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Stormwater Control Plan



STORMWATER CONTROL PLAN FOR A REGULATED PROJECT

Prepared for

SHADYBROOK ESTATE WINERY
100 RAPP LANE
NAPA, CA 94559

APN 052-170-019

THIS REPORT WAS PREPARED IN CONJUNCTION WITH THE INSTRUCTIONS, CRITERIA, AND MINIMUM REQUIREMENTS IN THE BAY AREA STORMWATER MANAGEMENT AGENCIES ASSOCIATION'S (BASMAA'S) POST CONSTRUCTION MANUAL.

Prepared for:
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Project #: 4118019.0
August 9, 2019



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- 1. Vicinity Map, USGS Map, Soils Map, FIRMETTE Map, Aerial Photo**
- 2. Drainage Management Areas Exhibit, Bioretention Facility Cross Section, Bioretention Construction Inspection Checklist**



I. Purpose

This report addresses the adopted E.12 Post-Construction Requirements outlined in the Bay Area Stormwater Management Agencies Association (BASMAA) Post-Construction Manual, dated July 14, 2014. This project is classified as a "Regulated Project."

II. Project Data

Table 1. Project Data Form

Project Name/Number	Shadybrook Estate Winery (4118019.0)
Application Submittal Date	August 2019
Project Location	100 Rapp Lane Napa, CA 94559 APN: 052-170-019
Project Phase	Use Permit
Project Type and Description	Remodel of existing winery
Total Project Site Area (acres)	11.37 Acres ±
Total New and Replaced Impervious Surface Area	14,558 sq. ft
Total Pre-Project Impervious Surface Area	12,260 sq. ft
Total Post-Project Impervious Surface Area	14,558 sq. ft

III. Setting

II.A. Project Location and Description

The Shadybrook Estate Winery project is located at 100 Rapp Lane in Napa County, California. The APN is 052-170-019 and the parcel has an area of 11.37 +/- acres. The property has an existing winery, barn, and residence. Improvements include reconfiguration of existing parking and landscaping. Also proposed is a remodel of the existing barn, a portion of which will be used for winery production. Access to the winery is from 2nd Avenue via Rapp Lane and an existing driveway. The parcel is bounded by vineyards, an equestrian center, and the Napa Valley Country Club to the north.

The proposed project will disturb an area of less than one acre, so this project will not require a Stormwater Pollution Prevention Plan or a Notice of Intent (NOI).

II.B. Existing Site Features and Conditions

The site is located in a semi-rural area surrounded by vineyards, wineries and the Napa Valley Country Club. The site has an existing winery, barn and residence and gravel driveway. The rest



of the parcel is covered by vineyards. In the area of the proposed work the average slope is approximately 5% draining to the northeast.

The predominant soil type in the project area is Sobrante loam, which is of the Hydraulic Soil Group C. Refer to Attachment 1 for Soils Map.

Runoff from the property discharges northeast and ultimately to Napa River. Refer to Attachment 1 for a USGS Site Map, Vicinity Map, FIRETTE Map, and an Aerial Photo showing the parcel topography, features and boundary.

II.C. Opportunities and Constraints for Stormwater Control

Stormwater treatment facilities have been integrated into the planning, design, construction, operation, and maintenance of the proposed development. The following potential opportunities and constraints were considered in determining the best stormwater control design for this development.

Opportunities for the site include existing landscape and vineyard areas. Runoff will be conveyed to self-retaining areas and bioretention facilities via stormdrain pipes and/or sheet flow.

Constraints include the site location and existing grades.

IV. Low Impact Development Design Strategies

III.A. Optimization of Site Layout

1. Limitation of development Envelope.

The area of the proposed improvements is in the area of existing winery and driveway with minimal expansion.

2. Preservation of natural drainage features.

Overland flows will be maintained as much as possible.

3. Setbacks from creeks, wetlands, and riparian habitats

There are no creek, wetland, or riparian habitat setbacks associated with this project.

4. Minimization of imperviousness

Walkways and parking areas are designed to the minimum widths necessary without compromising public safety and a walkable environment. Landscaped areas are used instead of decorative impervious areas. Existing trees will be preserved to the maximum extent practicable. The impervious area will be limited to the minimum area required.

5. Use of drainage as a design element



Self-Retaining areas are incorporated into the aesthetic landscape and vineyard design of the site.

III.B. Use of Permeable Pavements

Permeable pavements are not in the scope of this project.

III.C. Dispersal of Runoff to Pervious Areas

Stormwater runoff will be directed to landscaped and vineyard areas to the maximum extent practicable.

III.D. Stormwater Control Measures

Self-Retaining and Bioretention areas have been incorporated as stormwater control measures.

V. Documentation of Drainage

IV.A Drainage Management Areas

Table 2. Drainage Management Areas

DMA Name	Pervious Area (square feet)	Impervious Area (square feet)	Total Area (square feet)
DMA-1	0	11,760	11,760
DMA-2	0	55	55
DMA-3	0	130	130
DMA-4	0	900	900
DMA-5	0	850	850
DMA-6	0	70	70
DMA-7	0	150	150
DMA-8	0	643	643

Drainage Management Area Descriptions

DMA 1, totaling 11,760 square feet, consists of the existing barn. The runoff from this area is collected in gutters and flows to an existing stormwater chamber system which stores and infiltrates runoff. From the chamber system, the stormwater that hasn't been infiltrated bubbles up in the vineyard. The chamber system has the capacity to store 3,155 cubic feet and has an infiltration area of 855 square feet. See Drainage Management Area Exhibit in attachment 2.



