“I”

Stormwater Control Plan

Castlevale Winery P09-00529-UP
Planning Commission Hearing Date August 1, 2018

STORMWATER CONTROL PLAN
FOR A REGULATED PROJECT
CASTLEVALE WINERY
3450 CHILES POPE VALLEY ROAD, NAPA COUNTY, CA
APNs 025-230-014, &-016

Prepared For:

Castlevale Winery
c/o Carolyn Martini
P.O. Box 61
St. Helena, CA 94574

Prepared By:

Bartelt Engineering
1303 Jefferson Street, 200 B
Napa, CA 94559
(707) 258-1301

Paul N. Bartelt, P.E.
Principal Engineer

April 2018 - Revised
May 2017
September 2015
Job No. 08-22

BARTELT ENGINEERING

TABLE OF CONTENTS

List of Tables

List of Attachments

Stormwater Control Plan - Drainage Management Area Exhibit

This Stormwater Control Plan was prepared using the Bay Area Stormwater Agencies Association (BASMAA) template dated July 11, 2014

1. Project Data

Table 1-1: Project Data	
Project Name/Number	Castlevale Winery
Application Submittal Date	April 2018 - Revised
Project Location	APN: 025-230-014, &-016
Project Phase No.	N/A
Project Type and Description	Use Permit Application for New Winery with Tasting Room
Total Project Site Area (acres)	2.7± acres
Total New and Replaced Impervious Surface Area (Onsite)	115,712± SF
Total Pre-Project Impervious Surface Area	73,500± SF
Total Post-Project Impervious Surface Area	124,080± SF
Percent Imperviousness Before Construction	3.04%
Percent Imperviousness After Construction	5.15%

2. Setting

2.1. Project Location and Description

The Castlevale Winery project is located at 3450 Chiles Pope Valley Road in Napa County approximately 8 miles east of St. Helena, California. The parcels (APNs 025-230-014, &-016) are approximately 136.22± acres and 55.35± acres and are zoned AW (Agricultural Watershed), respectively. The proposed project will consist of one (1) phase having a disturbed area of approximately 2.7± acres. The disturbed area includes the proposed winery, crush pad, driveways and parking areas.

2.2. Existing Site Features and Conditions

The subject parcels are currently developed with a residence, barn, driveways and vineyards. Slopes on the parcel range between one (1) and fifty (50) percent. Slopes in the project area range between three (3) and thirty (30) percent. According to the NRCS Soil Report, the soil types found on the parcel are Bressa-Dibble complex, 15 to 30 percent slopes, (map symbol 113, Hydrologic Soil Group "D"), Bressa-Dibble complex, 30 to 50 percent slopes, (map symbol 114, Hydrologic Soil Group "D"), Bressa-Dibble complex, 50 to 75 percent slopes, (map symbol 115, Hydrologic Soil Group "D"), Perkins Gravelly Loam, 2 to 5 percent slopes, (map symbol 168, Hydrologic Soil Group "C") and Pleasanton Loam, 2 to 5 percent slopes, (map symbol 171, Hydrologic Soil Group "C").

2.3. Opportunities and Constraints for Stormwater Control

APN 025-230-014 is mostly mountainous while APN 025-230-016 consists of mountains and valley areas. Most of the valley is developed with vineyard. The majority of the proposed development will take place on the lower portion of the mountainside and will drain toward and into the valley. The proposed winery is located at the northern end of APN 025-230-016 and can be seen on the Use Permit Drawings prepared by Bartelt Engineering. These drainage characteristics make the valley ideal for a self-retaining area to control stormwater quality. Due to the nature of this project, the site will experience heavy vehicles, moderate passenger vehicle traffic and must meet Universal Access requirements. The amount of impervious surface has been limited wherever possible.

The Federal Insurance Rate Map (FIRM) from the Federal Emergency Management Agency (FEMA) shows that the site is not within the 100-year flood plain as of September 26, 2008.

3. Low Impact Development Design Strategies

3.1. Optimization of Site Layout

3.1.1. Limitation of development envelope

Currently, the subject parcels are developed with a residence, barn, driveways and vineyards. Under the proposed design, the winery will be located in close proximity to the existing driveway. The existing driveway is to be widened to accommodate commercial vehicles. A small portion of the proposed driveway connecting to the winery deviates from the alignment of the existing road.

