

“J”

Wastewater Analysis

ONSITE WASTEWATER DISPOSAL FEASIBILITY STUDY

FOR THE

3646 SMR VINEYARD WINERY

LOCATED AT:
3646 Spring Mountain Road
St. Helena, CA 94574
NAPA COUNTY APN 022-150-026

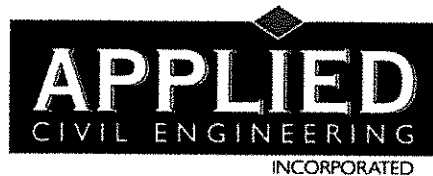
RECEIVED

OCT 09 2014

Napa County Planning, Building
& Environmental Services

PREPARED FOR:
3646 SMR Vineyard LLC
Care of: Andrew Rudd
2175 North California Boulevard, Suite 400
Walnut Creek, CA 94596
Telephone: (925) 788-5671

PREPARED BY:



2074 West Lincoln Avenue
Napa, California 94558
Telephone: (707) 320-4968
www.appliedcivil.com

Job Number: 13-143



Michael R. Muelrath

Michael R. Muelrath R.C.E. 67435

9/30/2014

Date

TABLE OF CONTENTS

LIST OF APPENDICES	iv
INTRODUCTION	1
SOILS INFORMATION.....	2
PREDICTED WASTEWATER FLOW.....	2
Winery Process Wastewater	2
Winery Sanitary Wastewater.....	3
Employees.....	3
Daily Tours and Tastings.....	3
Total Peak Winery Sanitary Wastewater Flow.....	4
Residential Sanitary Wastewater	4
Combined Peak Wastewater Flow	4
RECOMMENDATIONS.....	4
Option #1 – Combined Sanitary and Process Wastewater Subsurface Drip Disposal Field.....	4
Required Disposal Field Area.....	4
Available Disposal Field Area	5
Reserve Area	5
Pretreatment and Septic Tank Capacity	5
Option #2 – Sanitary Wastewater Subsurface Drip Disposal Field and Process Wastewater Treatment for Irrigation.....	6
Required Disposal Field Area.....	6
Available Disposal Field Area	6
Reserve Area	6
Pretreatment and Septic Tank Capacity	6
Process Wastewater Treatment.....	7
Process Wastewater Disposal.....	7

Option #3 – Sanitary Wastewater Subsurface Drip Disposal Field and Process
Wastewater Hold and Haul.....8
 Required Disposal Field Area.....8
 Winery Process Wastewater Disposal.....8
CONCLUSION.....8

LIST OF APPENDICES

APPENDIX 1: Site Topography Map.....	9
APPENDIX 2: 3646 SMR Vineyard Winery Use Permit Conceptual Site Plans	11
Reduced to 8.5" x 11"	11
APPENDIX 3: Water Storage Tank Water Balance Calculations.....	18
APPENDIX 4: Site Evaluation Report and Test Pit Map.....	22

INTRODUCTION

3646 SMR Vineyard LLC is applying for a Use Permit to construct and operate a new winery at their property located at 3646 Spring Mountain Road in Napa County, California. The subject property, known as Napa County Assessor's Parcel Number 022-150-026, is located off of a private shared driveway, approximately 0.5 miles north of Spring Mountain Road.

The Use Permit application under consideration proposes the construction and operation of a new winery with the following characteristics:

- Wine Production:
 - 20,000 gallons of wine per year
 - Crushing, fermenting, aging and bottling

- Employees:
 - 2 full time employees
 - 2 part time employees (regular)
 - 2 part time employees (seasonal)

- Marketing Plan:
 - Daily Tours and Tastings by Appointment
 - 12 visitors per day maximum
 - 65 visitors per week maximum
 - Food and Wine Pairings with Meals
 - 24 per year maximum, no more than 4 in any month
 - 12 events with up to 20 guests maximum
 - 12 events with up to 12 guests maximum
 - Food prepared in onsite kitchen
 - Wine Club / Release Events with Meals
 - 2 per year maximum
 - 50 guest maximum
 - Food prepared offsite by catering company
 - Larger Auction Related Even
 - 1 per year
 - 100 guests maximum
 - Food prepared offsite by catering company
 - Portable toilets brought in for guest use

Existing structures on the property include a single family residence, vineyard, a pond and the related access and utility infrastructure to support these uses. Domestic wastewater from the existing residence is collected in a septic tank located near the north end of the residence and disposed of in a leach field located approximately 180 feet northwest of the residence. Please see the 3646 SMR Vineyard Winery Use Permit Conceptual Site Plan for approximate locations.