DMA 2, totaling 55 square feet, consists of the pavement for the driveway widening on the west side of the property. The runoff from this area sheet flows to the self-retaining landscaped area to the west. See Drainage Management Area Exhibit in attachment 2.

DMA 3, totaling 130 square feet, consists of the paved parking extension. The runoff from this area sheet flows east to the self-retaining landscaped area. See Drainage Management Area Exhibit in attachment 2.

DMA 4, totaling 900 square feet, consists of the proposed stairway and concrete path. The runoff from this area sheet flows north to the self-retaining landscaped area. See Drainage Management Area Exhibit in attachment 2.

DMA 5, totaling 850 square feet, consists of the gravel parking improvements and the concrete ADA parking stall. The runoff from this area is collected in a storm drain and flows to Bioretention Facility 1. See Drainage Management Area Exhibit in attachment 2.

DMA 6, totaling 70 square feet, consists of the western side of the gravel parking lot entrance widening. The runoff from this area is sheet flows north to the self-retaining area in the vineyard. See Drainage Management Area Exhibit in attachment 2.

DMA 7, totaling 150 square feet, consists of the western side of the gravel parking lot entrance widening and the south side of the widened one-way driveway. The runoff from this area sheet flows north to the self-retaining area in the vineyard. See Drainage Management Area Exhibit in attachment 2.

DMA 8, totaling 643 square feet, consists of the south side of the widened one-way driveway. The runoff from this area sheet flows north to the self-retaining area in the vineyard. See Drainage Management Area Exhibit in attachment 2.

IV.B. Tabulation and Sizing Calculations

Table 3. Information Summary for Bioretention Facility Design

DMA	Total Project Area (Square Feet)
DMA-5	850

Table 4. Self-Treating Areas

DMA Name	Area (square feet)



This site does not contain any Self-Treating Areas.

Table 5. Self-Retaining Areas

SRA Name	Area (square feet)
SRA-1	12,870
SRA-2	380
SRA-3	75
SRA-4	4,380
SRA-5	3,805

Table 6. Areas Draining to Self-Retaining Areas

DMA Name	Area (square feet)	Post-project surface type	Runoff factor	Product (Area x runoff factor) [A]	Receiving self-retaining name	Receiving self-retaining DMA Area (square feet) [B]	Ratio [A]/[B]
DMA-1	11,760	Paved	1	11,760	SRA-1	12,870	0.91
DMA-2	55	Paved	1	55	SRA-2	380	0.14
DMA-3	130	Paved	1	130	SRA-3	75	1.73
DMA-4	900	Paved	1	900	SRA-4	4,380	0.21
DMA-6	70	Paved	1	863	SRA-5	3,805	0.23
DMA-7	150						
DMA-8	643						

Table 7. Areas Draining to Bioretention Facilities

DMA Name	DMA Area (Square Feet)	Post-project surface type	DMA Runoff Factor	DMA Area x Runoff Factor	Facility Name		
					Bioretention Facility 1		
					Sizing Factor	Minimum Facility size	Proposed Facility
DMA-5	850	Paved	1	850			
Total>				850	0.04	34	34



VI. Source Control Measures

V.A. Site activities and potential sources of pollutants

The site activities and potential sources of pollutants for the Shadybrook Estate Winery project are listed in table 8, below.

Table 8. Control Table

Potential Sources of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
A. On-site storm drain inlets (unauthorized non-stormwater discharges and accidental spills or leaks)	<ul style="list-style-type: none"> Mark all inlets with the words "No Dumping! Flows to River" or similar. 	<ul style="list-style-type: none"> Maintain and periodically repaint or replace inlet markings. Provide stormwater pollution prevention information to new site owners, lessees, or operators. See applicable operational BMPs in Fact Sheet SC-74, "Drainage System Maintenance." Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
B. Interior floor drains and elevator shaft sump pumps	<ul style="list-style-type: none"> Interior floor drains and elevator shaft sump pumps will be plumbed to the sanitary sewer. 	<ul style="list-style-type: none"> Inspect and maintain drains to prevent blockages and overflow.
C. Interior parking garages	N/A	N/A
D ₁ . Need for future indoor & structural pest control	<ul style="list-style-type: none"> Building design shall incorporate features that discourage entry of pests. 	<ul style="list-style-type: none"> Provide Integrated Pest Management information to owners, lessees, and operators.
D ₂ . Landscape / outdoor pesticide use / lawn maintenance	<ul style="list-style-type: none"> Final landscape plans will accomplish all of the following: <ul style="list-style-type: none"> Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. Minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. Use pest-resistant plants, especially adjacent to hardscape. To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological 	<ul style="list-style-type: none"> Maintain landscaping using minimum or no pesticides. See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance."

