

**PAVITT FAMILY VINEYARDS WINERY  
TRAFFIC GENERATION WORKSHEET**

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NAPA CO. CONSERVATION  
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**Proposed Production Capacity:**

The applicants propose an ultimate production capacity of 10,000 gallons/year.

Assume 2.38 gallons/case.

$(10,000 \text{ gallons/year}) * (1 \text{ case}/2.38 \text{ gallons}) = 4202 \text{ cases}$

**Grapes Processed:**

Assume 165 gallons of wine per ton of grapes crushed.

$(10,000 \text{ gallons/year}) * (1 \text{ ton of grapes}/165 \text{ gallons crushed}) = 61 \text{ tons of grapes}$

The parcel has been approved for 2 acres of planted vineyard.

Assume 5 tons of grapes per acre yield.

$(5 \text{ tons of grapes/acre}) * (2 \text{ proposed planted acres}) = 10 \text{ tons of grapes}$

Approximately 10 tons (1650 gallons) of grapes will come from on-site. Ultimately, 51 tons (approximately 8500 gallons) of grapes could be hauled in annually.

**Truck Traffic Characteristics during Crush:**

Potentially 8500 gallons could come from off-site vineyards.

$(8500 \text{ gallons}) * (1 \text{ ton}/165 \text{ gallons}) * (1 \text{ delivery}/10 \text{ tons}) * (2 \text{ trips/delivery}) = 10 \text{ trips}$

Assume a 4-6 week crush period. Thus 1.5 trips/week will be generated from off-site grapes during crush.

**Truck Traffic Characteristics during Bottling:**

Assume 2,310 cases of bottles per truckload

$(4202 \text{ cases}) * (1 \text{ truckload}/2,310 \text{ cases}) * (2 \text{ trips/truckload}) = 4 \text{ trips}$

Assume 3 delivery of corks, labels, etc. equal to 6 trips,

Assume 2 trips generated from the portable bottling truck.

**Total Bottling trips = 12 trips**

**Outbound wine deliveries:**

Assume 4202 cases delivered off-site.

Assume 1,232 cases per truckload.

$(4202 \text{ cases}) * (1 \text{ truckload}/1,232 \text{ cases}) * (2 \text{ trips/truckload}) = 6 \text{ trips}$

**Employee Traffic Characteristics:**

The application proposes 1 full-time employee and 2 part-time employees.

$3 \text{ employees} * (2 \text{ trips/employee}) = 6 \text{ trips}$

**Visitor Traffic Characteristics:**

**Weekday:**

The application proposes an average of 4 visitors per day.

Assume 2.6 visitors/vehicle during the weekday.

$(4 \text{ visitors}) * (1 \text{ vehicle}/2.6 \text{ visitors}) * (2 \text{ trips/vehicle}) = 3 \text{ trips}$

**Total Average Daily Traffic (Employees & Visitors) = 9 trips/day**

**Weekend:**

Assume 2.8 visitors/vehicle during the weekend.

$(4 \text{ visitors}) * (1 \text{ vehicle}/2.8 \text{ visitors}) * (2 \text{ trips/vehicle}) = 3 \text{ trips}$

**Total Peak Daily Traffic (Employees & Visitors) = 9 trips/day**

**Maximum Marketing Event:**

The application proposes a maximum marketing event of 10 people.

Assume 2.8 visitors/vehicle during a marketing event.

$(10 \text{ visitors}) * (1 \text{ vehicle}/2.8 \text{ visitors}) * (2 \text{ trips/vehicle}) = 8 \text{ trips}$

Project: E140

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OF ST. HELENA



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DEVELOPMENT & PLANNING DEPT.

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:  $(1.5 \times 10,000 \text{ gallons of wine}) / 30 \text{ days of crush} = 500 \text{ gallons per day}$ .

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.



### **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:

$5,000 \text{ mg/l} \times 0.0083454 \text{ (converts mg/L to lbs per 1,000 gallons)} = 41.7 \text{ lbs per 1,000 gallons.}$

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 foot 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