3646 SMR Vineyard has requested that Applied Civil Engineering Incorporated (ACE) evaluate the feasibility of disposing of the winery process wastewater as well as the domestic sanitary wastewater that will be generated by the proposed winery via a new onsite wastewater disposal system. The remainder of this report describes the onsite soil conditions, the predicted process and sanitary wastewater flows and outlines the conceptual design of an onsite wastewater disposal system.

SOILS INFORMATION

The United States Department of Agriculture Soil Conservation Service Soils Map for Napa County shows several soil types mapped on the parcel including Forward gravelly loam, 9 to 30 percent slopes, Forward gravelly loam, 30 to 75 percent slopes and Boomer loam, 2 to 15 percent slopes.

A site specific soils analysis was conducted during a site evaluation performed by Napa County and Applied Civil Engineering Incorporated on November 7, 2013. The site evaluation consisted of the excavation and observation of eight test pits in various portions of the property. The test pits generally revealed variable depths of topsoil ranging from 18 inches to 36 inches with the upper horizon having a USDA soil texture classification of sandy clay loam and subsoils consisting of clay, clay loam and sandy loam soils. The limiting conditions that were observed were the presence of high clay content subsoils and subsoils with weak and/or cemented structure.

Please refer to the Site Evaluation Report in Appendix 4 for additional details.

PREDICTED WASTEWATER FLOW

The onsite wastewater disposal system will be designed for the peak winery process wastewater flow and the peak sanitary wastewater flow from the proposed winery. The property owner also wishes to relocate the existing residence septic system to the area of the new winery septic system so the flow from the existing two bedroom residence will also be included in the design of the new septic system.

Winery Process Wastewater

We have used the generally accepted standard that six gallons of winery process wastewater are generated for each gallon of wine that is produced each year and that 1.5 gallons of wastewater are generated during the crush period for each gallon of wine that is produced. Based on the size of the winery and our understanding that both red and white wines will be produced we have assumed a 30 day crush period. Using these assumptions, the average and peak winery process wastewater flows are calculated as follows:

$$\text{Annual Winery Process Wastewater Flow} = \frac{20,000 \text{ gallons wine}}{\text{year}} \times \frac{6 \text{ gallons wastewater}}{1 \text{ gallon wine}}$$

$$\text{Annual Winery Process Wastewater Flow} = 120,000 \text{ gallons per year}$$

$$\text{Average Daily Winery Process Wastewater Flow} = \frac{120,000 \text{ gallons}}{\text{year}} \times \frac{1 \text{ year}}{365 \text{ days}}$$

Average Daily Winery Process Wastewater Flow = 329 gallons per day (gpd)

$$\text{Peak Winery Process Wastewater Flow} = \frac{20,000 \text{ gallons wine}}{\text{year}} \times \frac{1.5 \text{ gallons wastewater}}{1 \text{ gallon wine}} \times \frac{1 \text{ year}}{30 \text{ crush days}}$$

Peak Winery Process Wastewater Flow = 1,000 gpd

Winery Sanitary Wastewater

The peak sanitary wastewater flow from the winery is calculated based on the number of winery employees, the number of daily visitors for tours and tastings and the number of guests attending private marketing events. In accordance with Table 4 of Napa County's "Regulations for Design, Construction, and Installation of Alternative Sewage Treatment Systems" we have used a design flow rate of 15 gallons per day per employee and 3 gallons per day per visitor for tours and tastings. Table 4 does not specifically address design wastewater flows for guests at marketing events. For marketing events that will have catered meals that are prepared offsite we have conservatively estimated 5 gallons of wastewater per guest. For marketing events that will have meals prepared onsite in the commercial kitchen we have assumed 15 gallons of wastewater per guest, similar to a restaurant. Based on these assumptions, the peak winery sanitary wastewater flows are calculated as follows:

Employees

Peak Sanitary Wastewater Flow = 6 employees X 15 gpd per employee

Peak Sanitary Wastewater Flow = 90 gpd

Daily Tours and Tastings

Peak Sanitary Wastewater Flow = 12 visitors per day X 3 gallons per visitor

Peak Sanitary Wastewater Flow = 36 gpd

Food and Wine Pairings with Meals Prepared Onsite:

