent of Goal Achieved = **102.28** %

<p><b>BMP Volume Below Ground</b></p> <p>Porosity: <b>0.30</b></p> <p>Depth below perforated pipe if present: <b>3.67</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>373.00</b> ft<sup>2</sup></p>	<p><b>Ponded Water Above Ground</b></p> <p>Depth: <b>0.00</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>0.00</b> ft<sup>2</sup></p>
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# STORM WATER CALCULATOR

**BMP Tributary Parameters** Project Name: **Los Pinos Apartments**

BMP ID: **TRIB 7**

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

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

BMP's Physical Tributary Area: **17,511.0** ft<sup>2</sup>

Description/Notes:

**Runoff Reduction Measures** Resulting reduced Tributary Area used for BMP sizing = **15,911.0** ft<sup>2</sup>

Total Runoff Reduction Measures = **1,600.0** ft<sup>2</sup>

**Interceptor Trees**

Number of *new* interceptor **Evergreen Trees**: **5**

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

Square footage of qualifying **existing tree canopy**: **0.0** ft<sup>2</sup>

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** **Disconnected Roof Drains Method 2**

Roof area of disconnected downspouts: **0** ft<sup>2</sup> Percent of rooftop area: **0** %

Select Density: **1** Units per Acre

**Paved Area Disconnection**

Paved Area Type: **Porous Pavement**

Alternatively designed paved area: **0.0** ft<sup>2</sup>

**Buffer Strips & Bovine Terraces**

Area draining to a Buffer Strip or Bovine Terrace: **0.0** ft<sup>2</sup>

**Hydromodification Requirement: 100% Volume Capture; V<sub>HYDROMOD</sub>** V<sub>HYDROMOD</sub> = **668.10** ft<sup>3</sup>

Post development hydrologic soil type within tributary area: **D: 0 - 0.05 in/hr infiltration (transmission) rate**

Post development ground cover description: **Urban districts - Commercial and business**

CN<sub>POST</sub>: **94.0**

User Composite post development CN: **94.0**

**BMP Sizing Tool: Hydromodification Requirement** Percent of Goal Achieved = **102.24** %

<p><b>BMP Volume Below Ground</b></p> <p>Porosity: <b>0.30</b></p> <p>Depth below perforated pipe if present: <b>4.50</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>506.00</b> ft<sup>2</sup></p>	<p><b>Ponded Water Above Ground</b></p> <p>Depth: <b>0.00</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>0.00</b> ft<sup>2</sup></p>
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# STORM WATER CALCULATOR

**BMP Tributary Parameters** Project Name: **Los Pinos Apartments**

BMP ID: **TRIB 8**

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

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

BMP's Physical Tributary Area: **5,369.0** ft<sup>2</sup>

Description/Notes:

**Runoff Reduction Measures** Resulting reduced Tributary Area used for BMP sizing = **3,811.3** ft<sup>2</sup>

Total Runoff Reduction Measures = **1,557.8** ft<sup>2</sup>

**Interceptor Trees**

Number of *new* interceptor **Evergreen Trees**: **2**

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

Square footage of qualifying **existing tree canopy**: **191.0** ft<sup>2</sup>

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** **Disconnected Roof Drains Method 2**

Roof area of disconnected downspouts: **2,649** ft<sup>2</sup> Percent of rooftop area: **0** %

Select Density: **1** Units per Acre

**Paved Area Disconnection**

Paved Area Type: **Porous Pavement**

Alternatively designed paved area: **0.0** ft<sup>2</sup>

**Buffer Strips & Bovine Terraces**

Area draining to a Buffer Strip or Bovine Terrace: **0.0** ft<sup>2</sup>

**Hydromodification Requirement: 100% Volume Capture; V<sub>HYDROMOD</sub>** V<sub>HYDROMOD</sub> = **160.02** ft<sup>3</sup>

Post development hydrologic soil type within tributary area: **D: 0 - 0.05 in/hr infiltration (transmission) rate**

Post development ground cover description: **Urban districts - Commercial and business**