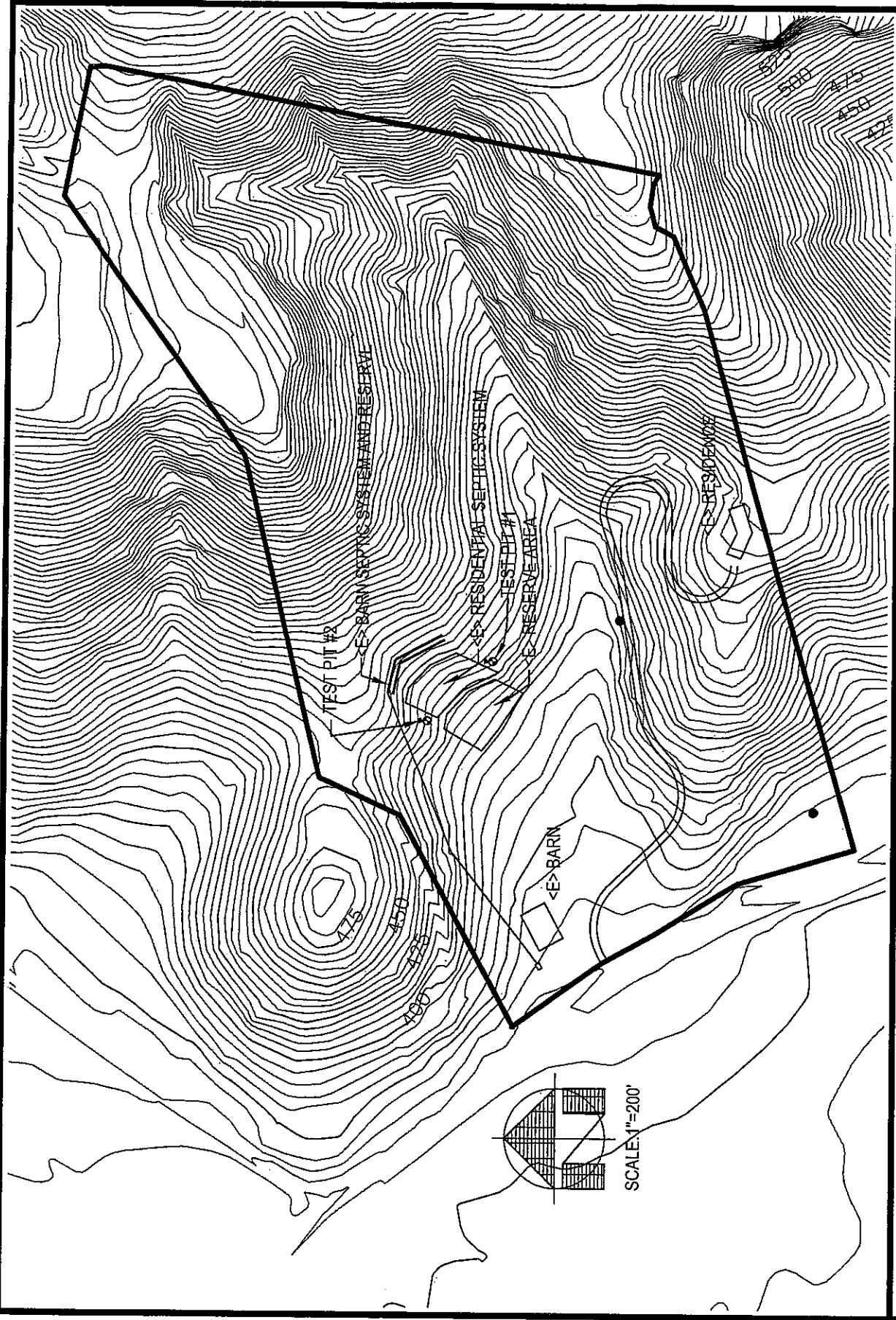
wastewater production per month:

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**  
**Pavitt Winery**

DELTA CONSULTING & ENGINEERING OF ST. HELENA 1104 ADAMS STREET, SUITE 203, ST. HELENA, CALIFORNIA 94574 707/935-6456 F 707/963-5533 FAX		SHEET	2
DATE: 8/03/06	JOB #	OF	2
SCALE: 1"=200'	APP: 020-350-026		

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**INITIAL STATEMENT OF GRAPE SOURCE**  
**(Napa County Zoning Ordinance Sections 12419(b) and (c))**

I hereby certify that the current application for establishment or expansion of a winery pursuant to the Napa County Winery Definition Ordinance will employ sources of grapes in accordance with the requirements of Section 12419(b) and/or (c) of that Ordinance.

  
Signature

10-24-06  
Date

Letters of commitment from grape suppliers and supporting documents will be required prior to issuance of any building permits for the project. Recertification of compliance will be required on a periodic basis. Recertification after initiation of the requested wine production may require the submittal of additional information regarding individual grape sources. Proprietary information will not be disclosed to the public.

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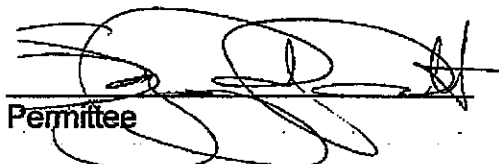
NAPA CO. CONSERVATION  
DEVELOPMENT & PLANNING DEPT.

## **INDEMNIFICATION AGREEMENT**

In consideration of the discretionary approval for the project identified below, Permittee agrees to defend, indemnify, release and hold harmless the County, its agents, officers, attorneys, employees, boards and commissions from any claim, action or proceeding (collectively referred to as "proceeding") brought against any of the foregoing individuals or entities, the purpose of which is to attack, set aside, void or annul the discretionary project approval of the County, or an action relating to this project required by any such proceeding to be taken to comply with the California Environmental Quality Act by County's advisory agencies, appeal boards, zoning administrator, planning staff, planning commission, or board of supervisors, which action is brought within the applicable statute of limitations. This indemnification shall include, but not be limited to, damages, fees and/or costs awarded against the County, if any, and cost of suit, attorney's fees, and other costs, liabilities and expenses incurred in connection with such proceeding that relate solely to this discretionary approval or an action related to this project taken to comply with CEQA whether incurred by the Permittee, the County and/or the parties initiating or bringing such proceeding. Permittee further agrees to indemnify the County for all the County's costs, fees, and damages, which the County incurs in enforcing this indemnification agreement.

Permittee further agrees, as a condition of project approval, to defend, indemnify and hold harmless the County, its agents, officers, employees and attorneys for all costs incurred in additional investigation of or study of, or for supplementing, redrafting, revising, or amending any document (such as an EIR, negative declaration, specific plan, or general plan amendment) if made necessary by said proceeding and if the Permittee desires to pursue securing approvals which are conditioned on the approval of such documents.

In the event any such proceeding is brought, County shall promptly notify the Permittee of the proceeding, and County shall cooperate fully in the defense. If County fails to promptly notify the Permittee of the proceeding, or if County fails to cooperate fully in the defense, the Permittee shall not thereafter be responsible to defend, indemnify, or hold harmless the County. The County shall retain the right to participate in the defense of the proceeding if it bears its own attorney's fees and costs, and defends the action in good faith. The Permittee shall not be required to pay or perform any settlement unless the settlement is approved by the Permittee.

