Project: E140

DELTA CONSULTING & ENGINEERING
OF ST. HELENA

8/3/2006

SEWAGE DISPOSAL FEASIBILITY REPORT
FOR
PAVITT WINERY

4660 SILVERADO TRAIL
CALISTOGA, CA
APN 020-350-026

Use Permit Applicant:
Shane and Suzanne Pavitt
4660 Silverado Trail
Calistoga, CA 94515

Introduction

The applicants are applying to the County of Napa for a Use Permit to operate a 10,000 gallon per year winery at the subject parcel which is 21.9 acres in size. This report has been prepared to estimate the wastewater flows generated by the operation of the winery, and to evaluate the feasibility of using the existing sewage disposal system for the barn to serve the domestic waste generated by the winery. Due to the limited disposal capacity on the site, it is proposed to use pre-treatment and surface drip irrigation for the disposal of process wastewater.

Domestic Wastewater

Peak domestic wastewater flows for the tasting room are based on 3 employees (1 Full-Time and 2 Part-Time) and a maximum of 10 visitors per day.

3 Employees	x 15 gallons per employee per day	= 45 gallons per day
10 Visitors	x 3 gallons per visitor per day	= 30 gallons per day
	Total	= 75 gallons per day

Process Wastewater

The applicants propose to produce 10,000 gallons per year of wine. The peak harvest flow is calculated as follows: (1.5 x 10,000 gallons of wine) / 30 days of crush = 500 gallons per day.

Due to the limited disposal capacity on the site, it is proposed to use pre-treatment and surface drip irrigation for the disposal of process wastewater.

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Orenco Advantex Pretreatment of Process Waste
The manufacturer's design specifications indicate that each Advantex unit has a daily treatment capacity of 5,000 gallons and 8 lbs per day of BOD. Due to the high BOD of the wastewater, it is proposed to provide sufficient Advantex units to treat the peak BOD generated by the winery. The following calculation is used to determine the peak BOD:

5,000 mg/l x 0.0083454 (converts mg/L to lbs per 1,000 gallons) = 41.7 lbs per 1,000 gallons.

Therefore, 20.9 lbs of BOD will be generated by the winery from process waste if the strength is 5,000 mg/l. It is proposed to use 3 model AX-100 units to treat the process waste. Advantex units have been used with excellent results to treat winery wastewater at Ledgewood Creek Winery in Solano County. Test data from this project shows that the BOD is reduced from 5,000 to 30 mg/l and TSS is reduced from 1000 to 5 mg/l by using 5 days of septic tank storage and multiple AX-100 units. This is well below the maximum effluent levels (5 day BOD=160 mg/l, TSS=80 mg/l).

The tank volume proposed is as follows: 1 septic tank at 2,500 gallons to provide 5 days of storage, followed by a 1500 gallon recirculation tank with 3 AX-100 units, followed by a 1500 gallon pump tank.

The attached calculation sheet shows that 1.79 acres will be required to drip irrigate the process wastewater generated by the proposed winery.

Site Evaluation
A site evaluation was performed on April 19, 1999. The record from this evaluation indicates at least 66" of acceptable soil in the two test pits excavated. The percolation rate was assigned at 1-3 inches per hour. The locations of the test pits are shown on the attached exhibit.

Sewage Disposal Design: Standard System
It is proposed to use the existing barn system to dispose of the domestic wastewater from the winery. This system consists of a standard leach field with 100 feet of trench which is 18 inches deep. The total sidewall area provided by this system is 300 square feet. Based on the percolation rate, the application rate is 0.25 gallons per square feet and the capacity of the system is 75 gallons per day. It should be noted that the capacity of this system can be increased to 120 gallons per day by adding a pretreatment unit to the barn system, which would provide for an application rate of 0.4 gallons per square foot.

Reserve Area
The domestic reserve area is the same as it was for the originally approved barn system. The reserve system for the process waste is hold and haul.