Peak Sanitary Wastewater Flow = 20 guests X 15 gallons per guest

Peak Sanitary Wastewater Flow = 300 gpd

Wine Club / Release Events with Catered Meals:

Peak Sanitary Wastewater Flow = 50 guests X 5 gallons per guest

Peak Sanitary Wastewater Flow = 250 gpd

Auction Related Event with Catered Meals:

Peak Sanitary Wastewater Flow = 100 guests X 5 gallons per guest

Peak Sanitary Wastewater Flow = 500 gpd

Total Peak Winery Sanitary Wastewater Flow

As previously noted, all events with more than 50 guests in attendance will utilize portable sanitary facilities to minimize the load on the septic system. Therefore, assuming that daily tours and tastings and a maximum of one marketing event may occur on the same day the total peak winery sanitary wastewater flow is based on employees, daily tours and tastings and a private event for 20 people with meals prepared onsite and is calculated as follows:

Total Peak Winery Sanitary Wastewater Flow = 90 gpd + 36 gpd + 300 gpd

Total Peak Winery Sanitary Wastewater Flow = 426 gpd

Residential Sanitary Wastewater

The peak sanitary wastewater flow from the existing residence is calculated based on the number of potential bedrooms in the residence.

In accordance with Napa County Code, the peak flow for a single family residences is calculated as 150 gpd per bedroom for the first three bedrooms and an additional 100 gpd for each bedroom in excess of five bedrooms. Therefore the peak residential sanitary wastewater flow is calculated as follows:

Peak Residential Sanitary Wastewater Flow = 2 bedrooms X 150 gpd per bedroom

Peak Residential Sanitary Wastewater Flow = 300 gpd

Combined Peak Wastewater Flow

Combined Peak Wastewater Flow = Peak Winery Process Wastewater Flow + Total Peak Winery Sanitary Wastewater Flow + Peak Residential Sanitary Wastewater Flow

Combined Peak Flow = 1,000 gpd + 426 gpd + 300 gpd

Combined Peak Flow = 1,726 gpd

RECOMMENDATIONS

Option #1 – Combined Sanitary and Process Wastewater Subsurface Drip Disposal Field

In this scenario both the sanitary and process wastewater from the winery and residence would be pretreated and disposed of in a subsurface drip type septic system.

Required Disposal Field Area

The disposal field area is calculated based upon the design hydraulic loading rate for the soil conditions and the proposed design flow. Since the slope of the natural ground surface in the area of the proposed disposal field is less than 20% no adjustment is required for slope. Based on these design parameters, the required disposal field area is calculated as follows:

$$\text{Required Disposal Field Area} = \frac{\text{Peak Flow}}{\text{Soil Application Rate}}$$

$$\text{Require Disposal Field Area} = \frac{1,726 \text{ gpd}}{0.6 \text{ gpd per square foot}}$$

Required Disposal Field Area = 2,877 square feet

Available Disposal Field Area

Based on the proposed site layout and Napa County Geographic Information System topographic data, we have determined that there is enough area to install approximately 2,900 square feet of subsurface drip disposal field in the vicinity of Test Pits #5 & #6. The conceptual layout of the disposal field is shown on the 3646 SMR Vineyard Winery Use Permit Conceptual Site Plans in Appendix 2.

Reserve Area

Napa County code requires that an area be set aside to accommodate a future onsite wastewater disposal system in the event that the primary system fails or the soil in the primary area is otherwise rendered unsuitable for wastewater disposal. For subsurface drip type septic systems the reserve area must be 200% of the size of the disposal field area. The required reserve area is calculated as follows:

$$\text{Required Reserve Area} = 200\% \times \frac{\text{Peak Flow}}{\text{Soil Application Rate}}$$

$$\text{Require Reserve Field Area} = 200\% \times \frac{1,726 \text{ gpd}}{0.6 \text{ gpd per square foot}}$$

Required Reserve Area = 5,753 square feet

Based on the proposed site plan and Napa County GIS topographic data, we have determined that there is enough area to set aside for an additional 5,800 square feet of subsurface drip disposal field in the vicinity of Test Pits #1, #2, #5 and #6 as shown on the 3646 SMR Vineyard Winery Use Permit Conceptual Site Plans in Appendix 2.