  
\_\_\_\_\_  
Permittee

Date

10-24-06

\_\_\_\_\_  
Property Owner (if other than Permittee)

Pavitt Family Vineyards  
Project Identification

***ALBION SURVEYS, INC.***

CONSULTING LAND SURVEYORS

1113 Hunt Avenue, St. Helena, CA 94574  
(707) 963-1217 ♦ FAX (707) 963-1829  
E-Mail: jwebb@albionsurveys.com

May 30, 2008

Ms. Mary Doyle  
Napa County Conservation, Development and Planning Department  
To Be Delivered

**RECEIVED**  
JUN 05 2008  
NAPA CO. CONSERVATION  
DEVELOPMENT & PLANNING DEPT.

Regarding: Pavitt Family Winery P06-01426

Dear Mary:

In an effort to reduce the proposed winery impacts on the neighbors, we have researched the options for reducing the potential for noise emitted from the winery. We have had a lengthy discussion with Jerald Hyde, Physicist and Acoustic Expert, retired. Mr. Hyde explained that the best remedy for noise reduction on this project is to place the winery building between the source of the noise and the neighbor's residence. Based upon this recommendation, the Pavitt's are willing, and hereby proposing, to relocate the crush pad area from the east side of the winery as shown on the site plan to the south side of the winery, thus placing the winery building between the potential source of noise and the neighbor.

Mr. Hyde also recommended that no work take place during the night time which he said is technically defined as the time between 10:00 pm and 7:00 am. Per our current application on file, the proposed time of operation at the winery is between 7:00 am and 5:00 pm.

Attached you will find the revised site plan map depicting the relocated crush pad.

If you have any questions, please feel free to call me anytime.

Very Truly Yours,  
Albion Surveys, Inc.

  
Jon M. Webb

Principal  
PLS 6709

Letters\2823 rev crush

CC: Shane and Suzanne Pavitt

**ILLINGWORTH & RODKIN, INC.**  
**//// Acoustics • Air Quality ///**

505 Petaluma Boulevard South  
Petaluma, California 94952

Tel: 707-766-7700  
www.illingworthrodkin.com

Fax: 707-766-7790  
illro@illingworthrodkin.com

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October 14, 2008

Mr. Shane Pavitt  
Mrs. Suzanne Pavitt  
4660 Silverado Trail  
Calistoga, CA 94515

Cc: Mr. Jon Webb  
Albion Surveys, Inc.  
1113 Hunt Avenue  
Saint Helena, CA 94574

VIA E-Mail: [suzpavitt@aol.com](mailto:suzpavitt@aol.com)  
[jwebb@albionsurveys.com](mailto:jwebb@albionsurveys.com)

**SUBJECT: Pavitt Family Vineyards Winery, Napa County, California --  
Environmental Noise Assessment**

Dear Mr. and Mrs. Pavitt:

This letter presents the results of the environmental noise assessment conducted for the Pavitt Family Vineyards Winery project proposed at 4660 Silverado Trail in unincorporated Napa County. The noise assessment was requested by the County to address potential noise related effects that could result with the operation of the project. Based on our analysis of the noise environment in the vicinity of the project site, the anticipated activity schedule, and noise levels generated by activities associated with the winery's operation, we conclude that noise from the proposed winery would not have an adverse effect on nearby residential land uses.

**Regulatory Criteria**

*2008 Napa County General Plan*

The Community Character Element of the 2008 Napa County General Plan sets forth goals and policies to protect people from exposure to excessive noise. Goals and policies contained in this document that are relevant to the analysis are as follows:

## NOISE GOALS

Goal CC-7: Accept those sounds which are part of the County's agricultural character while protecting the people of Napa County from exposure to excessive noise.

Goal CC-8: Place compatible land uses where high noise levels already exist and minimize noise impacts by placing new noise-generating uses in appropriate areas.

## NOISE POLICIES

Policy CC-35: The noises associated with agriculture, including agricultural processing, are considered an acceptable and necessary part of the community character of Napa County, and are not considered to be undesirable provided that normal and reasonable measures are taken to avoid significantly impacting adjacent uses.

Policy CC-38: The following are the County's standards for maximum exterior noise levels for various types of land uses established in the County's Noise Ordinance. Additional standards are provided in the Noise Ordinance for construction activities (i.e., intermittent or temporary noise).

Land Use Type	Time Period	Noise Level (dBA) by Noise Zone Classification		
		Rural	Suburban	Urban
Single-Family Homes and Duplexes	10 p.m. -- 7 a.m.	45	45	50
	7 a.m. -- 10 p.m.	50	55	60
Multiple Residential 3 or More Units Per Building (Triplex+)	10 p.m. -- 7 a.m.	45	50	55
	7 a.m. -- 10 p.m.	50	55	60
Office and Retail	10 p.m. -- 7 a.m.	60		
	7 a.m. -- 10 p.m.	65		
Industrial and Wineries	Anytime	75		

Policy CC-48: Where proposed commercial or industrial land uses are likely to produce noise levels exceeding the standards contained in this Element at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.

### *Napa County Noise Ordinance*

The Napa County Noise Ordinance Section 8.16.070, Exterior Noise Limits, requires that no person shall operate or cause to be operated any source of sound at any location within the unincorporated area of Napa County, or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes a noise level when measured on any other property, either incorporated or unincorporated, to exceed the following limits for rural residential properties during the hours of 7:00 AM to 10:00 PM:

- a. 50 dBA for more than 30 minutes out of an hour;
- b. 55 dBA for more than 15 minutes out of an hour;
- c. 60 dBA for a period of more than 5 minutes out of the hour;
- d. 65 dBA for a period of more than 1 minute out of an hour; or
- e. 70 dBA for any period of time.