CN<sub>POST</sub>: **94.0**

User Composite post development CN: **94.0**

**BMP Sizing Tool: Hydromodification Requirement** Percent of Goal Achieved = **100.39** %

<p><b>BMP Volume Below Ground</b></p> <p>Porosity: <b>0.30</b></p> <p>Depth below perforated pipe if present: <b>1.50</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>357.00</b> ft<sup>2</sup></p>	<p><b>Ponded Water Above Ground</b></p> <p>Depth: <b>0.00</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>0.00</b> ft<sup>2</sup></p>
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# STORM WATER CALCULATOR

**BMP Tributary Parameters** Project Name: **Los Pinos Apartments**

BMP ID: **TRIB 9**

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

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

BMP's Physical Tributary Area: **3,354.0** ft<sup>2</sup>

Description/Notes:

**Runoff Reduction Measures** Resulting reduced Tributary Area used for BMP sizing = **2,295.8** ft<sup>2</sup>

Total Runoff Reduction Measures = **1,058.3** ft<sup>2</sup>

**Interceptor Trees**

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

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

Square footage of qualifying **existing tree canopy**: **43.0** ft<sup>2</sup>

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** **Disconnected Roof Drains Method 2**

Roof area of disconnected downspouts: **1,747** ft<sup>2</sup> Percent of rooftop area: **0** %

Select Density: **1** Units per Acre

**Paved Area Disconnection**

Paved Area Type: **Porous Pavement**

Alternatively designed paved area: **0.0** ft<sup>2</sup>

**Buffer Strips & Bovine Terraces**

Area draining to a Buffer Strip or Bovine Terrace: **0.0** ft<sup>2</sup>

**Hydromodification Requirement: 100% Volume Capture; V<sub>HYDROMOD</sub>** V<sub>HYDROMOD</sub> = **96.41** ft<sup>3</sup>

Post development hydrologic soil type within tributary area: **D: 0 - 0.05 in/hr infiltration (transmission) rate**

Post development ground cover description: **Urban districts - Commercial and business**

CN<sub>POST</sub>: **94.0**

User Composite post development CN: **94.0**

**BMP Sizing Tool: Hydromodification Requirement** Percent of Goal Achieved = **104.72** %

<p><b>BMP Volume Below Ground</b></p> <p>Porosity: <b>0.30</b></p> <p>Depth below perforated pipe if present: <b>1.42</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>237.00</b> ft<sup>2</sup></p>	<p><b>Ponded Water Above Ground</b></p> <p>Depth: <b>0.00</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>0.00</b> ft<sup>2</sup></p>
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# STORM WATER CALCULATOR

**BMP Tributary Parameters** Project Name: **Los Pinos Apartments**

BMP ID: **TRIB 10**

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

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

BMP's Physical Tributary Area: **3,888.0** ft<sup>2</sup>

Description/Notes:

**Runoff Reduction Measures** Resulting reduced Tributary Area used for BMP sizing = **2,936.0** ft<sup>2</sup>

Total Runoff Reduction Measures = **952.0** ft<sup>2</sup>

**Interceptor Trees**

Number of *new* interceptor **Evergreen Trees**: **3** Total Number of New trees in BMP Tributary Area: **3**

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

Square footage of qualifying **existing tree canopy**: **217.0** ft<sup>2</sup>

**Disconnected Roof Drains**

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

**Disconnected Roof Drains Method 1** **Disconnected Roof Drains Method 2**

Roof area of disconnected downspouts: **974** ft<sup>2</sup> Percent of rooftop area: **0** %

Select Density: **1** Units per Acre

**Paved Area Disconnection**

Paved Area Type: **Porous Pavement**

Alternatively designed paved area: **0.0** ft<sup>2</sup>

**Buffer Strips & Bovine Terraces**

Area draining to a Buffer Strip or Bovine Terrace: **0.0** ft<sup>2</sup>

**Hydromodification Requirement: 100% Volume Capture; V<sub>HYDROMOD</sub>** V<sub>HYDROMOD</sub> = **123.28** ft<sup>3</sup>

Post development hydrologic soil type within tributary area: **D: 0 - 0.05 in/hr infiltration (transmission) rate**

Post development ground cover description: **Urban districts - Commercial and business**

CN<sub>POST</sub>: **94.0**

User Composite post development CN: **94.0**

**BMP Sizing Tool: Hydromodification Requirement** Percent of Goal Achieved = **102.96** %

<p><b>BMP Volume Below Ground</b></p> <p>Porosity: <b>0.30</b></p> <p>Depth below perforated pipe if present: <b>2.58</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>164.00</b> ft<sup>2</sup></p>	<p><b>Ponded Water Above Ground</b></p> <p>Depth: <b>0.00</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>0.00</b> ft<sup>2</sup></p>
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# STORM WATER CALCULATOR