Pretreatment and Septic Tank Capacity

Pretreatment must be provided to treat the winery process and sanitary wastewater to meet Napa County pretreated effluent standards (BOD < 30 mg/l, TSS < 30 mg/l). There are several options for pretreatment systems that are available to meet this requirement. The Applicant and the Engineer will review options and select a suitable pretreatment system designed to meet this requirement prior to application for a sewage permit for the winery. Septic tanks will be sized in accordance with the requirements of the selected pretreatment system.

Option #2 – Sanitary Wastewater Subsurface Drip Disposal Field and Process Wastewater Treatment for Irrigation

In this scenario the sanitary wastewater would be disposed of in a subsurface drip type septic system and the winery process wastewater would be collected separately, pretreated, stored and used onsite for irrigation of the existing vineyards or landscaping.

Required Disposal Field Area

Sanitary wastewater disposal is similar to the system described in Option #1 above, however the size of the subsurface drip disposal field is much smaller since only the sanitary wastewater is being disposed of. The required disposal field area is calculated as follows:

$$\text{Required Disposal Field Area} = \frac{\text{Peak Flow}}{\text{Soil Application Rate}}$$

$$\text{Required Disposal Field Area} = \frac{726 \text{ gpd}}{0.6 \text{ gpd per square foot}}$$

$$\text{Required Disposal Field Area} = 1,210 \text{ square feet}$$

Available Disposal Field Area

There is enough area to install the required 1,210 square feet of subsurface drip disposal field in the vicinity of Test Pits #5 and #6.

Reserve Area

The required reserve area is calculated as follows:

$$\text{Required Reserve Area} = 200\% \times \frac{\text{Peak Flow}}{\text{Soil Application Rate}}$$

$$\text{Required Reserve Field Area} = 200\% \times \frac{726 \text{ gpd}}{0.6 \text{ gpd per square foot}}$$

$$\text{Required Reserve Area} = 2,420 \text{ square feet}$$

There is enough area to accommodate the required 2,420 square feet of reserve area in the vicinity of Test Pits #5 & #6.

Pretreatment and Septic Tank Capacity

Sanitary wastewater pretreatment and septic tank requirements in this scenario are the same as previously described in Option #1 above.

Process Wastewater Treatment

Based on the winery's planned production level we recommend that treatment be achieved through the use of a package plant type system or other treatment system designed to accept winery process wastewater that is capable of meeting the following treatment requirements:

<u>Parameter</u>	<u>Pre-treatment*</u>	<u>Post Treatment**</u>
pH	3 to 10	6 to 9
BOD ₅	500 to 12,000 mg/l	<160 mg/l
TSS	40 to 800 mg/l	<80 mg/l
SS	25 to 100 mg/l	<1 mg/l

* Reference California Regional Water Quality Control Board Central Coast Region General Waste Discharge Requirements Order No. R3-2008-0018 for winery process wastewater characteristics

** Required for discharge to land via surface irrigation by Napa County for samples taken at the discharge of the treatment unit.

Process Wastewater Disposal

We have identified approximately 1 acre of vineyard located west of the proposed winery building that can be used to dispose of the treated winery process wastewater via irrigation of the existing vineyard and general land application. This area could be expanded dramatically if desired by the Applicant and we estimate that at least two acres of vineyard in total could be irrigated outside of the required well and stream setbacks. Given the limited amount of process wastewater that will be generated we have conservatively assumed that the irrigation area will be limited to the one acre vineyard area. All application of treated winery process wastewater must comply with the requirements of the Napa County Winery Process Wastewater Guidelines for Surface Drip Irrigation.

In order to accommodate differences in the timing of wastewater generation, irrigation demand and prohibitions on applying water to the land during rainy periods a storage tank will be required. We have prepared a water balance calculation to size a tank that will temporarily store wastewater generated at the winery before it is applied to the vineyard. The water balance calculation assumes a monthly wastewater generation rate and a monthly vineyard irrigation schedule based on our past experience with projects of this type. The water balance calculations show that the water generated by winery production operations each month can be effectively managed after treatment by applying it to the identified vineyard area. We recommend a minimum storage tank capacity of 10,000 gallons to provide operational flexibility in timing of land applications (see Appendix 4).

Option #3 – Sanitary Wastewater Subsurface Drip Disposal Field and Process Wastewater Hold and Haul

In this scenario the sanitary wastewater would be disposed of in a subsurface drip type septic system and the winery process wastewater would be temporarily stored and then would be hauled offsite for treatment and disposal by the Napa Sanitation District, East Bay Municipal Utility District or a similar municipal wastewater treatment plant.