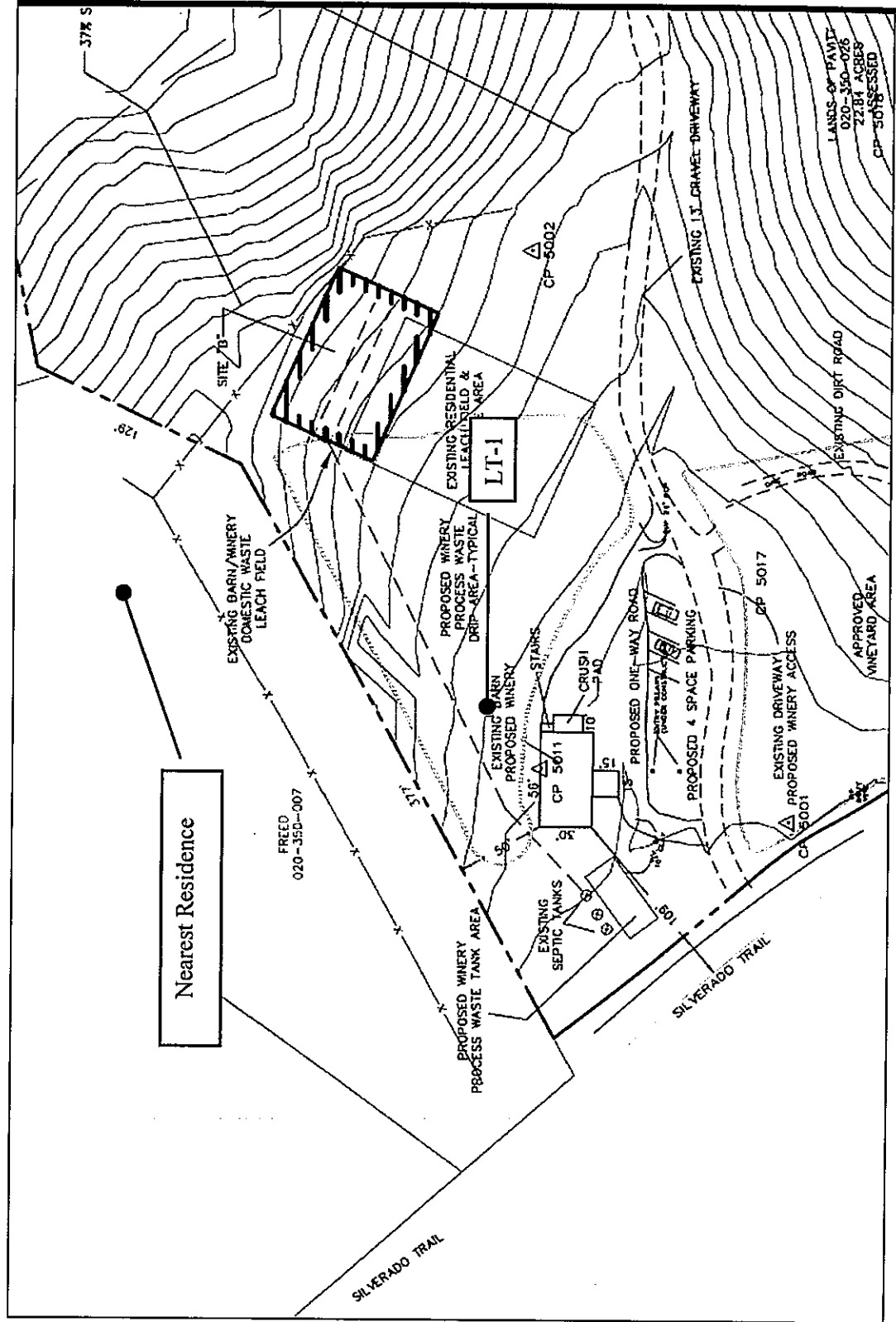
Nighttime noise level limits are 5 dBA more restrictive. The ordinance requires that noise levels be measured with a calibrated sound level meter using the A-weighting scale and the slow meter response. Measurements are to be conducted at any point on the complainant's property. Noise standards are higher for suburban or urban residential developments but it appears that the rural residential standard would be appropriate for the property north of the winery. The ordinance requires that adjustments be made to the standard if the Noise Control Officer judges the noise to contain a steady audible tone such as a whine, screech or hum, or is a repetitive noise such as hammering or riveting, or contains music or speech.