**BMP Tributary Parameters** Project Name: **Los Pinos Apartments**

BMP ID: **TRIB 11**

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

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

BMP's Physical Tributary Area: **7,709.0** ft<sup>2</sup>

Description/Notes:

**Runoff Reduction Measures** Resulting reduced Tributary Area used for BMP sizing = **6,809.0** ft<sup>2</sup>

Total Runoff Reduction Measures = **900.0** ft<sup>2</sup>

**Interceptor Trees**

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

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

Square footage of qualifying **existing tree canopy**: **0.0** ft<sup>2</sup>

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** **Disconnected Roof Drains Method 2**

Roof area of disconnected downspouts: **0** ft<sup>2</sup> Percent of rooftop area: **0** %

Select Density: **1** Units per Acre

**Paved Area Disconnection**

Paved Area Type: **Porous Pavement**

Alternatively designed paved area: **0.0** ft<sup>2</sup>

**Buffer Strips & Bovine Terraces**

Area draining to a Buffer Strip or Bovine Terrace: **0.0** ft<sup>2</sup>

**Hydromodification Requirement: 100% Volume Capture; V<sub>HYDROMOD</sub>** V<sub>HYDROMOD</sub> = **285.91** ft<sup>3</sup>

Post development hydrologic soil type within tributary area: **D: 0 - 0.05 in/hr infiltration (transmission) rate**

Post development ground cover description: **Urban districts - Commercial and business**

CN<sub>POST</sub>: **94.0**

User Composite post development CN: **94.0**

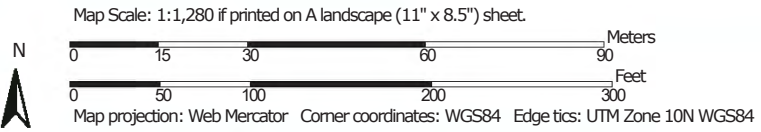
**BMP Sizing Tool: Hydromodification Requirement** Percent of Goal Achieved = **102.03** %

<p><b>BMP Volume Below Ground</b></p> <p>Porosity: <b>0.30</b></p> <p>Depth below perforated pipe if present: <b>3.33</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>292.00</b> ft<sup>2</sup></p>	<p><b>Ponded Water Above Ground</b></p> <p>Depth: <b>0.00</b> ft</p> <p>Width: <b>0.00</b> ft</p> <p>Length: <b>0.00</b> ft</p> <p>Area: <b>0.00</b> ft<sup>2</sup></p>
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Soil Map—Sonoma County, California  
(Los Pinos Apartments)




Soil Map may not be valid at this scale.



## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

### Water Features



Streams and Canals

### Transportation



Rails



Interstate Highways



US Routes



Major Roads

Local Roads

### Background



Aerial Photography

## MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Sonoma County, California

Survey Area Data: Version 13, Sep 16, 2019

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

Date(s) aerial images were photographed: Jul 1, 2018—Jul 31, 2018

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

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CeA	Clear Lake clay, sandy substratum, drained, 0 to 2 percent slopes, MLRA 14	0.5	18.6%
WoA	Wright loam, shallow, wet, 0 to 2 percent slopes	2.2	81.4%
<b>Totals for Area of Interest</b>		<b>2.7</b>	<b>100.0%</b>

## Sonoma County, California

### CeA—Clear Lake clay, sandy substratum, drained, 0 to 2 percent slopes, MLRA 14

#### Map Unit Setting

*National map unit symbol:* 2vbsl

*Elevation:* 20 to 360 feet

*Mean annual precipitation:* 26 to 42 inches

*Mean annual air temperature:* 57 to 61 degrees F

*Frost-free period:* 225 to 300 days

*Farmland classification:* Prime farmland if irrigated and drained

#### Map Unit Composition

*Clear lake, drained, sandy substratum, and similar soils:* 85 percent

*Minor components:* 15 percent

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

#### Description of Clear Lake, Drained, Sandy Substratum

##### Setting

*Landform:* Basin floors

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Basin alluvium derived from volcanic and sedimentary rock over fan alluvium derived from volcanic and sedimentary rock

