CIVIL ENGINEERS & LAND SURVEYORS SPECIALIZING IN SITE DEVELOPMENT

MSL ENGINEERING, INC.

Preliminary SWLIDS Report

Project Name:

In-N-Out Burger Santa Rosa
2532 Santa Rosa Avenue
Santa Rosa, CA 95407

Prepared for:

In-N-Out Burger
13502 Hamburger Lane
Baldwin Park, CA 9170
Jim Lockington
(626) 813-8289

Prepared by:

MSL Engineering, Inc.
402 W. Arrow Highway, Suite 4
San Dimas, CA 91773
(909) 305-2395, FAX (909) 305-2397

Mark S. Lamoureux, R.C.E. 38382
Principal Engineer

Aaron Pellow, R.C.E. 77913
Project Engineer

11-16-2018
Date

TABLE OF CONTENTS

Attachments

I. PROJECT DESCRIPTION

I.A. Project Location and Description

In-N-Out Burger is proposing to develop a new restaurant in the City of Santa Rosa at 2532 Santa Rosa Avenue. Site improvements include a new 3,867 square foot restaurant building, a covered trash enclosure, onsite parking spaces, new utilities, and landscape area. In-N-Out Burger will be purchasing the land that is currently vacant. The net site area is 78,393 square feet (1.8 acres).

I.B. Site Features and Conditions

The existing site condition is predominately vacant with a single 13' tall 658 square foot building near the east property line. The slope of the site is from the northeast to the southwest towards Santa Rosa Avenue. Existing stormwater runoff partially sheet flows over the property line into public right of way, and partially is collected within an existing drain box inlet near the southwest corner of the site, which has a 12" storm drain connection to the public catch basin on Santa Rosa Avenue. The east portion of the site flows to the south into the public right of way on Yolanda Avenue.

The proposed site will be fully developed for use as an In-N-Out Burger restaurant. The proposed site will maintain the existing flow paths and continue to predominately flow to the west towards Santa Rosa Avenue with a portion of the east side of the site flowing towards to Yolanda Avenue, as shown on the Low Impact Development Plan Sheet C34 included in Attachment 1.

Using the USDA's Web Soil Survey the site was determined to have a soil classification of D, for soils will low permeability and high runoff.

The City of Santa Rosa's 2017 Storm Water LID Determination Worksheet is included in Attachment 2.

II. POLLUTION PREVENTION MEASURES

The following measures were implemented in order to minimize runoff of prevent pollution from the site:

- Minimize impervious surfaces by designing drive aisles, sidewalks, and parking spaces to the minimum dimensions allowed per City, Fire Department, and Accessibility standards.
- Planting of interceptor trees throughout the site with 6 new evergreen trees and 15 deciduous trees.
- Runoff from the flatwork surrounding the building will drain into interior planting areas prior to flowing through the parking lot.
- Drain box inlets will include Kristar Fossil Filter inserts for pre-treatment of runoff from the site.
- Trash and recyclables will be stored within a covered enclosure with a concrete paved surface. The trash enclosure contains a trench drain inlet at the front of the enclosure to collect non-stormwater runoff from the enclosure, which is connected to the sanitary sewer system upstream of the building grease interceptor. Exterior elevations around the trash enclosure will prevent stormwater run-on into the enclosure.
- Landscape irrigation will be a drip system to prevent overspray.

III. TYPES OF BEST MANAGEMENT PRACTICES (BMPS)

The City of Santa Rosa BMP Selection Table was used in determining the most appropriate treatment system for the project and is shown in Attachment 3. Bioretention Planters will be used as the primary treatment system for runoff from the site. The Bioretention area best management practice (BMP) functions as a soil and plant-based filtration and infiltration feature that removes pollutants through a variety of natural physical, biological, and chemical treatment processes.

The Bioretention areas have been designed in accordance with the City of Santa Rosa Low Impact Development Technical Design Manual. The site is separated into two areas with Bioretention #1 for Drainage Area A on the west side of the site along Santa Rosa Avenue and Bioretention #2 for Drainage Area B on the south side of the site near Yolanda Avenue.