### **Existing Noise Environment**

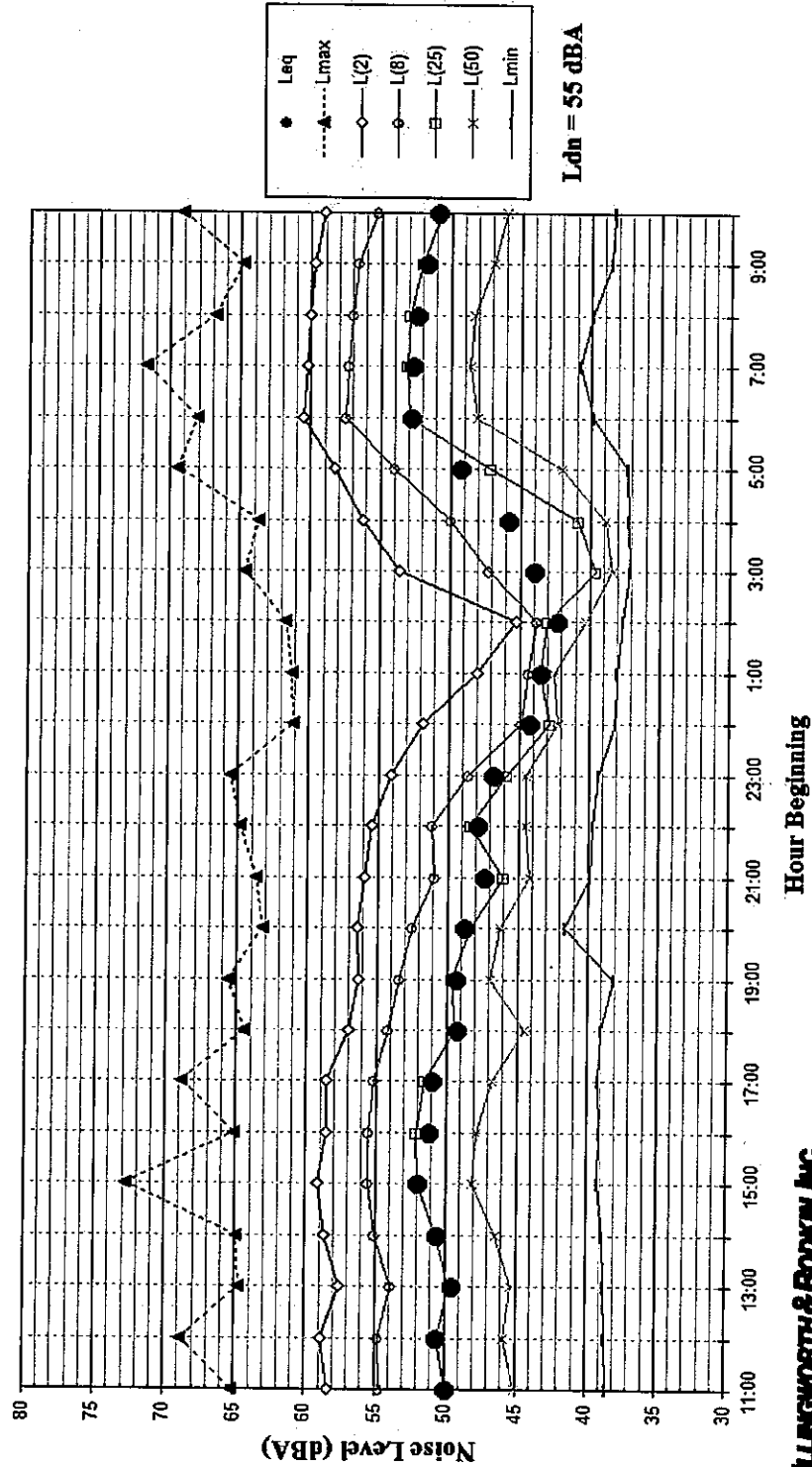
The noise environment in the project vicinity is predominantly the result of traffic along Silverado Trail. A long-term noise measurement was made at a distance of 260 feet from the center of Silverado Trail beginning at 11:00 a.m. September 29, 2008. The noise measurements continued over a 48-hour period and ended October 1, 2008. The noise measurement location is shown on Figure 1. The reference data is summarized on Figures 2 and 3.

The purpose of the long-term noise measurement was to document existing noise conditions at a representative location in the vicinity of the residence immediately north of the winery. Noise measurement LT-1 served as a reference point to estimate ambient noise levels at the nearest receiver. Ambient traffic noise levels are calculated to be about 3 dBA lower than those measured at the reference site given this receiver's additional distance from Silverado Trail. Based on the measured data, day-night average noise levels at the nearest residential receiver are estimated to be about 52 to 53 dBA  $L_{dn}$ . Daytime hourly average noise levels at the nearest receiver are approximately 44 to 50 dBA  $L_{eq}$ .

Figure 1 – Partial Site Plan Showing Noise Measurement Location



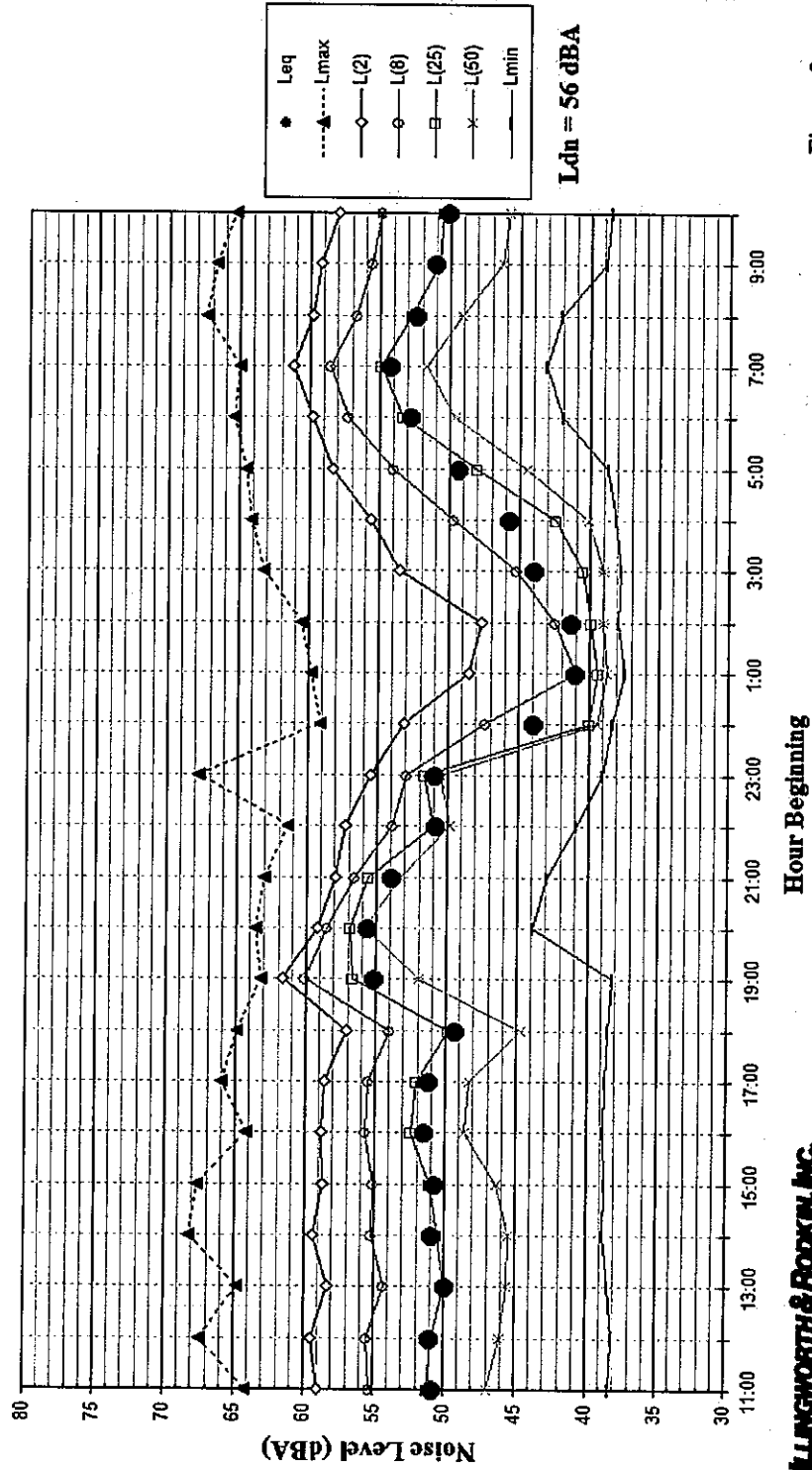
**Noise Levels at LT-1  
 ~260 feet from the Centerline of Silverado Trail  
 September 29, 2008 to September 30, 2008**