3.1.2. Preservation of natural drainage features

The existing natural drainage features on this site will be maintained under the proposed conditions. Stormwater runoff will be directed from the developed hillside of the parcel to the valley and retained within existing vineyards. Rock slope protection and sediment barriers will be used to slow stormwater runoff originating on the hillside.

3.1.3. Setbacks from creeks, wetlands and riparian habitats

The wastewater system will be constructed outside of any Napa County septic system setbacks (including well setbacks). No new development will take place within the setback for Chiles Creek or the Blue Line Stream flowing into Chiles Creek. There are no wetlands identified on the subject parcel.

3.1.4. Minimization of imperviousness

Impervious area will increase as a result of local, state and federal requirements for vehicular and pedestrian access to and from the site.

3.1.5. Use of drainage as a design element

There are multiple elements proposed for this project that are designed to reduce stormwater runoff and promote infiltration. Bioretention facilities will be utilized to promote infiltration and slow down stormwater flows. Rock slope protection will be used at storm drain outlets to slow and spread flow.

3.2. Use of Permeable Pavements

Permeable pavements will not be used on this project.

3.3. Dispersal of Runoff to Pervious Areas

Runoff from all developed areas is dispersed to existing vineyard or grassland.

3.4. Stormwater Control Measures

This project will utilize self-retaining areas, self-treating areas and bioretention facilities in the areas adjacent to development. See Section 4.1.1.

4. Documentation of Drainage Design

4.1. Descriptions of Each Drainage Management Area

4.1.1. Drainage Management Area Descriptions

The project will consist of numerous Drainage Management Areas (DMA) that include Self-Retaining Areas, Areas Draining to Self-Retaining Areas, Self-Treating Areas and Areas Draining to Bioretention Facilities. Each DMA type proposed for this project is described below and the corresponding area(s) can be seen in Table 4.1.2-1.

Self-Retaining Areas on this site consist of all areas starting with the prefix "SRA". The corresponding areas for these DMAs can be seen in Table 4.1.1. These areas consist of vineyard surrounded by vineyard avenues, which help retain stormwater runoff. When not discharged into a vineyard, stormwater is expected to sheet flow through native grasses. This process will slow stormwater runoff and allow for infiltration.

Areas Draining to Self-Retaining Areas on this site consist of all areas starting with the prefix "DSRA". These areas consist of roofs and driveways.

Self-Treating Areas on this site consist of all areas starting with the prefix "STA". These areas consist of landscaped or grass areas that do not drain to a Bioretention Facility, but rather drain directly offsite or to the storm drain system.

Areas Draining to Bioretention Facilities on this site consist of all areas starting with the prefix "DBRF". These areas consist of pavement which collects runoff using HMA dikes and discharges via pipe into bioretention facilities. There are three (3) bioretention facilities on the site; BRF-A, BRF-B and BRF-C.

4.1.2. Table of Drainage Management Areas

Table 4.1.2-2 provides the name, area, DMA type and surface type of every DMA for this project.

TABLE 4.1.2-1: TABLE OF DRAINAGE MANAGEMENT AREAS

DMA Name	Area (square feet)	DMA Type	Surface Type
SRA-A	1,401	Self-Retaining Area (SRA)	Landscape
SRA-B	785	Self-Retaining Area (SRA)	Landscape
SRA-C	890,840	Self-Retaining Area (SRA)	Landscape
SRA-D	7,876	Self-Retaining Area (SRA)	Landscape
SRA-E	11,689	Self-Retaining Area (SRA)	Landscape
SRA-F	4,733	Self-Retaining Area (SRA)	Landscape
DSRA-A1	609	Areas Draining to SRA	Roof/Paving
DSRA-A2	1,257	Areas Draining to SRA	Roof/Paving
DSRA-A3	201	Areas Draining to SRA	Roof/Paving
DSRA-B1	754	Areas Draining to SRA	Roof/Paving
DSRA-C1	6,823	Areas Draining to SRA	Roof/Paving
DSRA-C2	30,442	Areas Draining to SRA	Roof/Paving
DSRA-C3	5,227	Areas Draining to SRA	Landscape
DSRA-C4	857	Areas Draining to SRA	Landscape
DSRA-D1	4,770	Areas Draining to SRA	Roof/Paving
DSRA-E1	6,587	Areas Draining to SRA	Roof/Paving
DSRA-E1.1	5,418	Areas Draining to SRA	Roof/Paving
DSRA-F1	9,299	Areas Draining to SRA	Roof/Paving
BRF-A	400	Bioretention Facility	Landscape
BRF-B	400	Bioretention Facility	Landscape
BRF-C	1,200	Bioretention Facility	Landscape
DBRF-A1	8,411	Areas Draining to Bio	Roof/Paving
DBRF-A2	6,432	Areas Draining to Bio	Landscape
DBRF-B1	6,088	Areas Draining to Bio	Roof/Paving
DBRF-B2	1,804	Areas Draining to Bio	Landscape
DBRF-C1	11,158	Areas Draining to Bio	Roof/Paving
DBRF-C1.1	1,536	Areas Draining to Bio	Roof/Paving
DBRF-C1.2	1,199	Areas Draining to Bio	Roof/Paving
DBRF-C2	7,199	Areas Draining to Bio	Landscape
DBRF-C3	11,542	Areas Draining to Bio	Roof/Paving
DBRF-C3.1	2,423	Areas Draining to Bio	Roof/Paving
STA-A	16,000	Self-Treating Area (STA)	Landscape
STA-B	10,000	Self-Treating Area (STA)	Landscape

