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OF ST. HELENA



SEPTIC FEASIBILITY REPORT

FOR THE

ROGERS WINERY

PROJECT LOCATED AT

970 CONN VALLEY ROAD
ST. HELENA, CA 94574

County: NAPA
APN: 025-180-061

REVISION #:
Revision 1: 12/10/2010

PREPARED FOR REVIEW BY:

NAPA COUNTY ENVIRONMENTAL MANAGEMENT
1195 THIRD STREET, ROOM 101
NAPA, CA 94559

RECEIVED

JAN 10 2010

NAPA CO. CONSERVATION
DEVELOPMENT & PLANNING DEPT.

Project: J-102

1104 ADAMS STREET, SUITE 203 - ST. HELENA, CALIFORNIA 94574
707-963-8456 TELE + 707-963-8528 FAX



Introduction

The applicant is applying to the County of Napa for a Use Permit to operate a 30,000 gallon per year winery on the subject parcel. This report has been prepared to estimate the wastewater flows generated by the operation of the winery and to evaluate the feasibility of constructing a wastewater disposal system to treat its effluent.

The winery will consist of a single winery building. It will be a full crushing, fermenting, and barrel aging facility. Bottling will be performed via mobile bottling vendors. According to the use permit application, the maximum staffing level will be two employees. The winery marketing plan calls for twenty visitors per day, by appointment only, and for no more than 10 marketing events annually for 30 attendees at each event.

The distribution field will be constructed in a lawn area adjacent to the winery.

All plumbing fixtures in the proposed winery shall be low flow, water-saving fixtures per the Uniform Plumbing Code as adopted by the Napa County Building Department.

Winery Domestic Wastewater Flow

Peak daily domestic wastewater flows for the tasting room are based on twenty (20) visitors, two (2) employees during harvest or bottling, and thirty (30) visitors per event. The values used for the projected wastewater are based on the Napa County Department of Environmental Management guidelines¹.

Private Tours and Tastings

$$(20 \text{ visitors / day})(3 \text{ gallons / visitor}) = 60 \text{ gpd}$$

Employees

$$(2 \text{ employees / day})(15 \text{ gallons / employee}) = 30 \text{ gpd}$$

Marketing Events

$$(30 \text{ Visitors / Event})(5 \text{ gallons / Visitor}) = 150 \text{ gpd}$$

Private Tours and Tastings and Marketing Events will not be held on the same day. Therefore, the anticipated peak domestic flow is 180 gallons per day.

Winery Process Wastewater Flow

Peak Flow:

Using the Napa County method for determining the peak process effluent from a winery, the peak flow is estimated to be:

$$\text{Harvest Peak Flow} = \frac{(30,000 \text{ gallons wine / year})(1.5)}{45 \text{ days crush / year}} = 1,000 \text{ gpd}$$

¹ Table 4, Napa County Environmental Management Regulations for Design, Construction, and Installation of Alternative Sewage Treatment System.



Total Peak Flow = Process + Domestic

Total Peak Flow = Harvest Peak Flow + Employee Peak Flow + Marketing Event Peak Flow

$$\text{Total Peak Flow} = 1,000 \text{ gpd} + 30 \text{ gpd} + 150 \text{ gpd} = 1,180 \text{ gpd}$$

Average Daily Flow:

Depending on the winery, the amount of wastewater generated per gallon of wine produced typically ranges from 3-14 gallons per gallon of wine produced. This variation is based on the individual winery water conservation practices. We have estimated, for this project, that eight (8) gallons of process effluent shall be produced for each gallon of wine produced. Using this method, it is estimated that 240,000 gallons of process wastewater shall be produced annually. This averages to an estimate of 657 gallons of process wastewater production per day as follows:

Average daily winery process wastewater flow:

$$\text{Average daily PW} = \frac{(30,000 \text{ gal wine / year})(8 \text{ gal water / gal wine})}{365 \text{ days / year}} = 657 \text{ gpd}$$

The peak flow during harvest is estimated to be 1,000 gpd and the average daily process wastewater production is estimated to be 657 gpd.

Site Evaluation

This feasibility study is based on the site evaluation performed by Delta Consulting and Engineering and field review by a member of the staff from Napa County Department of Environmental Management.

On June 15, 2010, five test pits were excavated. The soils in each pit were consistent with one another: sandy clay to 72". The soil texture for each horizon was determined in the field by the Feel Method and did not require laboratory testing. The results were confirmed by Ray Franklin of the Napa County Environmental Management Department.