Shadybrook Estate Winery
Stormwater Control Plan for a Regulated Project



Potential Sources of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
	consistency, and plant interactions.	
E. Pools, spas, ponds, decorative fountains, and other water features	N/A	N/A
F. Food service	N/A	N/A
G. Refuse areas	<ul style="list-style-type: none"> ▪ Refuse areas shall be paved with an impervious surface, designed not to allow run-on from adjoining areas, and screened to prevent off-site transport of trash. ▪ Refuse areas shall contain a roof to minimize direct precipitation. ▪ No drain connections shall be made to the Refuse area. 	<ul style="list-style-type: none"> ▪ Provide adequate number of receptacles. ▪ Inspect receptacles regularly; repair or replace leaky receptacles. ▪ Keep receptacles covered. ▪ Prohibit/prevent dumping of liquid or hazardous wastes. ▪ Post “no hazardous materials” signs. ▪ Inspect and pick up litter daily and clean up spills immediately. ▪ Keep spill control materials available on-site. ▪ Clean by dry-sweeping only, or with wet/dry vacuum. ▪ See Fact Sheet SC-34, “Waste Handling and Disposal”
H. Industrial processes	<ul style="list-style-type: none"> ▪ All process activities to be performed indoors. No processes to drain to exterior or to storm drain system 	<ul style="list-style-type: none"> ▪ Industrial discharge will be mitigated to the winery process wastewater system and will not be discharged to storm drains
I. Outdoor Storage of Equipment or Materials	N/A	N/A
J. Vehicle / equipment cleaning	N/A	N/A
K. Vehicle / equipment repair and maintenance	N/A	N/A
L. Fuel dispensing areas	N/A	N/A
M. Loading docks	N/A	N/A
N. Fire sprinkler test water	<ul style="list-style-type: none"> ▪ Fire sprinkler test water shall be discharged to the sanitary sewer. 	<ul style="list-style-type: none"> ▪ See the note in Fact Sheet SC-41, “Building and Grounds Maintenance”
O. Miscellaneous drain or wash water or other sources <ul style="list-style-type: none"> • Boiler drain lines • Condensate drain lines • Rooftop equipment • Drainage sumps • Roofing, gutters, and trim • Other sources 	<ul style="list-style-type: none"> ▪ Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain. ▪ Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. ▪ Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. ▪ Any drainage sumps on-site shall feature a sediment sump to 	<ul style="list-style-type: none"> ▪ If architectural copper is used, implement the following BMPs for management of rinsewater during installation: ▪ If possible, purchase copper materials that have been pre-patinated at the factory. ▪ If patination is done on-site, prevent rinse water from entering storm drains by discharging to landscaping or by collecting in a tank and hauling off-site. ▪ Consider coating the copper materials with an impervious coating that prevents further corrosion and runoff.



Potential Sources of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
	reduce the quantity of sediment in pumped water.	<ul style="list-style-type: none"> ▪ Implement the following BMPs during routine maintenance: ▪ Prevent rinse water from entering storm drains by discharging to landscaping or by collecting in a tank and hauling off-site.
P. Plazas, sidewalks, and parking lots		<ul style="list-style-type: none"> ▪ Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

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

Source control BMPs will be designed and implemented per construction specifications and CASQA BMP fact sheets.

VII. Stormwater Facility Maintenance

VI.A. Ownership and Responsibility for Maintenance in Perpetuity

The applicant accepts responsibility for interim operation and maintenance of stormwater treatment and flow-control facilities until such time as this responsibility is formally transferred to a subsequent owner.

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

The site incorporates two Bioretention Facilities. Bioretention Facilities require as needed maintenance for any damage that may occur. Semi-annual inspections are required for possible erosion, damaged vegetation, debris, and health of any trees or shrubs. These inspections usually occur at the beginning of the wet season and end of the wet season. Any dead or diseased vegetation should be removed and replaced during the inspection. An annual inspection is required to complete the annual report for each Bioretention Facility. During this inspection mulch may be added, and tree stakes and wires replaced.



VIII. Construction Checklist

Table 9. Construction Checklist

Stormwater Control Plan Page #	Source Control or Treatment Control Measure	Sheet
5	Bioretention Facilities	
6	A. On-site storm drain inlets	C3.0/C4.0
6	B. Interior floor drains and elevator shaft sump pumps	ARCH
6	D1. Need for Future indoor & structural pest control	
6	D2. Landscape/ outdoor pesticide use/ building and ground maintenance	ARCH
7	G. Refuse areas	ARCH
7	N. Fire sprinkler test water	ARCH
7	O. Miscellaneous drain or wash	ARCH
8	P. Plazas, sidewalks, and parking lots	ARCH/C1.0

IX. Certifications

The design of stormwater treatment facilities and other stormwater pollution control measures in this plan are in accordance with the current edition of the BASMAA Post-Construction Manual, dated July 14, 2014.