4.2. Tabulation and Sizing Calculations

4.2.1. Information Summary for Bioretention Facility Design

TABLE 4.2.1-1: INFORMATION SUMMARY FOR BIORETENTION FACILITY BRF-A	
Bioretention Facility Area (Square Feet)	**400±**
DBRF-A1	8,411
DBRF-A2	6,432

TABLE 4.2.1-2: INFORMATION SUMMARY FOR BIORETENTION FACILITY BRF-B	
Bioretention Facility Area (Square Feet)	**400±**
DBRF-B1	6,088
DBRF-B2	1,804

TABLE 4.2.1-3: INFORMATION SUMMARY FOR BIORETENTION FACILITY BRF-C	
Bioretention Facility Area (Square Feet)	**1,200±**
DBRF-C1	11,158
DBRF-C1.1	1,536
DBRF-C1.2	1,199
DBRF-C2	7,199
DBRF-C3	11,542
DBRF-C3.1	2,423

4.2.2. Self-Treating Areas

TABLE 4.2.2-1: SELF TREATING AREAS	
DMA Name	**Area (square feet)**
STA-A	16,000
STA-B	10,000

4.2.3. Self-Retaining Areas

TABLE 4.2.3-1: SELF-RETAINING AREAS

DMA Name	Area (square feet)	Total Ratio of Impervious:Pervious
SRA-A	1,401	1.5:1
SRA-B	785	1:1
SRA-C	890,840	0.1:1
SRA-D	7,876	0.7:1
SRA-E	11,689	1.1:1
SRA-F	4,733	1.97:1

4.2.4. Areas Draining to Self-Retaining Areas

TABLE 4.2.4-1: AREAS DRAINING TO SELF-RETAINING AREAS

DMA Name	Area (square feet)	Post-project surface type	Runoff factor	Receiving self-retaining DMAs	Receiving self-retaining DMA Area (square feet)	Ratio of Impervious:Pervious
DSRA-A1	609	Roof/Paving	1.0	SRA-A	1,401	0.43
DSRA-A2	1,257	Roof/Paving	1.0	SRA-A	1,401	0.90
DSRA-A3	201	Roof/Paving	1.0	SRA-A	1,401	0.14
DSRA-B1	754	Roof/Paving	1.0	SRA-B	785	0.96
DSRA-C1	6,823	Roof/Paving	1.0	SRA-C	890,840	0.01
DSRA-C2	30,442	Roof/Paving	1.0	SRA-C	890,840	0.03
DSRA-C3	5,227	Landscape	0.1	SRA-C	890,840	0.00
DSRA-C4	857	Landscape	0.1	SRA-C	890,840	0.00
DSRA-D1	4,770	Roof/Paving	1.0	SRA-D	7,876	0.61
DSRA-E1	6,587	Roof/Paving	1.0	SRA-E	11,689	0.56
DSRA-E1.1	5,418	Roof/Paving	1.0	SRA-E	11,689	0.46
DSRA-F1	9,299	Roof/Paving	1.0	SRA-F	4,733	1.96