Required Disposal Field Area

Sanitary wastewater disposal is the same as that described in Option #2 above.

Winery Process Wastewater Disposal

The winery process wastewater hold and haul system must be designed to hold at least seven days of peak flow (7 days x 1,000 gallons per day = 7,000 gallons), have a water level alarm and be designed and constructed in accordance with the requirements for hold and haul systems as outlined in Napa County Code Section 13.52.035.

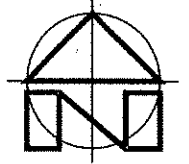
CONCLUSION

It is our opinion that the wastewater from the proposed winery can be accommodated in any of the three options previously described. Full design calculations and construction plans for the wastewater system(s) must be prepared in accordance with Napa County standards at the time of building permit application.

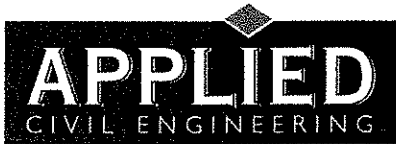
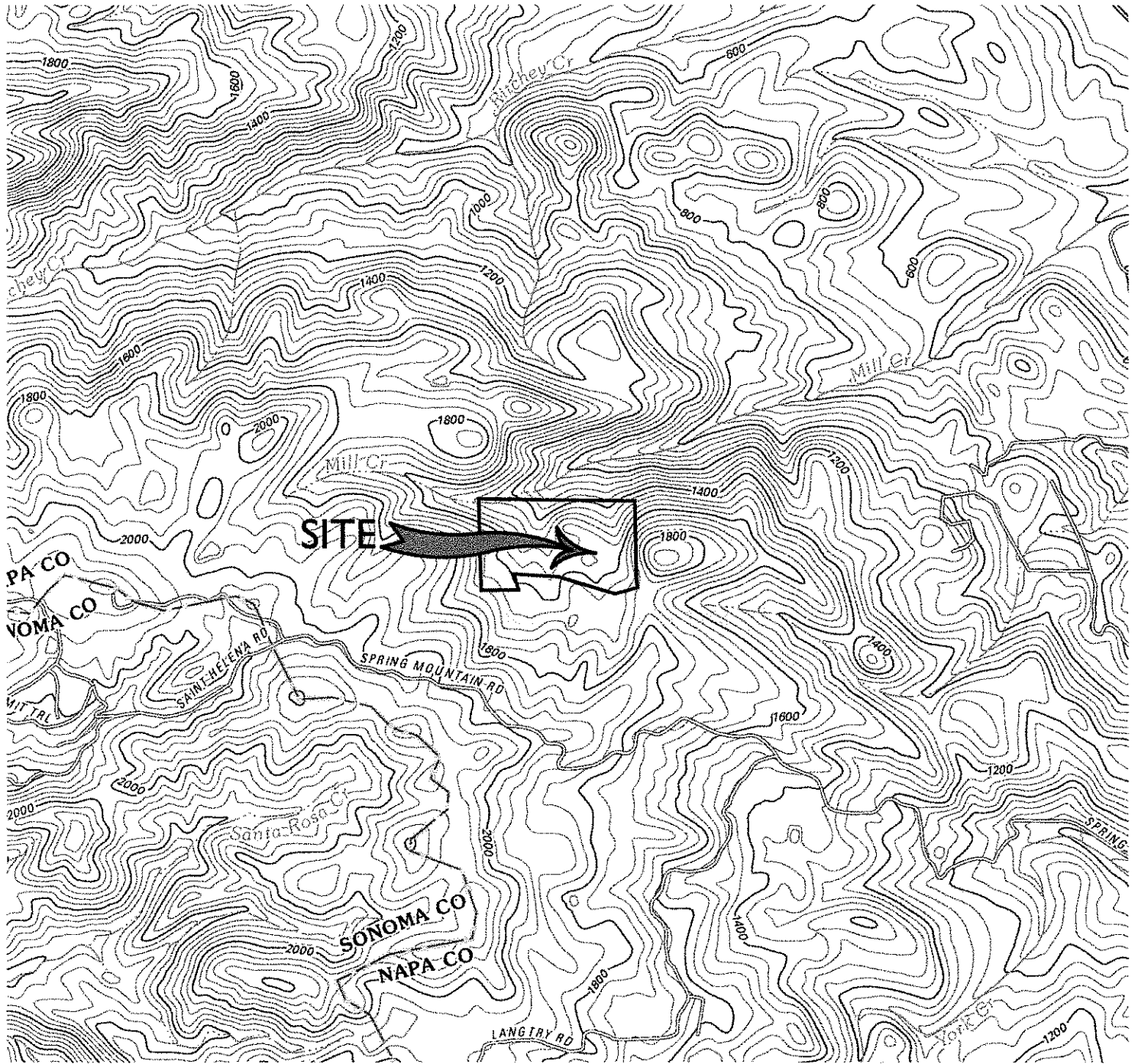
APPENDIX I: Site Topography Map