ATTACHMENT 1

VICINITY MAP, USGS MAP, SOILS MAP,
FIRMETTE MAP, AERIAL PHOTO

SHADYBROOK ESTATE WINERY VICINITY MAP

NAPA COUNTY CALIFORNIA



VICINITY MAP

SCALE: 1" = 3000'

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	OFFICE 707 252.3301
+ www.RSAcivil.com +	

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MAY 9, 2018

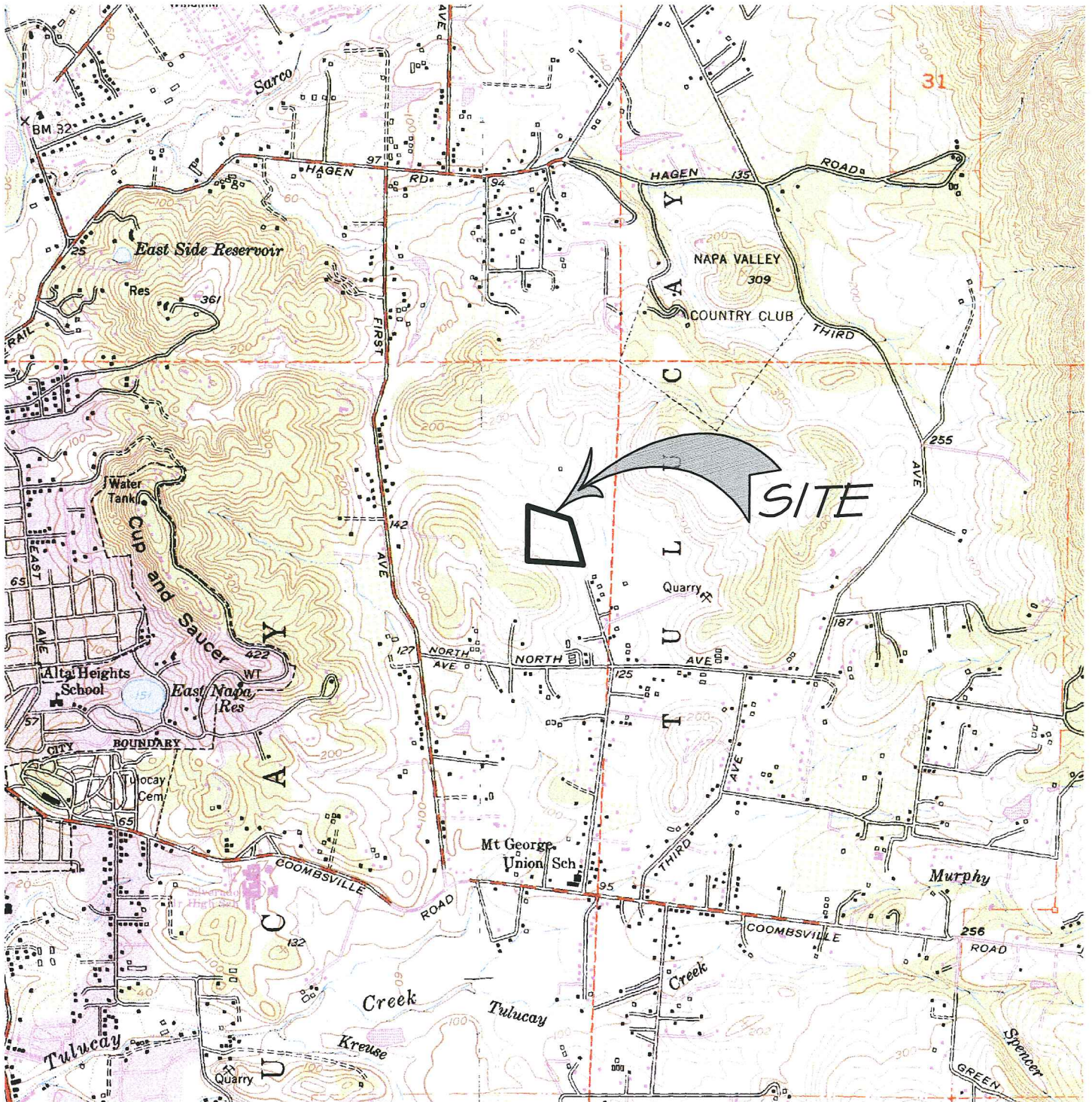
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SHADYBROOK ESTATE WINERY USGS MAP

NAPA COUNTY

CALIFORNIA



GRAPHIC SCALE



(IN FEET)
1 inch = 2000 FT



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Hydrologic Soil Group—Napa County, California
(Shadybrook Estate Winery)





































Map Scale: 1:2,250 if printed on A landscape (11" x 8.5") sheet.



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

MAP LEGEND

 Area of Interest (AOI)	 Area of Interest (AOI)	 C
Soils	 A	 C/D
Soil Rating Polygons	 A/D	 D
 B	 Not rated or not available	
 B/D	Water Features	 Streams and Canals
 C	Transportation	 Rails
 C/D	 Interstate Highways	 US Routes
 D	 Major Roads	 Local Roads
 Not rated or not available	Background	 Aerial Photography
Soil Rating Lines	 A	
 A/D	 Not rated or not available	
 B		
 B/D		
 C		
 C/D		
 D		
 Not rated or not available		
Soil Rating Points	 A	
 A/D		
 B		
 B/D		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Napa County, California
Survey Area Data: Version 11, Sep 12, 2018