4.2.5. Areas Draining to Bioretention Facilities

TABLE 4.2.5-1: FORMAT FOR TABULATING AREAS DRAINING TO BIORETENTION FACILITIES AND CALCULATING MINIMUM BIORETENTION FACILITY SIZE

DMA Name	DMA Area (square feet)	Post-project surface type	DMA Runoff factor	DMA Area x runoff factor	Bioretention Facility #1 (BRF-A) Castlevale Winery		
DBRF-A1	8,411	Roof/Paving	1.0	8,411			
DBRF-A2	6,432	Landscape	0.1	643			
				-	IMP Sizing factor	Minimum IMP Size	Proposed IMP Size
				-			
				-			
Total (square feet) =				9,054	0.04	362	400

TABLE 4.2.5-2: FORMAT FOR TABULATING AREAS DRAINING TO BIORETENTION FACILITIES AND CALCULATING MINIMUM BIORETENTION FACILITY SIZE

DMA Name	DMA Area (square feet)	Post-project surface type	DMA Runoff factor	DMA Area x runoff factor	Bioretention Facility #2 (BRF-B) Castlevale Winery		
DBRF-B1	6,088	Roof/Paving	1.0	6,088			
DBRF-B2	1,804	Landscape	0.1	180			
				-	IMP Sizing factor	Minimum IMP Size	Proposed IMP Size
				-			
				-			
Total (square feet) =				6,268	0.04	251	400

TABLE 4.2.5-3: FORMAT FOR TABULATING AREAS DRAINING TO BIORETENTION FACILITIES AND CALCULATING MINIMUM BIORETENTION FACILITY SIZE

DMA Name	DMA Area (square feet)	Post-project surface type	DMA Runoff factor	DMA Area x runoff factor	Bioretention Facility #3 (BRF-C) Castlevale Winery		
DBRF-C1	11,158	Roof/Paving	1.0	11.158			
DBRF-C1.1	1,536	Roof/Paving	1.0	1,536			
DBRF-C1.2	1,199	Roof/Paving	1.0	1,199			
DBRF-C2	7,199	Landscape	0.1	720			
DBRF-C3	11,542	Roof/Paving	1.0	11,542	IMP Sizing factor	Minimum IMP Size	Proposed IMP Size
DBRF-C3.1	2,423	Roof/Paving	1.0	2,423			
				-			
Total (square feet) =				28,578	0.04	1,143	1,200

5. Source Control Measures

5.1. Site Activities and Potential Sources of Pollutants

5.1.1. Source Control Table

Table 5.1.1-1: Source Control Table

Potential source of runoff pollutants	Permanent source control BMPs	Operational source control BMPs
Onsite storm drain inlets (unauthorized non-stormwater discharges and accidental spills or leaks)	☐ Mark all inlets with the words "No Dumping! Flows to Bay" or similar.	☐ 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-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at ☐ Include the following in lease agreements: "Tenants 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."
Interior floor drain and elevator shaft sump pumps	☐ State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	☐ Inspect and maintain drains to prevent blockages and overflow.
Need for future indoor & structural pest control	☐ Note building design features that discourage entry of pests.	☐ Provide Integrated Pest Management information to owners, lessees and operators.

Landscape/Outdoor pesticide use/building & grounds maintenance	State that final landscape plans will accomplish all of the following. ☐ Preserve existing native trees, shrubs and ground cover to maximum extent possible. ☐ Design landscaping to 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. ☐ Consider using 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 consistency and plant interactions.	☐ Maintain landscaping using minimum or no pesticides. ☐ See applicable operational BMPs in Fact Sheets SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.casqa.org/resources/bmp-handbooks ☐ Provide IPM information to new owners, lessees and operators.
Pools, spas, ponds, decorative fountains & other water features	☐ If the local municipality requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	☐ See applicable operational BMPs in Fact Sheet SC-72, "Fountain and Pool Maintenance," in the CASQA Stormwater Quality Handbooks at www.casqa.org/resources/bmp-handbooks The sanitary sewer operator must be notified and a clean out identified when pools are to be drained to the sanitary sewer.
Food service	☐ Describe the location and features of the designated cleaning area. ☐ Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	State maintenance schedule for grease interceptor.