**LLANGWORTH & RODKIN, INC.**  
 Acoustics • Air Quality

**Figure 2**

**Noise Levels at LT-1  
 ~ 260 feet from the Centerline of Silverado Trail  
 September 30, 2008 to October 1, 2008**



**LANGWORTH & ROCKEN, INC.**  
 Acoustics • Air Quality

**Figure 3**

### **Future Operations at the Winery**

The Pavitt Family Vineyard Winery would produce up to 10,000 gallons of wine per year. Tasting would be limited to a maximum of four persons per day on an appointment only basis. The winery would host private wine and food tastings for up to 10 people on four occasions per year, private wine and food events for up to 10 people on four occasions per year, and one private harvest event with a maximum of 30 people in attendance.

The nearest residence is located approximately 250 feet from the winery building and has direct line of sight to activities that would occur north or east of the winery. This residence would not have line of sight to activities occurring on the south or west sides of the winery. The building itself would provide a minimum of 10 dBA of noise reduction for activities occurring on the south and west sides of the winery.

Noise generated by the project would include sources such as increased vehicle traffic, driveway and parking lot noise, the operation of mechanical equipment, seasonal production related noise, and special events. A discussion of each of these project related noise sources is provided below.

#### *Project Generated Traffic Noise Level Increase*

The operation of the project would generate approximately 40 daily trips to the site along Silverado Trail. Up to five trips would occur during the peak traffic hour. The additional trips resulting from the project would not measurably increase traffic noise levels (less than 1 dBA  $L_{dn}$ ) along Silverado Trail.

#### *Driveway and Parking Lot Noise*

Noise sources associated with the driveway and parking lot would include the sounds of vehicles accessing the parking area, engine starts, door slams, and voices. Typically, the sound of a passing car at 15 mph, engine starts, and door slams range from 50 dBA to 60 dBA at 50 feet. Noise data contained in Illingworth & Rodkin, Inc.'s files indicates that maximum noise levels from sources such as door slams, engine starts, idling of diesel powered vehicles, motorcycles, shouting, radios, etc. could occasionally generate noise levels in excess of 65 dBA  $L_{max}$  at 50 feet. The parking area and driveway are located approximately 300 feet from the nearest residence and maximum instantaneous noise levels from these intermittent sources of noise would be expected to range from 35 to 50 dBA  $L_{max}$ . Noise generated by vehicles accessing the parking area would generally be lower than ambient maximum noise levels and would be well below the Napa County Noise Ordinance limits for maximum noise levels occurring during the day or night.

### *Project Mechanical Equipment*

The project would include noise-generating mechanical equipment such as an air-cooled condensing unit (portable chiller), and less significant sources of noise, such as an air-conditioning system or exhaust fans. The condensing unit would provide cooling during the fermentation process and to the barrel storage area. This unit would maintain the desired temperature and could operate over extended periods of time during the day or night. Based on data contained in Illingworth & Rodkin, Inc. files, a 10-ton chiller would generate noise levels of about 39 dBA at the nearest residential land use when located as proposed at the southwest corner of the winery building. Noise levels generated by the project's proposed mechanical equipment would be less than 45 dBA and would meet the daytime and nighttime noise level limits assuming operation for more than 30 minutes in any hour.

### *Seasonal Production Related Noise*

Production related noise would occur during the crush season (mid-September to the end of October) and during bottling season (end of March through early September). Crushing activities would occur for a period of about one week per year. Grapes would be harvested from the vineyard for processing at the winery building and trucks would deliver grapes harvested from off-site vineyards. Grape bins would be unloaded from each truck with a propane forklift. Grapes would be crushed on the south side of the winery building. Based on data gathered by Illingworth & Rodkin, Inc., noise levels generated during grape crushing activities are approximately 63 dBA  $L_{eq}$  at 50 feet assuming unshielded conditions. Bottling would be accomplished with a mobile bottling truck on two to four days per year. Noise levels generated by bottling activities are approximately 67 dBA  $L_{eq}$  at 50 feet assuming unshielded conditions.