SITE TOPOGRAPHY MAP

REPRESENTS A PORTION OF THE
UNITED STATES GEOLOGICAL SURVEY 7.5 MINUTE QUADRANGLE
"CALISTOGA, CA"



SCALE: 1" = 2,000'



INCORPORATED

2074 West Lincoln Avenue
Napa, CA 94558
(707) 320-4968 (707) 320-2395 Fax
www.appliedcivil.com

3646 SMR VINEYARD LLC
3646 SPRING MOUNTAIN ROAD
SAINT HELENA, CA 94574
APN 022-150-026

JOB NO. 13-143

SEPTEMBER 2014

APPENDIX 3: Water Storage Tank Water Balance Calculations

Irrigation Storage Tank Water Balance

Month	Beginning Balance	Process Wastewater	Land Application	Ending Balance
January	0	6,000	21,722	0
February	0	6,000	21,722	0
March	0	6,000	21,722	0
April	0	4,800	21,722	0
May	0	4,800	6,534	0
June	0	6,000	16,335	0
July	0	12,000	16,335	0
August	0	15,600	31,523	0
September	0	30,000	31,523	0
October	0	15,600	28,256	0
November	0	7,200	21,722	0
December	0	6,000	21,722	0
		120,000	260,837	

Notes:

1. All values shown above for beginning balance, inflow, outflow and ending balance are in units of gallons.
2. See attached tables for detailed explanation of process wastewater and irrigation data presented in this table.
3. This water balance is based on the assumption that the tank is empty in August, just prior to crush.
4. Where irrigation demand exceeds available treated wastewater availability additional irrigation water will be provided by another source.

Winery Process Wastewater Generation Analysis

Annual Wine Production 20,000 gallons
 Wastewater Generation Rate 6 gallons per gallon of wine
 Annual Wastewater Generation 120,000 gallons
 Crush Season Length 30 days
 Wastewater Generated During Crush 1.5 gallons per gallon of wine
 Peak Wastewater Generation Rate 1,000 gallons per day

Winery Process Wastewater Generation Table			
Month	Percentage of Annual Total	Monthly Flow (gallons)	Average Flow (gpd)
January	5.0%	6,000	194
February	5.0%	6,000	214
March	5.0%	6,000	194
April	4.0%	4,800	160
May	4.0%	4,800	155
June	5.0%	6,000	200
July	10.0%	12,000	387
August	13.0%	15,600	503
September	25.0%	30,000	1,000
October	13.0%	15,600	503
November	6.0%	7,200	240
December	5.0%	6,000	194
Total	100.0%	120,000	

Notes:

- i. Wastewater generation rates and monthly proportioning are based on our past experience with similar projects.

APPENDIX 4: Site Evaluation Report and Test Pit Map

Test Pit #1

PLEASE PRINT OR TYPE ALL INFORMATION

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-24	C	0-15	SCL	MSB	S	F	SS	CF/CM	CF/CM/FC	NONE
24-48		0-15	C	WSB	H	VF	S	FF	FF	NONE

Acceptable soil depth = 24"

Test Pit #2

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-24	C	0-15	SCL	MSB	S	F	SS	CF/CM	CF/CM/FC	NONE
24-48		0-15	C	WSB	H	VF	S	FF	FF	NONE

Acceptable soil depth = 24"

Test Pit #3

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-32	C	0-15	SCL	MSB	SH	F	SS	CF/CM/CC	CF/FM	NONE
32-52	C	0-15	SL	MSB	S	FRB	NS	CF/FM	FF	NONE
52 +	CEMENTED									

Acceptable soil depth = 52"