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

Date(s) aerial images were photographed: Dec 31, 2009—Oct 31, 2017

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
178	Sobrante loam, 5 to 30 percent slopes	C	12.4	100.0%
Totals for Area of Interest			12.4	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

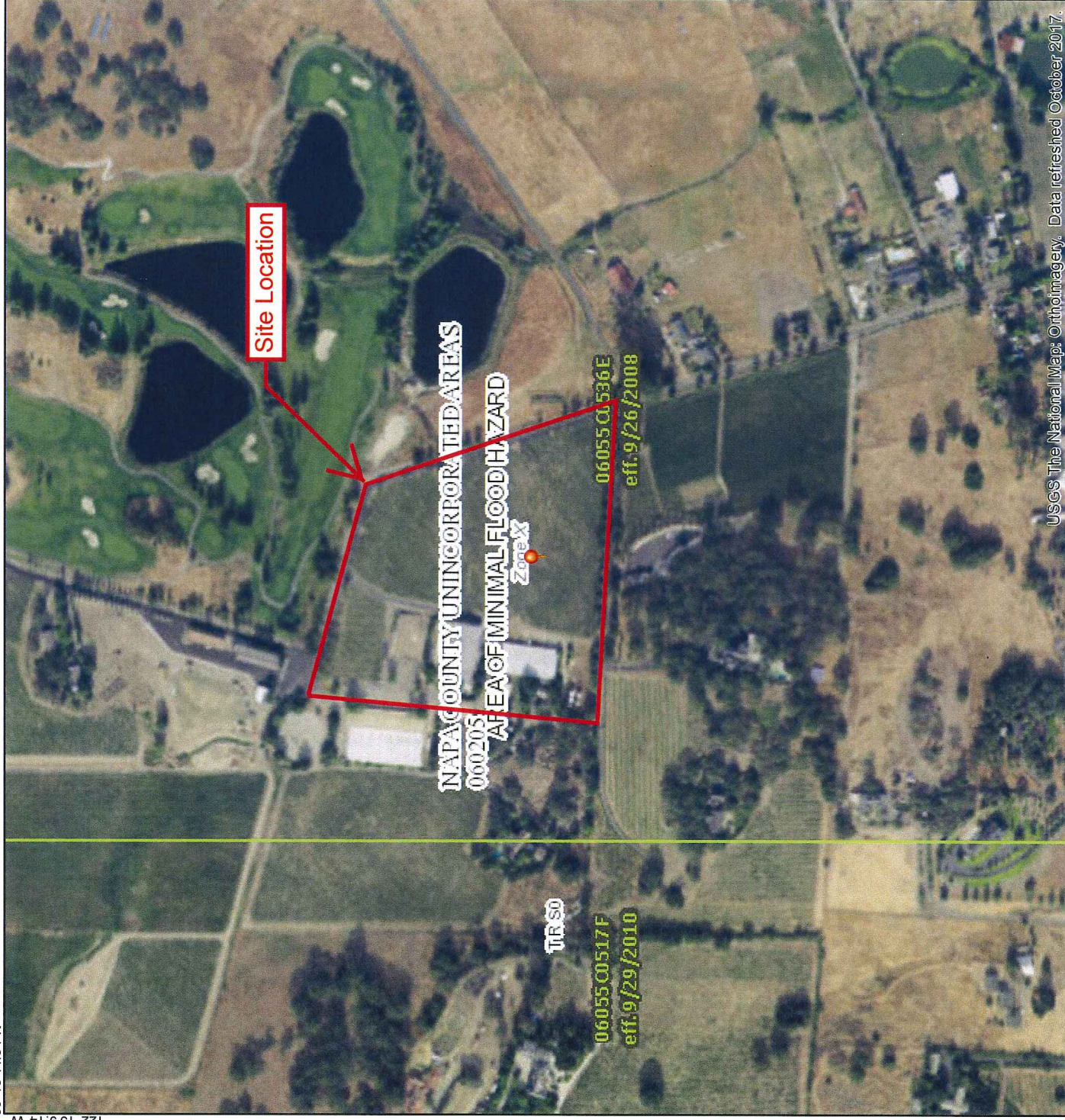
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

National Flood Hazard Layer FIRMette



38°18'44.34"N



USGS The National Map: Orthoimagery. Data refreshed October 2017.



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

<p>SPECIAL FLOOD HAZARD AREAS</p> <ul style="list-style-type: none"> Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i> With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i> Regulatory Floodway 	<p>OTHER AREAS OF FLOOD HAZARD</p> <ul style="list-style-type: none"> 0.2% Annual Chance Flood Hazard, Area of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i> Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i> Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i> Area with Flood Risk due to Levee <i>Zone D</i> 	<p>OTHER AREAS</p> <ul style="list-style-type: none"> Area of Minimal Flood Hazard <i>Zone X</i> Effective LOMRs Area of Undetermined Flood Hazard <i>Zone</i> 	<p>GENERAL STRUCTURES</p> <ul style="list-style-type: none"> Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall 	<p>OTHER FEATURES</p> <ul style="list-style-type: none"> Cross Sections with 1% Annual Chance Water Surface Elevation Coastal Transect Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary Coastal Transect Baseline Profile Baseline Hydrographic Feature 	<p>MAP PANELS</p> <ul style="list-style-type: none"> Digital Data Available No Digital Data Available Unmapped
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The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

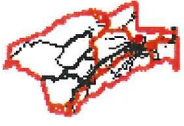
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/27/2018 at 12:45:45 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



County of Napa GIS



- Legend**
- Parcels
 - County Boundary



752.3

0 376.17 752.3 Feet

Disclaimer: This map was prepared for informational purposes only. No liability is assumed for the accuracy of the data delineated hereon.