##### Typical profile

*Apg1 - 0 to 2 inches:* clay

*Apg2 - 2 to 8 inches:* clay

*Assg - 8 to 25 inches:* clay

*Bssg1 - 25 to 39 inches:* clay

*Bssg2 - 39 to 46 inches:* clay

*Bkssg - 46 to 52 inches:* clay

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

*2Btg - 60 to 72 inches:* fine sandy loam

*2C - 72 to 84 inches:* loamy coarse sand

##### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Poorly drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water (Ksat):*

Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 36 to 60 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Calcium carbonate, maximum in profile:* 6 percent

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.5 to 3.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 8.0

*Available water storage in profile:* High (about 9.2 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* 2e

*Land capability classification (nonirrigated):* 3e

**Hydrologic Soil Group: D**

*Hydric soil rating:* Yes

#### **Minor Components**

##### **Haire**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

##### **Reyes**

*Percent of map unit:* 5 percent

*Landform:* Salt marshes

*Hydric soil rating:* Yes

##### **Whight**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

## **Data Source Information**

Soil Survey Area: Sonoma County, California

Survey Area Data: Version 13, Sep 16, 2019



## Sonoma County, California

### WoA—Wright loam, shallow, wet, 0 to 2 percent slopes

#### Map Unit Setting

*National map unit symbol:* hfkp  
*Elevation:* 60 to 300 feet  
*Mean annual precipitation:* 30 inches  
*Mean annual air temperature:* 55 degrees F  
*Frost-free period:* 240 to 260 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Wright and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Wright

##### Setting

*Landform:* Terraces, hills  
*Landform position (two-dimensional):* Footslope, backslope  
*Landform position (three-dimensional):* Side slope, tread  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Linear, convex  
*Parent material:* Alluvium

##### Typical profile

*H1 - 0 to 7 inches:* loam  
*H2 - 7 to 15 inches:* loam  
*H3 - 15 to 62 inches:* clay  
*H4 - 62 to 73 inches:* sandy clay loam

##### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* About 15 inches to abrupt textural change  
*Natural drainage class:* Somewhat poorly drained  
*Runoff class:* Very high  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* About 0 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water storage in profile:* Very low (about 2.2 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4w  
***Hydrologic Soil Group:* D**  
*Hydric soil rating:* Yes

### **Minor Components**

#### **Huichica**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Yolo**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Clear lake**

*Percent of map unit:* 3 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### **Unnamed**

*Percent of map unit:* 2 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## **Data Source Information**

Soil Survey Area: Sonoma County, California

Survey Area Data: Version 13, Sep 16, 2019

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

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

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

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







**FREE PER GOVERNMENT CODE 27383**

**RECORDING REQUESTED BY AND  
WHEN RECORDED MAIL TO:**

**County of Sonoma  
Permit and Resource Management Department  
Engineering Division  
2550 Ventura Avenue  
Santa Rosa, California 95403**

**Property: 3496 Santa Rosa Avenue, County of Sonoma, California  
APN: 134-132-015**

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**MAINTENANCE AGREEMENT FOR MONITORING STORM WATER BMP  
FACILITIES AND DECLARATION OF COVENANTS**

THIS AGREEMENT is made and entered into this \_\_\_\_\_, (Effective Date), by and between Los Pinos Apartments, LLC (Landowner), and County of Sonoma (County).

**RECITALS**

WHEREAS, the North Coast Regional Water Quality Control Board (NCRWCB) and the San Francisco Bay Region Water Quality Control Board (SFBRWQCB) National Pollutant Discharge Elimination Systems Permits, (NPDES Permits), require that the County shall require all new development and redevelopment projects subject to post-construction Best Management Practice (BMP) requirements provide for maintenance of BMPs by way of legally binding maintenance agreements and/or other equivalent measures.

WHEREAS, the NPDES Permits further require that BMP maintenance agreements shall ensure that the BMPs implemented will remain fully functional, and that all areas identified for treatment will discharge to the treatment BMP system.