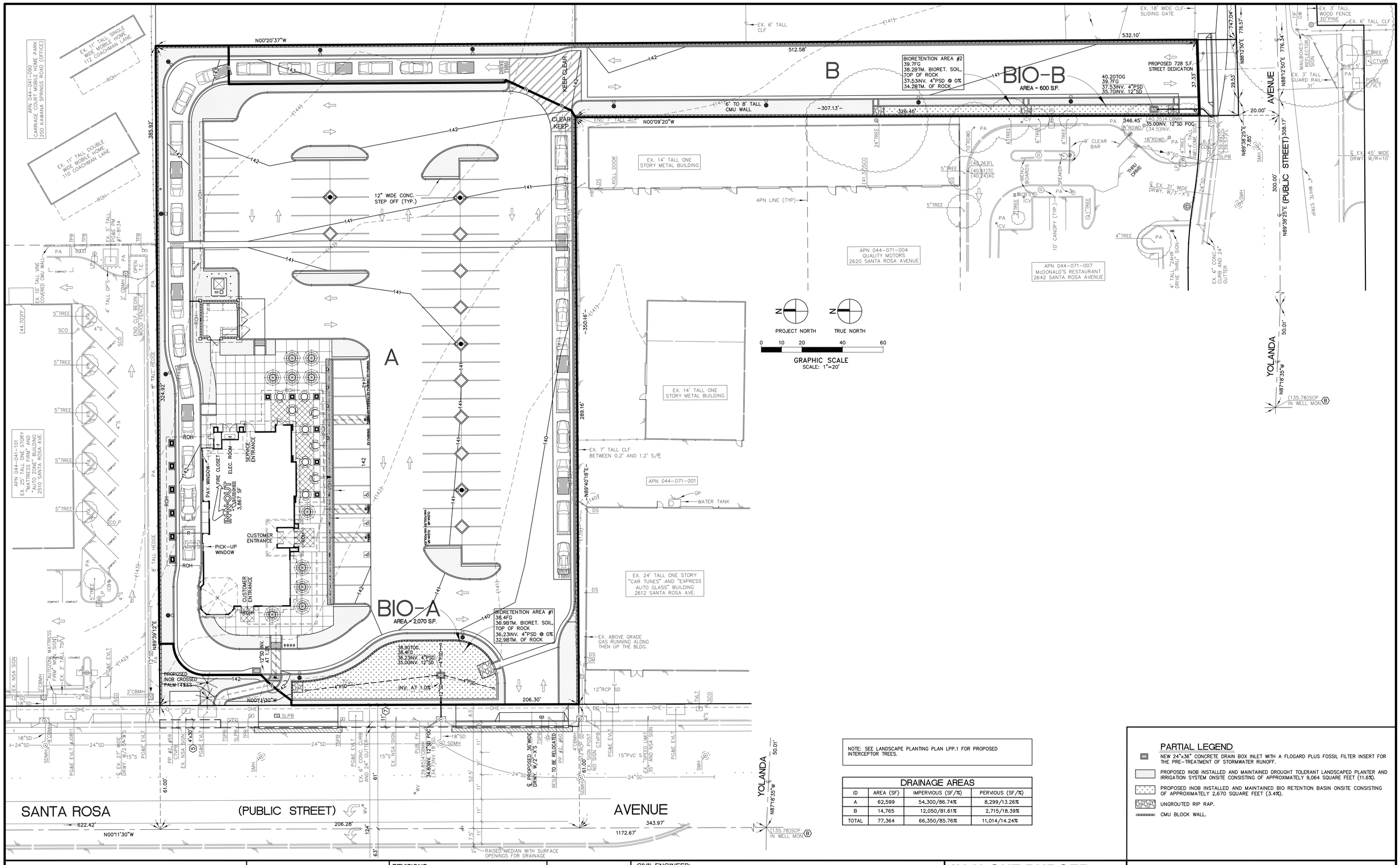
IV. LEVEL OF TREATMENT AND VOLUME CAPTURE

The new onsite Bioretention planters are designed for 100% Treatment and 100% Volume Capture for Hydromodification Control. Sizing for the Bioretention planters were calculated with the Storm Water LID Calculator, as shown in Attachment 4. In order to meet the Hydromodification volume requirements, each Bioretention area contains 4' of clean gravel below the Bioretention soil mix. Stormwater runoff will be contained within the voids of the gravel.