This map was printed on 11/27/2018

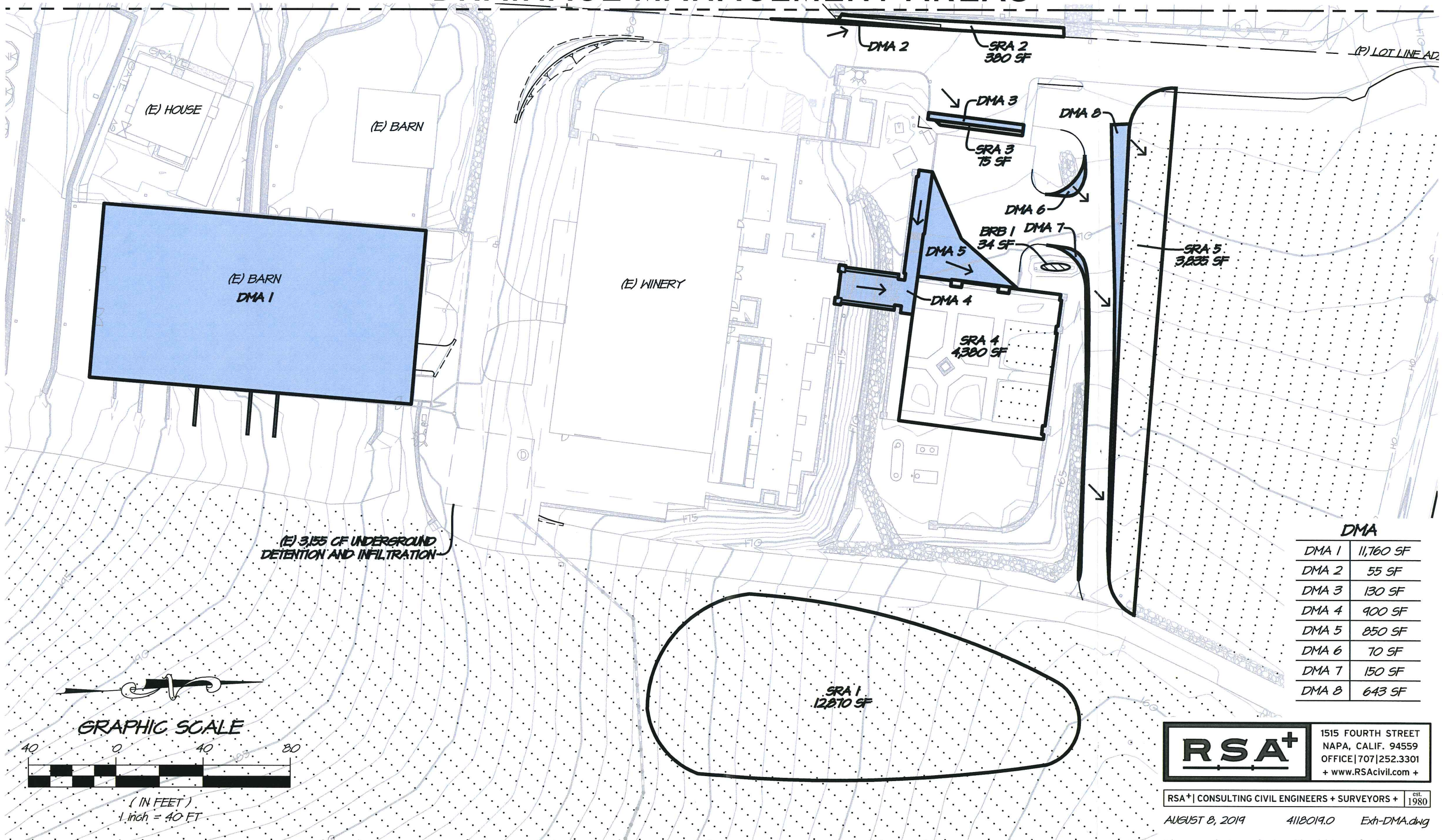
Notes



ATTACHMENT 2

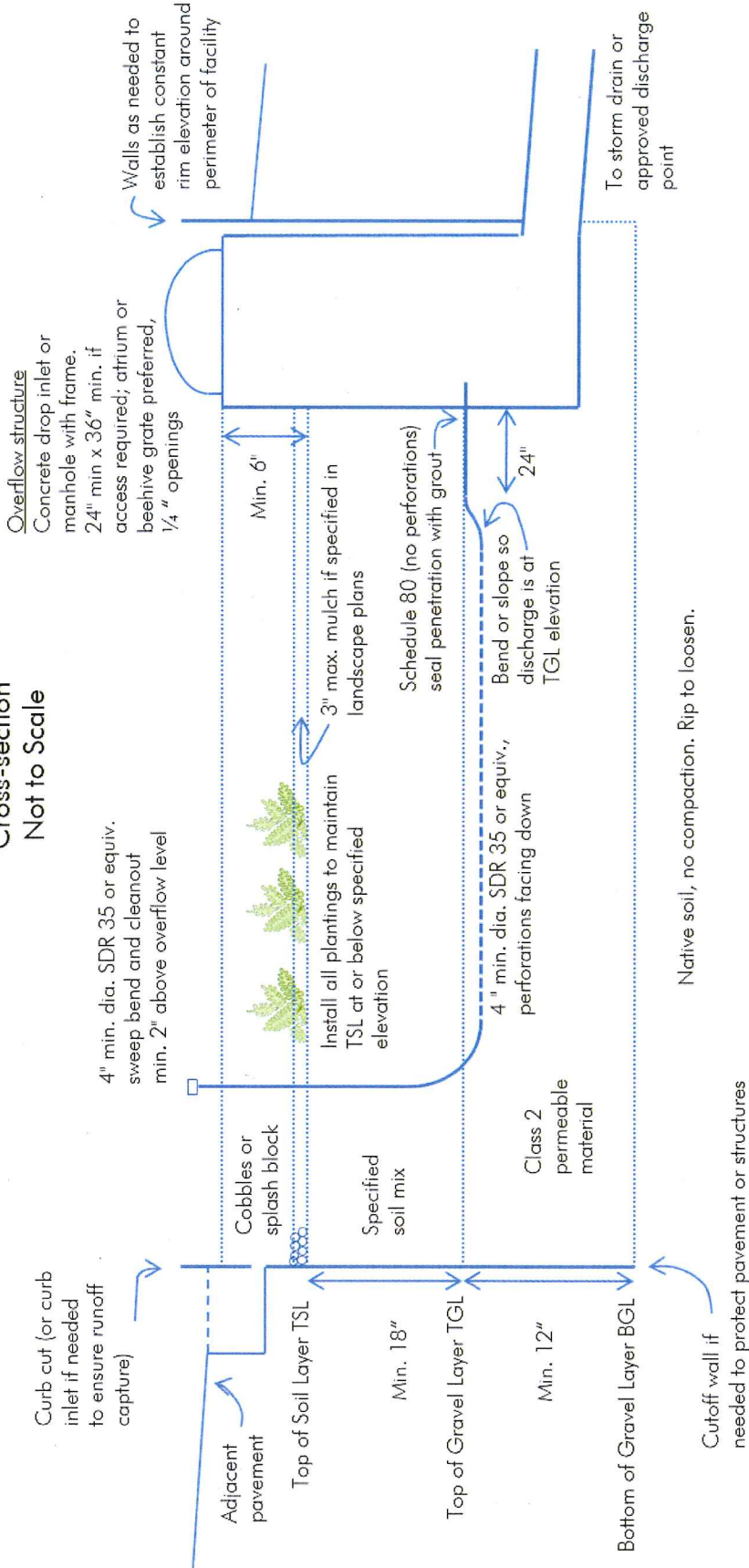
DRAINAGE MANAGEMENT AREAS EXHIBIT BIORETENTION FACILITY CROSS SECTION BIORETENTION CONSTRUCTION INSPECTION CHECKLIST

SHADYBROOK ESTATE WINERY DRAINAGE MANAGEMENT AREAS



Bioretention Facility

Cross-section
Not to Scale



Allowed variations for special site conditions:

- Facilities located within 10 feet of structures or other potential geotechnical hazards may incorporate an impervious cutoff wall
- Facilities with documented high concentrations of pollutants in underlying soil or groundwater, facilities where infiltration could contribute to a geotechnical hazard, and facilities located on elevated plazas or other structures may incorporate an impervious liner between the native soil and the BGL and locate the underdrain discharge at the BGL (flow-through planter configuration).
- Facilities located in areas of high groundwater, highly infiltrative soils, or where connection of the underdrain to a surface drain or subsurface storm drain are infeasible may omit the underdrain.

Notes:

- No liner, no filter fabric, no landscape cloth.
- Maintain BGL, TGL, TSL throughout facility area at elevations to be specified in plan.
- Class 2 perm layer may extend below and underneath drop inlet.
- Elevation of underdrain discharge is at top of gravel layer.
- See Chapter 4 for instructions on facility sizing and additional specifications.