F141
Pavitt Winery

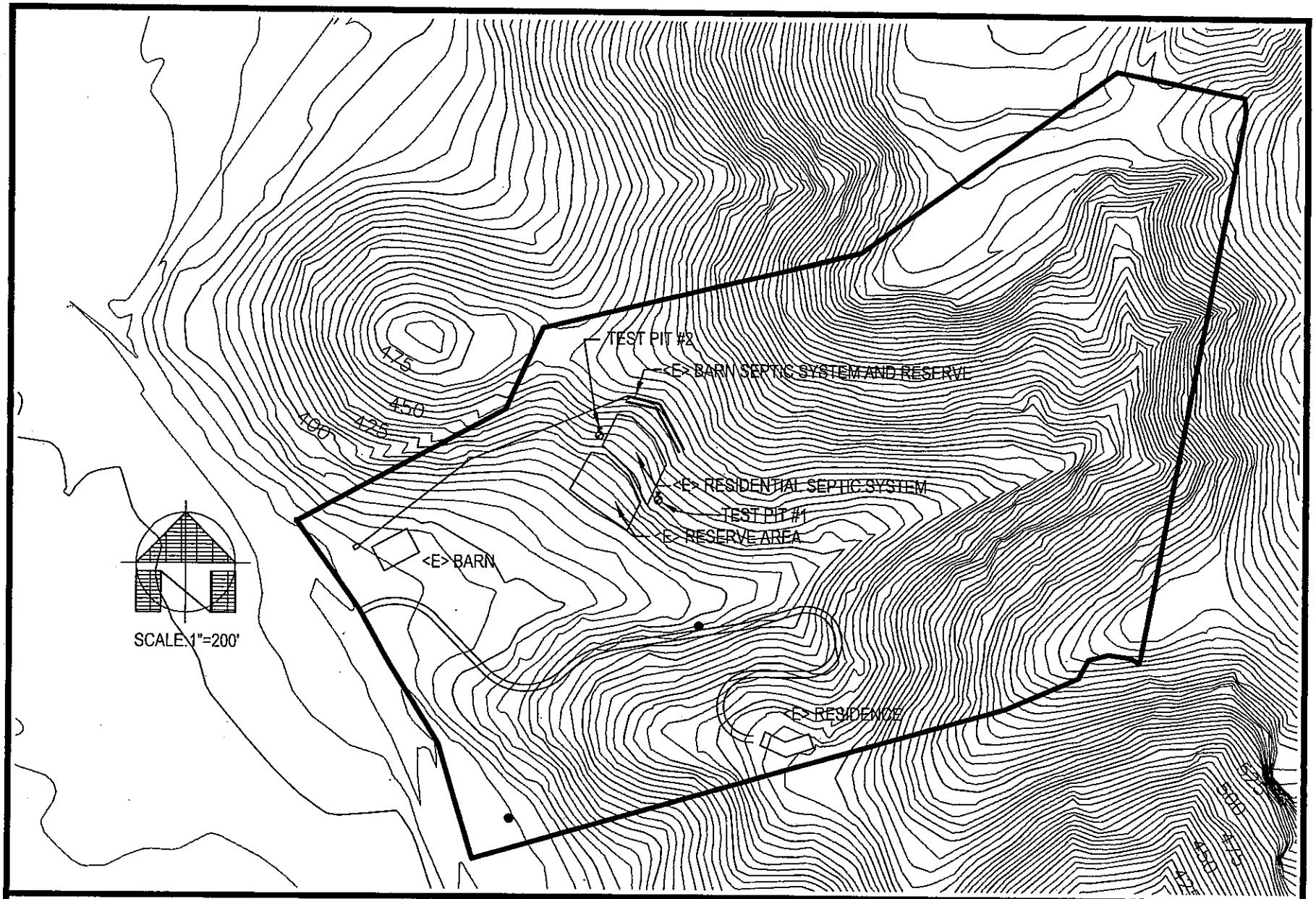
annual wine production (gallons)	10000
crush period (days)	30
peak daily process waste (gallons)	500
Minimum monthly Evapotranspiration (inches)	1.03
Daily Evapotranspiration (inches)	0.034333333
3 -day Evapotranspiration (inches)*	0.103
3-day application rate (gallons per acre)	2797
annual wastewater production (gallons)	50000

wastewater production per month:

month	% by month	gallons/ month
jan	4	2,000
feb	6	3,000
march	6	3,000
april	5	2,500
may	6	3,000
june	7	3,500
july	9	4,500
aug	10	5,000
sep	15	7,500
oct	15	7,500
nov	11	5,500
dec	6	3,000
total	100	50,000

January and February wastewater storage	5,000
minimum disposal field size (acres)	1.79

* the 3 day ET rate is used because the storage tanks will be emptied over a 3 day period



SEWAGE DISPOSAL FEASIBILITY

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DATE: 8/03/06	JOB # F141
SCALE: 1"=200'	APN: 020-350-026

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