Test Pit #4

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-18	G	0-15	SCL	MSB	S	F	SS	CF/CM/CC	CF/CM	NONE
18-48		0-15	C	MSB	H	VF	S	CF	FF	NONE

Acceptable soil depth = 48" (Engineered system only)

Test Pit #5

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-32	G	0-15	SCL	MSB	S	FRB	SS	CF/CM/CC	CF/CM/FC	NONE
32-60		0-15	CL	MSB	H	F	SS	CF	FF/FM	NONE

Acceptable soil depth = 60"

Test Pit #6

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-36	G	0-15	SCL	MSB	S	FRB	SS	CF/CM/CC	CF/CM/FC	NONE
36-60		0-15	CL	MSB	H	F	SS	CF	FF/FM	NONE

Acceptable soil depth = 60"

Test Pit #7

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-24	G	15-30	SCL	MSB	S	FRB	SS	CF/CM/FC	CF/CM	NONE
24-54		0-15	CL	WSB	H	F	SS	CF/FM	FF/FM	NONE

Acceptable soil depth = 24"

Test Pit #8

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-24	G	15-30	SCL	MSB	S	FRB	SS	CF/CM/FC	CF/CM	NONE
24-54		0-15	CL	WSB	H	F	SS	CF/FM	FF/FM	NONE

Acceptable soil depth = 24"

LEGEND

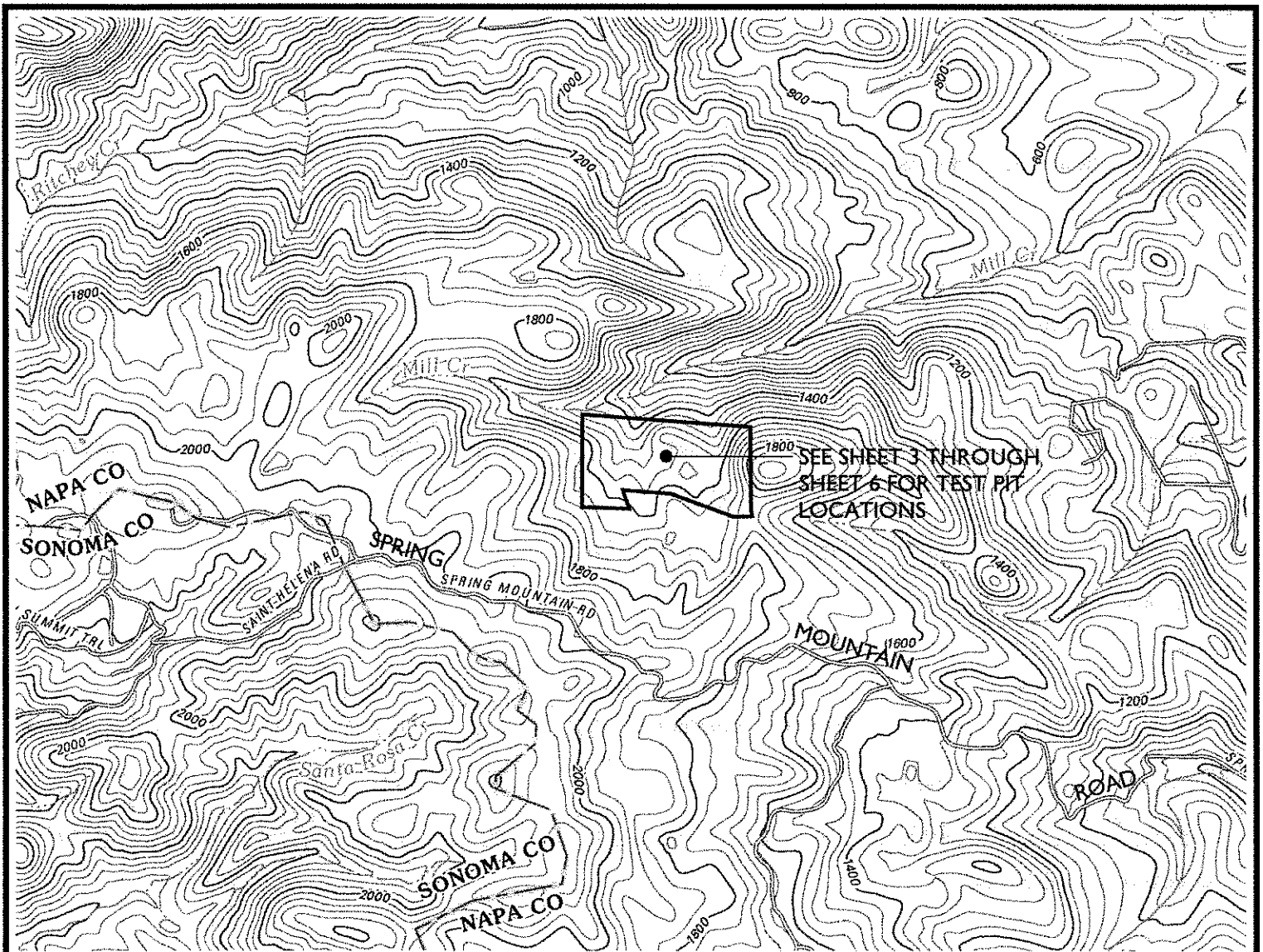
Boundary	Texture	Structure	Consistence			Pores	Roots	Mottling
			Side Wall	Ped	Wet	Quantity:	Quantity:	Quantity:
A=Abrupt <1"	S=Sand	W=Weak				F=Few	F=Few	F=Few
C=Clear 1"-2.5"	LS=Loamy Sand	M=Moderate	L=Loose	L=Loose	NS=NonSticky	C=Common	C=Common	C=Common
G=Gradual 2.5"-5"	SL=Sandy Loam	S=Strong	S=Soft	VFRB=Very Friable	SS=Slightly Sticky	M=Many	M=Many	M=Many
D=Difuse >5"	SCL=Sandy Clay Loam	G=Granular	SH=Slightly Hard	FRB=Friable	S=Sticky	<u>Size:</u>	<u>Size:</u>	<u>Size:</u>
	CL=Clay Loam	PI=Platy	H=Hard	F=Firm	VS=Very Sticky	VF=Very Fine	F=Fine	F=Fine
	SC=Sandy Clay	Pr=Prismatic	VH=Very Hard	VF=Very Firm	NP=NonPlastic	Fine	M=Medium	M=Medium
	CL=Clay Loam	C=Columnar	ExH=Extremely Hard	ExF=Extremely Firm	SP=Slightly Plastic	F=Fine	C=Coarse	C=Coarse
	L=Loam	B=Blocky			P=Plastic	M=Medium	VC=Very Coarse	VC=Very Coarse
	C=Clay	AB=Angular Blocky			VP=Very Plastic	C=Coarse	Coarse	Coarse
	SiC=Silty Clay	SB=Subangular Blocky				VC=Very Coarse	Coarse	Coarse
	SiCL=Silty Clay Loam	M=Massive					ExC=Extremely Coarse	ExC=Extremely Coarse
	SiL=Silt Loam	SG=Single Grain						
	Si=Silt	CEM=Cemented						