Appendix B. Bioretention Construction Inspection Checklist

Layout (to be confirmed prior to beginning excavation)

- Square footage of the facility meets or exceeds minimum shown in Stormwater Control Plan
- Site grading and grade breaks are consistent with the boundaries of the tributary Drainage Management Area(s) (DMAs) shown in the Stormwater Control Plan
- Inlet elevation of the facility is low enough to receive drainage from the entire tributary DMA
- Locations and elevations of overland flow or piping, including roof leaders, from impervious areas to the facility have been laid out and any conflicts resolved
- Rim elevation of the facility is laid out to be level all the way around, or elevations are consistent with a detailed cross-section showing location and height of interior dams
- Locations for vaults, utility boxes, and light standards have been identified so that they will not conflict with the facility
- Facility is protected as needed from construction-phase runoff and sediment

Excavation (to be confirmed prior to backfilling or pipe installation)

- Excavation conducted with materials and techniques to minimize compaction of soils within the facility area
- Excavation is to accurate area and depth
- Slopes or side walls protect from sloughing of native soils into the facility
- Moisture barrier, if specified, has been added to protect adjacent pavement or structures.
- Native soils at bottom of excavation are ripped or loosened to promote infiltration

Overflow or Surface Connection to Storm Drainage

(to be confirmed prior to backfilling with any materials)

- Overflow is at specified elevation
- No knockouts or side inlets are in overflow riser
- Overflow location selected to minimize surface flow velocity (near, but offset from, inlet recommended)
- Grating excludes mulch and litter (beehive or atrium-style grates with 1/4" openings recommended)
- Overflow is connected to storm drain via appropriately sized piping

Underground connection to storm drain/outlet orifice

(to be confirmed prior to backfilling with any materials)

- Perforated pipe underdrain (PVC SDR 35 or approved equivalent) is installed with holes facing down
- Perforated pipe is connected to storm drain at specified elevation (typ. bottom of soil elevation)
- Cleanouts are in accessible locations and connected via sweep bends

Drain Rock/Subdrain (to be confirmed prior to installation of soil mix)

- Rock is installed as specified, 12" min. depth. Class 2 permeable, Caltrans specification 68-2.02F(3) recommended
- Rock is smoothed to a consistent top elevation. Depth and top elevation are as shown in plans
- Slopes or side walls protect from sloughing of native soils into the facility
- No filter fabric is placed between the subdrain and soil mix layers

Soil Mix

- Soil mix is as specified.
- Mix installed in lifts not exceeding 12"
- Mix is not compacted during installation but may be thoroughly wetted to encourage consolidation
- Mix is smoothed to a consistent top elevation. Depth of mix (18" min.) and top elevation are as shown in plans, accounting for depth of mulch to follow and required reservoir depth

Irrigation

- Irrigation system is installed so it can be controlled separately from other landscaped areas. Smart irrigation controllers and drip emitters are recommended and may be required by local code or ordinance.
- Spray heads, if any, are positioned to avoid direct spray into outlet structures

Planting

- Plants are installed consistent with approved planting plan, consistent with site water allowance
- Any trees and large shrubs are staked securely
- No fertilizer is added; compost tea may be used
- No native soil or clayey material are imported into the facility with plantings
- 1"-2" mulch may be applied following planting; mulch selected to avoid floating
- Final elevation of soil mix maintained following planting
- Curb openings are free of obstructions

Final Engineering Inspection

- Drainage Management Area(s) are free of construction sediment and landscaped areas are stabilized
- Inlets are installed to provide smooth entry of runoff from adjoining pavement, have sufficient reveal (drop from the adjoining pavement to the top of the mulch or soil mix, and are not blocked)
- Inflows from roof leaders and pipes are connected and operable
- Temporary flow diversions are removed
- Rock or other energy dissipation at piped or surface inlets is adequate
- Overflow outlets are configured to allow the facility to flood and fill to near rim before overflow
- Plantings are healthy and becoming established
- Irrigation is operable
- Facility drains rapidly; no surface ponding is evident
- Any accumulated construction debris, trash, or sediment is removed from facility
- Permanent signage is installed and is visible to site users and maintenance personnel



A Tradition of Stewardship
A Commitment to Service

**PROJECT GUIDANCE FOR
STORMWATER QUALITY COMPLIANCE**

PROJECT INFORMATION

Project Name

Shadybrook Estate Winery

Project Number

4118019.0

Project Address

100 Rapp Lane

Assessor's Parcel Number

052-170-019

Existing Development Permits Under Review or Issued

P18-00450

EROSION & SEDIMENT CONTROL PLAN (ESCP) APPLICABILITY

Under Provision E.10 of a statewide Phase II municipal stormwater NPDES permit reissued by the California State Water Resource Control Board in 2013, requires Napa County to establish and enforce an erosion and sediment control program to minimize the discharge of sediment and construction related pollutants. All individuals undertaking public or private construction or ground disturbing activities must take steps to prevent the discharge of pollutants resulting from these activities. Specified projects that require local permits or trigger ground disturbance thresholds must prepare plans describing the BMPs that will be implemented. Refer to Napa County's Erosion and Sediment Control Plan Guidance Table 3, Levels of Erosion and Sediment Control Requirements, for a summary of the general levels of requirements that are further described in the guidance document. Please respond to the following questions.

1. Does the project require a Grading Permit? Yes No

2. Does the project proposed soil disturbance greater or equal to 10,000 square feet? Yes No

- Proposed Disturbed Soil Area: sq.ft. acres

3. Does the project propose soil disturbance on slopes greater or equal to 5%? Yes No

- Maximum Percent Slope:

4. Does the project propose installation of new and/or reconstructed storm drains which discharge to a municipal storm system or receiving water body? Yes No

For County Use Only:

	High	Medium	Low	N/A
Threat to Water Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Construction General Permit WDID# (if applicable):