WHEREAS, the NPDES Permits further specifically require:

- The developer's signed statement accepting responsibility for maintenance of BMPs until the responsibility is legally transferred; and
- Written conditions in any sales or lease agreement, in enough detail to be easily understood by the future owner or tenant, that require the property owner or tenant to assume responsibility for BMP maintenance and conduct a maintenance inspection at least once a year; and
- Property owner shall submit to Permit and Resource Management Department (Permit Sonoma) annually the results of the Storm Water BMP inspection. Inspection shall include but is not limited to the Inspection and Maintenance Checklists, photo evidence of BMP existing conditions, and a report of any maintenance activity, remediation, or replacement of BMP features; and
- The County to notify the Regional Water Board and commence progressive enforcement against the owner or operator where necessary to rectify failure to implement and maintain post-construction BMPs.

WHEREAS, the Storm Water NPDES Permits require a legally binding, signed maintenance agreement or equivalent mechanism for all BMPs located on private property.

WHEREAS, the NPDES Permits require that maintenance agreements shall legally assign maintenance responsibility to the property owner; shall be recorded among the deed records at the County Recorder's Office so they will run with the title to the land; and shall be included in any future sales and/or lease agreements.

WHEREAS, the NPDES Permits further require that the funding of all inspection, maintenance, and replacement of BMPs on private land is the sole responsibility of the property owner, and that annual inspections and maintenance and any corrective actions, repairs, or replacements shall be documented, retained for at least five years, and made available to the County upon request.

WHEREAS, Landowner is the owner of certain real property described in **Exhibit A**, attached hereto and incorporated as though fully set forth herein (Property).

WHEREAS, the County has approved a project on the Property consisting of the **[WORK DESCRIPTION AND PERMIT NUMBER]** (Project), subject to conditions of approval and the requirements of the Project proposal statement.

WHEREAS, the Project includes a final Storm Water Low Impact Development Submittal (SW LIDS) that has been submitted, reviewed, and approved, and that includes provisions for the construction of BMPs identified in Exhibit B, attached hereto and incorporated as though fully set forth herein.

WHEREAS, the (SW LIDS) identifies post-construction storm water management BMPs, assigns monitoring and maintenance responsibility to the project owner, and includes Inspection and Maintenance Checklists that identify when and how BMPs will be inspected, when maintenance will be required, and how maintenance has or will be conducted.

## **AGREEMENT**

NOW, THEREFORE, in consideration of the foregoing recitals, the mutual covenants contained herein, and the following terms and conditions, the parties agree as follows:

1. Landowner shall, at its sole cost and expense, construct, inspect, and maintain the BMPs in accordance with the conditions of approval and (SW LIDS) specifications.
2. Landowner shall ensure the BMPs remain fully functional and in good working condition as determined solely by the County, and that all areas identified for treatment discharge to the treatment BMP system. Landowner shall ensure proper clean-up of BMPs which will include removal of any and all soil or debris blocking planter inlets or overflows; removal of trash that typically collects near inlets or gets caught in vegetation.
3. Landowner accepts sole responsibility for all inspection, maintenance, remediation, and replacement of the BMPs.



4. These responsibilities run with the land, and shall transfer to the new owner or tenant in the event the Property is sold or leased.
5. Landowner will perform inspections and maintenance in accordance with the (SW LIDS). All work shall conform to the requirements of the (SW LIDS), County-identified BMP manuals and handbooks, and specific maintenance requirements established by the manufacturer as approved by the County. Specific manufacturer maintenance requirements for the BMP will be submitted to the County.
6. Landowner hereby grants permission to the County and its authorized agents and employees to enter the Property and inspect the storm water management/BMP facilities whenever the County deems necessary. The purpose of the inspection is to assure safe and proper functioning of the facilities, including any berms, inlet and outlet structures, vegetation, infiltration media, pond areas, underground retention areas, and access roads. If deficiencies are noted, County shall notify Landowner and provide the inspection findings and requirements to cure the deficiencies. Landowner shall reimburse County within 30 days of receipt of notice of all costs incurred by the County to undertake such inspection work at the then current fee schedule rate. If Landowner fails to reimburse County for these costs within 30 days, County shall have the right to record a lien against the property in the amount of such costs, plus the legal rate of interest for judgments, and may enforce the lien in the same manner a lien for real property taxes may be enforced.
7. Landowner hereby grants permission to County and its authorized agents, employees, and consultants to enter upon the Property to install, operate and maintain equipment to monitor the flow characteristics and pollutant content of the influent, effluent and intermediate points in the facilities. Landowner further agrees to design and construct the facility to provide access for monitoring as outlined in design manuals and/or in the manufacturer manual for the BMP.
8. All records regarding inspections and maintenance shall be retained by Landowner for at least five years and made available to the County upon request. These records shall include copies of completed inspection reports and maintenance checklists to document any inspection and maintenance activities that were conducted over the last five years. Any corrective actions, repairs, or replacements shall also be documented and kept in the BMP inspection and maintenance records for a minimum of five years.
9. In the event Landowner fails to maintain the storm water management/BMP facilities in good working condition acceptable to County, County may enter upon the Property and take whatever steps it deems reasonably necessary to maintain the storm water management/BMP facilities. This provision shall not be construed to allow County to erect any structure of a permanent nature on the Property outside of an easement in favor of County. It is expressly understood and agreed that County is under no obligation to maintain or repair facilities, and in no event shall this Agreement be construed to impose such an obligation on County.
10. In the event that County, pursuant to this Agreement, performs work of any nature, or expends any funds in the performance of such work for labor, use of equipment, supplies, materials, and the like, due to the failure of Landowner to perform such maintenance or work, Landowner shall reimburse County within 30 days of receipt of notice of all costs