Crushing and bottling activities would be conducted on the south side of the winery building during daytime hours. Given the distance and expected shielding provided by the building itself, noise levels resulting from crushing and bottling activities are estimated to be approximately 38 to 42 dBA  $L_{eq}$  at the nearest residence. Such noise sources could occur for more than 30 minutes in any hour and would be below the daytime noise level limits established by the County (50 dBA). Hourly average noise levels generated by bottling and crushing activities would be similar to or less than existing ambient daytime noise levels generated by local traffic on Silverado Trail. Intermittent maximum noise levels generated during deliveries of grapes or intermittent forklift movements would be well below the County's maximum noise level limit of 70 dBA.

Mr. and Mrs. Pavitt  
October 14, 2008  
Page 9

*Special Events*

On nine occasions per year, the winery would host special events with a maximum of 10 to 30 guests in attendance. Special events would generally be limited to wine-tasting and other trade related events such as winemaker's dinners, etc. Weddings, concerts, or other sources of amplified sound are not proposed. Special events would likely be held within the winery building or on the south side of the winery building. Noise levels generated by such wine tasting events would generally be low and would meet the Napa County Noise Ordinance limits at the nearest residential property line.



This concludes our assessment of noise resulting from the Pavitt Family Vineyards Winery project. If you have any questions or comments, please do not hesitate to call.

Sincerely,

A handwritten signature in cursive script, appearing to read "Michael S. Thill".

Michael S. Thill  
Senior Consultant  
**ILLINGWORTH & RODKIN, INC.**

(08-165)

# George W. Nickelson, P.E.

Traffic Engineering • Transportation Planning

April 7, 2009

463 1217 x 17  
Mr. Jon M. Webb, PLS  
Albion Surveys, Inc.  
1113 Hunt Avenue  
St. Helena, CA 94574

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APR 15 2009

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APR 14 2009

NAPA COUNTY  
DEPT OF PUBLIC WORKS

Subject: *Focused Traffic Study for a Proposed Pavitt Family Winery at #4660 Silverado Trail in Napa County*

Dear Mr. Webb:

This letter report summarizes a focused traffic study for a proposed winery at #4660 Silverado Trail in Napa County. This study reflects my discussions with you and our recent experience in the project area. This letter report has identified the existing traffic conditions, calculated the added traffic due to the proposed winery and evaluated the effects of that traffic.

## 1. Existing Traffic Conditions

Silverado Trail is essentially a two-lane rural road in the area of the winery site. At the winery site Silverado Trail does not have a left turn lane.

Based on Napa County records, Silverado Trail has daily traffic volumes of 3,644 vehicles south of State Route 29 (SR 29).<sup>(1)</sup> It is likely that the volumes at the winery site are comparable to the volumes counted south of SR 29.

5,217  
N/A

## 2. Traffic Effects of the Proposed Winery

### a. Project Description

The project site currently has a single family residence. That residence would remain with the development of the proposed winery project.

The proposed project would involve a new winery with an annual production of 10,000 gallons.<sup>(2)</sup> It is expected that about 25-30 persons would visit the winery (by appointment only) weekly or about 4 persons during a typical weekday and on a typical Saturday or Sunday. The winery's employment is expected to include three persons (one full time and two part time) with only temporary picking crews on-site during the harvest season. Table 1 outlines the winery's expected daily traffic generation on a typical weekday (21 daily trips), a typical Saturday (21 daily trips) and a day during the harvest season (23 daily trips).

April 7, 2009  
Mr. Jon Webb  
Page 2 of 4

If it is conservatively assumed that 20% of the winery's daily trips are generated during a peak hour, the typical weekday or Saturday peak hour would experience 2-3 winery related vehicle trips. This level of traffic would be very low relative to the background traffic flows on Silverado Trail.

#### b. Site Access Design Issues

The primary traffic design issue would be the need for a left-turn lane at the site access. Standards for left-turn lanes relate to the left-turn volume conflicting with the volume of opposing through traffic. Napa County has adopted a warrant methodology based on daily traffic volumes on the highway and daily traffic volumes on the access road or driveway.<sup>(3)</sup> As noted in this report (based on Napa County counts), the daily volume on Silverado Trail is 3,644 vehicles south of SR 29. Napa County standards for left-turn lanes indicate that the volume on Silverado Trail and the daily volumes in/out of the proposed winery would be below the levels at which a left-turn lane would be warranted (left turn lane graph is attached).

In addition to evaluating the left turn lane volume warrants, we have conducted a field review of the "sight distance" at the site driveway. The observed speeds along Silverado Trail were 45-55 mph in the vicinity of the site driveway. Caltrans standards indicate that these speeds would require about 400-500 feet of sight distance measured along Silverado Trail.<sup>(4)</sup> Based on a field review, the visibility both north and south on Silverado Trail would exceed the 400-500 foot sight distance requirement.

### **3. Summary and Conclusions**

As outlined in the report, the project's trips would add minimally to traffic flows on Silverado Trail. The combination of volumes on Silverado Trail and volumes in/out of the winery would be below Napa County thresholds for installation of a left-turn lane.

Based on a field review (to be confirmed by actual measurements), the sight distance at the project driveway (measured along Silverado Trail) would exceed the Caltrans standard for the observed speeds.

I trust that this study responds to your needs and the requirements of Napa County. Please let me know if there are any questions or if further input is required.

Sincerely,



George W. Nickelson, P.E.