V. MAINTENANCE AND FUNDING

In-N-Out Burger is responsible for all ongoing operation and maintenance of the proposed BMPs. Maintenance of the Bioretention planters shall be done in accordance with the City of Santa Rosa Storm Water Quality Feature Maintenance Check List.

Attachment 1



NOTE: SEE LANDSCAPE PLANTING PLAN LPP.1 FOR PROPOSED INTERCEPTOR TREES.

DRAINAGE AREAS			
ID	AREA (SF)	IMPERVIOUS (SF/%)	PERVIOUS (SF/%)
A	62,599	54,300/86.74%	8,299/13.26%
B	14,765	12,050/81.61%	2,715/18.39%
TOTAL	77,364	66,350/85.76%	11,014/14.24%

PARTIAL LEGEND

- NEW 24"x36" CONCRETE DRAIN BOX INLET WITH A FLOGARD PLUS FOSSIL FILTER INSERT FOR THE PRE-TREATMENT OF STORMWATER RUNOFF.
- PROPOSED INOB INSTALLED AND MAINTAINED DROUGHT TOLERANT LANDSCAPED PLANTER AND IRRIGATION SYSTEM ONSITE CONSISTING OF APPROXIMATELY 9,064 SQUARE FEET (11.6%).
- PROPOSED INOB INSTALLED AND MAINTAINED BIO RETENTION BASIN ONSITE CONSISTING OF APPROXIMATELY 2,670 SQUARE FEET (3.4%).
- UNGROUTED RIP RAP.
- CMU BLOCK WALL.

DEVELOPER:
IN-N-OUT BURGER
13502 HAMBURGER LANE
BALDWIN PARK, CA 91706
CONTACT: JIM LOCKINGTON
PHONE: (626) 813-8289

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REVISIONS

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Mark S. Lamoureux 11-16-18
MARK S. LAMOUREUX R.C.E. 38382 DATE

REGISTERED PROFESSIONAL ENGINEER MARK S. LAMOUREUX No. 38382 CIVIL STATE OF CALIFORNIA

IN-N-OUT BURGER
2532 SANTA ROSA AVENUE
SANTA ROSA, CA 95407

CITY ENTITLEMENT LOW IMPACT DEVELOPMENT PLAN

C34

JN 18027-18027 C34celld

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Attachment 2

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

In-N-Out Burger - Santa Rosa	In-N-Out Burger c/o Jim Lockington
Project Name	Applicant (owner or developer) Name
2532 Santa Rosa Avenue	13502 Hamburger Lane
Project Site Address	Applicant Mailing Address
Santa Rosa, CA 95407	Baldwin Park, CA 91706
Project City/State/Zip	Applicant City/State/Zip
	626-813-8289
Permit Number(s) - (if applicable)	Applicant Phone/Email/Fax
Aaron Pellow, MSL Engineering, Inc.	402 W. Arrow Highway, Suite 4
Designer Name	Designer Mailing Address
San Dimas, CA 91773	909-305-2395
Designer City/State/Zip	Designer Phone/Email

Type of Application/Project:

☐ Subdivison ☐ Grading Permit ☐ Building Permit ☐ Hillside Development

☑ DesignReview ☐ Use Permit ☐ Encroachment ☐ Time Extensions ☐ Other :_____

PART 2: Project Exemptions

1. Is this a project that creates or replaces *less than* 10,000 square feet of impervious surface[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.**

---

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: 77,364 (●) 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.:

Vacant Land (previously demolished)

3. Existing impervious surface area: 0 (●) 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.:

A new 3,867 square foot restaurant building, a covered trash enclosure, onsite parking spaces, new utilities, and landscape area.

5. Proposed ~~Existing~~ impervious surface area: 66,416 (●) square feet ( ) acres

Acknowledgment Signature Section:

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

_____ _____

Applicant Signature Date

Exemption Signature Section:

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

_____ _____

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.