Refuse areas	☐ State how site refuse will be handled and provide supporting detail to what is shown on plans. ☐ State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	☐ State how the following will be implemented; Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquids or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available onsite. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.casqa.org/resources/bmp-handbooks
Industrial processes	☐ If the industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain systems."	☐ See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.casqa.org/resources/bmp-handbooks
Fire sprinkler test water	☐ Provide a means to drain fire sprinkler test water to sanitary sewer. ☐ Municipal	☐ See note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.casqa.org/resources/bmp-handbooks
Condensate drain lines Roofing, gutters & trim	☐ 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. ☐ Any drainage sumps onsite shall feature a sediment sump to reduce the quantity of sediment in pumped water. ☐ Include controls for other sources as specified by local reviewer.	If architectural copper is used, implement the following BMPs for management of rinse water during installation: ☐ If possible, purchase copper materials that have been pre-patinated at the factory. ☐ If patinated is done onsite, prevent rinse water from entering storm drains by discharging to landscaping or by collecting in a tank and hauling offsite. ☐ Consider coating the copper materials with an impervious coating that prevents further corrosion and runoff. 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 offsite.
Plazas, sidewalks & parking lots		☐ 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 wash water containing any cleaning agent of degreaser and discharge to the sanitary sewer not to a storm drain.

5.2. Features, Materials and Methods of Construction of Source Control BMPs

Several features were incorporated into the design of the project to minimize the potential for stormwater pollution and are listed below. Please refer to the Use Permit Drawings prepared by Bartelt Engineering for detailed materials and methods of construction of source control BMPs.

6. Stormwater Facility Maintenance

6.1. Ownership and Responsibility for Maintenance in Perpetuity

The Owner agrees to implement the stormwater control strategy as outlined in this document and as shown in the plans prepared by Bartelt Engineering. The Owner accepts responsibility for the installation, operation and maintenance of the stormwater treatment and flow-control facilities noted in this Stormwater Control Plan. The Owner agrees to undertake this responsibility until such time as the responsibility is formally transferred to a subsequent owner.

6.2. Summary of Maintenance Requirements for Each Stormwater Facility

The following activities shall be completed at least annually. The frequency should be adjusted in response to the needs of each particular facility.

Clean up. Remove any soil or debris blocking planter inlets or overflows. Remove trash that typically collects near inlets or gets caught in vegetation.

Prune or cut back plants for health and to ensure flow into inlets and across the surface of the facility. Remove and replant as necessary. When replanting, maintain the design surface elevation and minimize the introduction of soil.

Control weeds by manual methods and soil amendment. In response to problem areas or threatening invasions, corn gluten, white vinegar, vinegar-based products or non-selective natural herbicides such as Burnout or Safer's Sharpshooter may be used.

Add mulch. Aged mulch, also called compost mulch, reduces the ability of weeds to establish, keeps soil moist and replenishes soil nutrients. Mulch is added from time to time as necessary to maintain a mulch layer thickness (some agencies require 3 inches). However, ensure the underlying soil surface beneath the mulch layer is a minimum 6 inches below the overflow elevation, consistently throughout the surface area of the facility. In particular, ensure that the top of the mulch layer is below the facility overflow, so that as the facility fills during a major storm, the entire surface becomes wetted before the overflow elevation is reached.

Check signage. Remove graffiti and replace if necessary.

Check irrigation, if any, to confirm it is adequate but not excessive.

Landscaping maintenance personnel should be aware of the following:

> **Do not add fertilizer to bioretention facilities**. Compost tea, available from various nurseries and garden supply retailers, may be applied at a recommended rate of 5 gallons mixed with 15 gallons of water per acre, up to two weeks prior to planting

and once per year between March and June. Do not apply when temperatures are below 50° F or above 90° F or when rain is forecast in the next 48 hours.

Do not use synthetic pesticides on bioretention facilities. Beneficial nematodes and non-toxic controls may be used. Acceptable natural pesticides include Safer® products and Neem oil.

Sidewalks will be swept clean of debris regularly.

7. Construction Checklist

A Notice of Intent (NOI) will be filed with the State Water Resources Control Board (SWRCB) for coverage under the Construction General Permit (CGP) during the design phase of this project. All construction and post-construction BMPs will be included in the Construction General Permit Stormwater Pollution Prevention Plan (SWPPP). Prior to final occupancy and start of operations a NOI or NEC will be filed with the SWRCB for coverage under the Industrial General Permit (IGP).

8. Certifications

The preliminary 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.