Attachment: Left Turn Warrant Graph

**TABLE 1**  
**TRIP GENERATION FOR**  
**THE PROPOSED PAVITT FAMILY WINERY**

Daily Traffic During a Typical Weekday:

• One single family dwelling unit @ 10/D.U. <sup>(1)</sup>	=	10 daily trips
• 4 visitors/2.6 per vehicle x 2 one-way trips	=	3 daily trips
• 3 employees x 2 one-way trips per employee	=	6 daily trips
• 1 truck x 2 one-way trips per truck <sup>(2)</sup>	=	<u>2 daily trips</u>
		21 daily trips

Daily Traffic During a Typical Saturday:

• One single family dwelling unit @ 10/D.U. <sup>(1)</sup>	=	10 daily trips
• 4 visitors/2.8 per vehicle x 2 one-way trips	=	3 daily trips
• 3 employees x 2 one-way trips per employee	=	6 daily trips
• 1 truck x 2 one-way trips per truck <sup>(2)</sup>	=	<u>2 daily trips</u>
		21 daily trips

Daily Traffic During Harvest Season (6 weeks):

• One single family dwelling unit @ 10/D.U. <sup>(1)</sup>	=	10 daily trips
• 4 visitors/2.8 per vehicle x 2 one-way trips	=	3 daily trips
• 3 employees x 2 one-way trips per employee	=	6 daily trips
• 2 trucks x 2 one-way trips per truck <sup>(3)</sup>	=	<u>4 daily trips</u>
		23 daily trips

(1) Institute of Transportation Engineers (ITE), *Trip Generation – 8<sup>th</sup> Edition*, 2008.

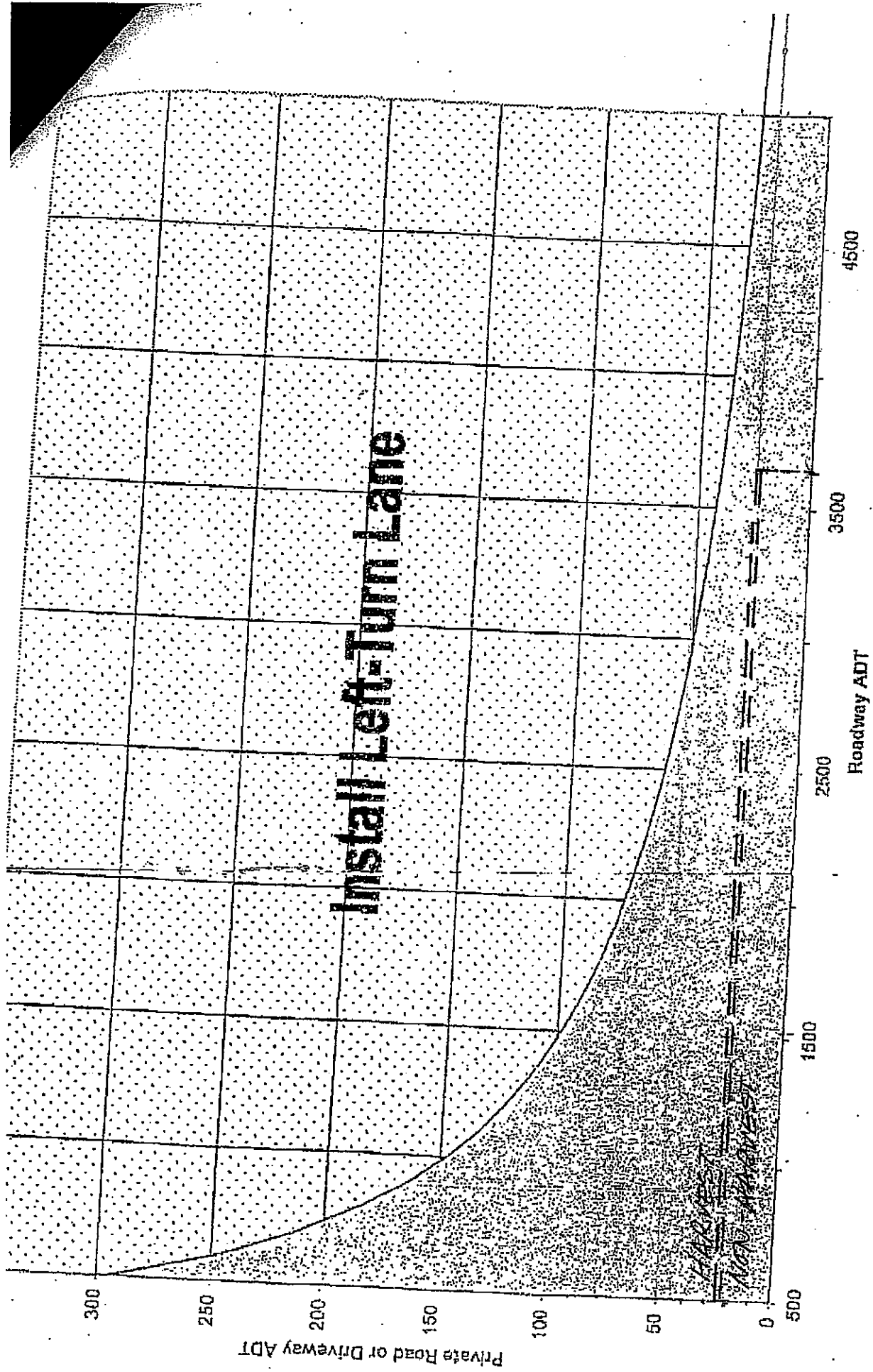
(2) During the 46-week non-harvest season, a maximum of 1 daily truck would be generated related to routine deliveries associated with the winery production (10,000 gallons/2.38 gallons per case = 4,201 cases).

• 4,201 cases/2,310 cases per truck	=	2 glass delivery trucks
• 4,201 cases/1,232 cases per truck	=	3 wine shipment trucks
• 4 miscellaneous weekly deliveries	=	<u>184 miscellaneous trucks</u>
		189 annual trucks

189 trucks/46 weeks = 4 weekly trucks or a maximum of 1 truck per day.

(3) During the 6-week harvest season, there would be an increase of 1 daily grape delivery truck, calculated as follows:

- 51 tons of off-site grapes/10 tons per truck/6 weeks = 1 truck/week or a maximum of one truck per day.



□ No Left-Turn Lane Necessary

*SILVERADO TRAIL*

15-A ACCESS