Attachment 3

BMP Selection Table

Project Name: In-N-Out Burger - Santa Rosa

	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							
	Rainwater Harvesting	N/A	N/A		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						
	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 stading 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 Bioretinton - Flush Design Roadside						X	X							
		P2-03	Roadside Bioretenion-Contiguous SW						X	X							
		P2-04	Roadside Bioretenion-Curb Opening						X	X			X				
		P2-05	Roadside Bioretenion- No C & G						X	X							
	Constructed Wetlands	N/A	N/A						X	X							

Date: 11-14-18

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								
		P3-03	Roadside Bioretenion- Contiguous SW		X	X	X		X								
		P3-04	Roadside Bioretenion- Curb Opening		X	X	X		X								
	Flow Through Planters	P3-05	Flow Through Planters		X	X	X		X								
	Vegetated Swale	P3-06	With Bioretention		X	X	X		X	X							
		P3-07	Vegetated Swale		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								
	Modular Bioretention				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								
	Centrifugal Separator Units				X	X	X		X								
	Trash Excluders				X	X	X		X								
	Filter Inserts				X	X	X		X								
Priority 6 BMPs- see the "Offset Program" chapter for details.	Offset Program								N/A	N/A	N/A						
Other	Detention				X												

Attachment 4

STORM WATER CALCULATOR

LID BMP Summary Page & Site Global Values

Project Information:

Project Name:	In-N-Out Burger
Address/Location:	Santa Rosa Blvd
Designer:	ADP
Date:	11/14/2018

Site Information:

Mean Seasonal Precipitation (MSP) of Project Site:	30.00	(inches)
K=MSP/3(K=	1.00	
Impervious area - pre development:	0.0	ft^2
Impervious area - post development:	66,416.0	ft^2

Based upon the pre and post development impervious area, the post construction BMP requirement is:

100% Capture & Treatment

Summary of Saved BMP Results:

		Tributary Area		Requirements		BMP Design Results						
							Hydromodification Control		Flow Base Treatment		Delta Volume Capture	
	BMP ID:	Tributary Area (ft^2.)	Runoff Reduction Measures (Y/N)	Type of Requirement Met	Type of BMP Design	Percent Achieved	Required $V_{Hydromod}$ (ft^3)	Achieved (ft^3)	Required Q Treatment (cfs)	Achieved (ft^3)	Required Vdelta (ft^3)	Achieved (ft^3)
1	A	62,599	Yes	Hydromod Volume Capture	Priority 3: P3-04 Roadside Bioretention - Curb Opening	104.0	########	########				
2	B	14,765	No	Hydromod Volume Capture	Priority 3: P3-04 Roadside Bioretention - Curb Opening	122.2	693.3644	847.0000				
3												
4							2,815.86		2,926.00			
5												
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STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: In-N-Out Burger

BMP ID: A

BMP Design Criteria: 100% Capture & Treatment

Type of BMP Design: Priority 3: P3-04 Roadside Bioretention - Curb Opening

BMP's Physical Tributary Area: 62,599.0 ft^2

Description/Notes:

Runoff Reduction Measures

Resulting reduced Tributary Area used for BMP sizing = 59,899.0 ft^2

Total Runoff Reduction Measures = 2,700.0 ft^2

Interceptor Trees

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

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: 21

Disconnected Roof Drains

Select disconnection condition: Select disconnection condition

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: 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; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 2,812.86 ft^3

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_{POST} : 95

User Composite post development CN: 0.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 104.02 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.35			
Depth below perforated pipe if present:	4.00	ft		
Depth:			0.00	ft
Width:	0.00	ft	0.00	ft
Length:	0.00	ft	0.00	ft
Area:	2,090.00	ft^2	0.00	ft^2

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **In-N-Out Burger**

BMP ID:	B
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 3: P3-04 Roadside Bioretention - Curb Opening
BMP's Physical Tributary Area:	14,765.0 ft^2
Description/Notes:	

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

$V_{HYDROMOD}$ = **693.36** ft^3

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_{POST} :	95
User Composite post development CN:	0.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = **122.16** %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.35			
Depth below perforated pipe if present:	4.00	ft		
Depth:			0.00	ft
Width:	0.00	ft	0.00	ft
Length:	0.00	ft	0.00	ft
Area:	605.00	ft^2	0.00	ft^2