

SUMMIT ENGINEERING, INC.

Project No. 2007013

August 7, 2007

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EXISTING DESIGN CALCULATIONS
Process Wastewater and Sanitary Wastewater Septic Tank/ Pressure Distribution
Leachfield System

ROBERT CRAIG WINERY
 2475 Summit Lake Drive
 Angwin, Napa County, California
 A.P.N. 018-060-072

GENERAL INFORMATION

The purpose of this report is to provide the background data, and design calculations for the existing process wastewater (PW) and sanitary wastewater (SW) septic tank/pressure distribution leachfield system that was permitted and installed in 2000. This system consists of PW from a 20,000 gallon winery facility and SW from a tasting room and existing two-bedroom house. Both the PW and SW systems are pressure distribution (PD) leachfield systems.

BACKGROUND DATA

Site evaluations were performed by Peggy Carr from Napa County Environmental Management (NCEM) on September 27 and October 4, 1999. The assigned percolation range for the SW leachfield (designated as Area 2) was 3 to 6 in/hr, with acceptable soil to a depth of 36 to 72 inches. The assigned percolation range for the PW leachfield (designated as Area 3) was 3 to 6 in/hr, with acceptable soil to a depth of 36 to 56 inches.

Due to heavy rock and inadequate soils found during construction of Area 2 between soil profiles 2, 3 and 4, it was necessary to relocate the SW leachfield to designated Area 4.

On September 4, 2001 two additional soil profiles were excavated upslope of Area 3. Kim Withrow (NCEM) performed an evaluation of these soil profiles. The assigned percolation range for this newly proposed SW leachfield location is 1 to 3 in/hr, with acceptable soil to a depth of 36 to 56 inches. The SW leachfield was designed utilizing a conservative 1 in/hr percolation range. Both PW and SW are routed to individual septic tanks and combined in a Pump Sump. The commingled PW and SW will be dispersed using separate pumps in an alternating arrangement and separate forcemains to the existing PD systems (Area 3 and Area 4).

SANITARY WASTEWATER DESIGN FLOWS (Existing)**Area 4 Subfield****Average Day (Weekday)**

2 Employees	x 20 gpd/employee	=	40 gpd
1 Visitors	x 2 gpd/visitor	=	2 gpd
2 Bedroom House	x 150 gpd per bedroom	=	<u>300 gpd</u>
			342 gpd

Peak Day (Wine release event)

2 Bedroom House	x 150 gpd per bedroom	=	300 gpd
4 Employees	x 20 gpd/employee	=	80 gpd
30 Visitors	x 2 gpd/visitor	=	<u>60 gpd</u>
		=	440 gpd

Design was for peak day wine release event of 440 gpd.



SUMMIT ENGINEERING INC.

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January 21, 2008

Ms. Hillary Gitelman, Director
Napa County Department of Conservation, Development and Planning
1195 Third Street, Room 210
Napa, CA 94559

Re: Robert Craig Winery
2475 Summit Lake Drive
Angwin, CA. 94508
Project Number 2007013

Dear Ms Gitelman:

Robert Craig Winery (located at 2475 Summit Lake Drive, Angwin). (APN 018-060-072) is proposing an increase to their existing 20,000 gallon per year wine production to 25,000 gallons of wine per year at the existing facility. The winery currently includes all necessary wine production infrastructures and no new development is scheduled at this time. Please refer to the overall site plan included in the Use Permit application for site and project features including well locations, locations of the existing process wastewater and sanitary sewage management systems.

As part of the Use Permit application, we have developed the enclosed Wastewater Management System Feasibility Study. The study examines the existing Process Wastewater (PW) management system including the collection of PW from work areas with gravity transmission to a subsurface settling tank equipped with an effluent filter for solids capture and is pumped to the existing leach field.

The wastewater system design calculations have been reviewed and recalculated to accommodate the proposed 25,000 gallons per year using the current Napa County Environmental Management standards. These calculations are submitted with this application which indicates the existing PW and wastewater system is designed to accept the proposed capacity of 25,000 gallons per year.

Please call me if you should have questions regarding this report.

Sincerely,

Richard Dinges
PROJECT MANAGER

RD/jbh

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The amount of leach line required for the 440 gpd SW flow was calculated as follows:

$$\text{Leachline (Required)} = \frac{440 \text{ gpd}}{2.5 \text{ SF/LF} \times 0.35 \text{ gal/SF/day}}$$

$$= 502 \text{ lf}$$

$$\text{Leachline (Installed)} = 500 \text{ lf}$$

The leachline trenches will be excavated to a depth of 30 inches with the first 15 inches filled with pea gravel, a 2-inch perforated pipe, 3-inches of pea gravel over the pipe, and the top 10 inches backfilled with native soil. With 72-inches of acceptable soils there is adequate separation (>3 feet) to the limiting layer.

PROCESS WASTEWATER DESIGN FLOWS (Existing)**Area 3 Subfield**Napa County Peak Day Flow

$$\frac{20,000 \text{ gals wine} \times 1.5}{30 \text{ days}} = 1,000 \text{ gals PW/day}$$

Peak Week Harvest Day (Design Flow)

$$10.0 \text{ tons} \times 100 \text{ gal PW/ton} = 1,000 \text{ gpd}$$

$$\text{Use Peak Week Harvest} = 1,000 \text{ gpd}$$

The amount of leach line required for the 20,000 gallon wine per year facility was calculated as follows:

$$\text{Leachline (Required)} = \frac{1,000 \text{ gpd}}{3 \text{ SF/LF} \times 0.771 \text{ gal/SF/day}}$$

$$= 432 \text{ lf}$$

$$\text{Leachline (Installed)} = 435 \text{ lf}$$

The leachline trenches were excavated to a depth of 36 inches with the first 18 inches filled with pea gravel, a 2-inch perforated pipe, 4-inches of pea gravel over the pipe, and the top 12 inches backfilled with native soil. With 72-inches of acceptable soils there is adequate separation (3 feet) to the limiting layer.

PROCESS WASTEWATER DESIGN FLOWS (Proposed)

It is proposed to increase the production from 20,000 gallons of wine per year to 25,000 gallons of wine per year, this results in the following design flow:

Napa County Peak Day Flow

$$\frac{25,000 \text{ gals wine} \times 1.5}{45 \text{ days}} = 834 \text{ gals PW/day}$$

♦ Proposed design flow for increase in production (25,000 gallons of wine) is less than existing design flow for 20,000 gallon wine production