The gravel content in all pits increased with depth and ranged from 5%-20%. The site evaluation report was forwarded to Napa County Environmental Management department for approval (see copy attached in Appendix A) and describes the test pits in greater detail. Based on the soil types encountered and the available in-situ soil depth, Napa County design guidelines dictate the type of distribution system along with the design wastewater application rate.

Following are the results from the four (5) test pits evaluated:

Test Pit	Depth	Abbreviation	Texture	Structure	Grade	Application Rate (gal/ft ² /day)*
1	0-8"	Topsoil	-	-	-	-
	8"-72"	SC	Sandy Clay	Moderate	Subangular blocky	0.5
2	0-10"	Topsoil				



	10"-20"	CL	Clay Loam	Moderate	Subangular blocky	0.5
	20"-72"	SC	Sandy Clay	Moderate	Subangular blocky	0.5
3	0-10"	Topsoil				
	10"-72"	SC	Sandy Clay	Moderate	Subangular blocky	0.5
4	0-8"	Topsoil				
	8"-72"	SC	Sandy Clay	Moderate	Subangular blocky	0.5
5	0-8"	Topsoil				
	8"-72"	SC	Sandy Clay	Moderate	Subangular blocky	0.5

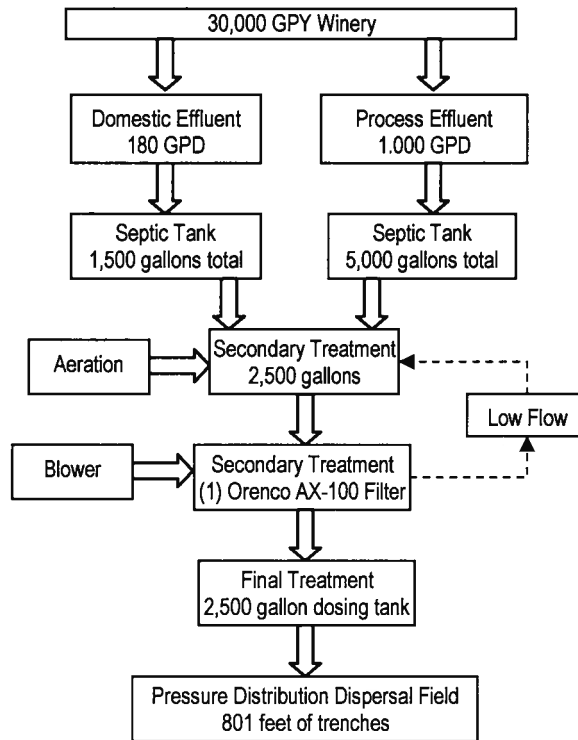
*Pretreated effluent

Wastewater Disposal Recommendations

Based on the available soil depth encountered in each test pit, the treated domestic and process effluent shall be disposed of via a trench system with pressure dispersal. In addition, the treatment process shall include a secondary treatment system to minimize the total length of the distribution lines. The secondary treatment system may be eliminated, but the required lengths of the distribution lines shall increase accordingly.

Wastewater Treatment System Design Overview

The domestic and process effluent from the winery shall be by a multistage process. Initially, the effluent from each source shall be treated via separate septic tanks for solids settling (primary treatment). All septic tanks shall be fitted with effluent filters. After primary settling the two effluent streams shall be combined for secondary treatment which shall consist of aeration and filtering via an Orenco Systems AdvanTex pod. Final disposal of the combined treated effluent shall be via a pressure distribution field.



Distribution Type: Trenches with Pressure Distribution

As determined from the site evaluation, the soil application rate for sandy clay with pretreatment is 0.5 gallons/ft²/day. The distribution field trenches shall be 30" deep which allows for 3 ft²/foot of trench sidewall. Following is the calculations to determine the total length of the distribution field:

$$Trench\ sidewall\ required : \frac{1,180\ gpd}{0.5\ gal / (ft^2 * day)} = 2,360\ ft^2$$

The primary disposal is required to provide 787 feet of trench. The primary distribution system will consist of eight (9) pressure distribution trenches each 89 feet in length providing 801 ft of distribution trenches. The 100% reserve area will require an area capable of providing the same total trench length. These areas are noted on the Use Permit Plans dated 12/10/10 on Sheet UP3.0 as prepared by this office.



The distribution field shall be dosing at timed intervals over 24 hours of each day to allow the soils to absorb the effluent.

Summary

Based on the previous narrative and calculations, the parcel where Rogers Winery will be located is conducive for handling the wastewater flows generated from the proposed project. Detailed calculations and construction plans will be submitted to the Napa County Department of Environmental Management for permit approval prior to the construction of the final disposal systems.