incurred by the County to undertake such work. If Landowner fails to reimburse County for these costs within 30 days, County shall have the right to record a lien against the property in the amount of such costs, plus the legal rate of interest for judgments, and may enforce the lien in the same manner a lien for real property taxes may be enforced.

11. Landowner shall indemnify, defend and hold harmless County and its employees, officials, and agents, from and against any liability, (including liability for claims, suits, acts, arbitration proceedings, administrative proceedings, regulatory proceedings, losses, expenses or costs of any kind, whether actual, alleged or threatened, interest, defense costs, and expert witness fees), where same results from or arises out of the construction, presence existence, or maintenance of the storm water management/BMP facilities or the performance of this Agreement by Landowner, its officers, employees, agents, and sub-contractors, excepting only that resulting from the sole, active negligence or intentional misconduct of County, its employees, officials, or agents. This indemnification obligation is not limited in any way by any limitation on the amount or type of damages or compensation payable to or for Landowner or its agents under workers' compensation acts, disability benefits acts or other employee benefits acts. In the event a claim is asserted against County, its agents or employees, County shall promptly notify landowner. Thereafter, Landowner shall defend at its own expense any suit based upon such claim. If any judgment or claim against the County, its agents or employees, shall be entered, Landowner shall pay all costs and expenses in connection therewith.
12. Any violation of the final (SW LIDS) or this Agreement by Landowner shall be deemed a public nuisance under the Sonoma County Code and the County shall be entitled to the remedies available to it under the Sonoma County Code, in addition to and cumulative of all other remedies, civil or criminal, which may be pursued by the County.
13. Landowner shall not assign this Agreement to a third party without the express prior written consent of the County, provided that such consent will not be unreasonably withheld and that such consent shall not be required for Landowner to sell or lease the property to a third party.
14. Landowner binds itself, its partners, successors, legal representatives and assigns to the County and to the partners, successors, legal representatives and assigns of the County with respect to all promises and agreements contained herein.
15. This Agreement shall be recorded by Landowner, and shall: a) constitute a "covenant running with the land"; b) be binding in perpetuity upon Landowner and Landowner's successors, heirs, and assigns; and, 3) benefit the County of Sonoma, its successors, and assigns. Any breach of this Agreement shall render Landowner or Landowner's heirs, successors or assigns liable pursuant to the provisions of the Sonoma County Code.
16. All future sales or lease agreements shall include a copy of this Agreement, and written conditions, in enough detail to be easily understood by the future property owner or tenant, that require the property owner or tenant to assume responsibility for BMP maintenance and compliance with this Agreement.
17. If any provisions of the Agreement shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provision shall not in any way be

affected or impaired thereby.

18. This Agreement shall be governed according to the laws of the State of California. Because this Agreement is to be performed in the County of Sonoma, the parties hereto agree that the forum for the adjudication of any dispute regarding the Agreement or enforcement shall be brought exclusively and solely in Sonoma County, California.
19. This Agreement is effective as of the Effective Date identified above.

LANDOWNER:

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

THE COUNTY OF SONOMA:

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

Attachments:

- Exhibit A – Property description
- Exhibit B – Location map of BMPs as part of this agreement
- Notary Acknowledgment