Notes:

Structure is recorded as Modifier then Structure - for example, Moderate (M) Subangular Blocky (SB) is recorded as MSB

Pores and Roots are recorded as Quantity then Size - for example Few (F) Coarse (C) is recorded as FC

Mottling is recorded as Quantity then Size then Contrast - for example Few (F) Coarse (C) Distinct (D) is recorded as FCD

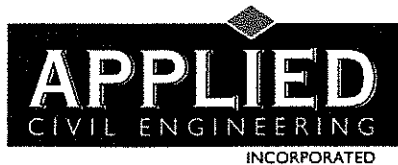


LOCATION MAP

SCALE: 1" = 2,000'

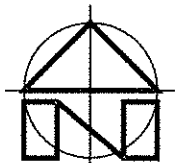
NOTES:

1. TEST PITS ONE THROUGH EIGHT (TP #1 - TP #8) WERE EXCAVATED BY R.D. SHERILL INC. ON NOVEMBER 7, 2013 AND WERE WITNESSED BY MIKE MUELARTH OF APPLIED CIVIL ENGINEERING INCORPORATED AND PETER EX AND VERONICA BATESON OF THE NAPA COUNTY PLANNING, BUILDING AND ENVIRONMENTAL SERVICES DEPARTMENT - ENVIRONMENTAL HEALTH DIVISION.
2. FADED BACKGROUND REPRESENTS EXISTING TOPOGRAPHIC FEATURES. TOPOGRAPHIC INFORMATION AND APPROXIMATE PROPERTY LINES WERE OBTAINED FROM THE "MAP OF TOPOGRAPHY OF THE LANDS OF FIFE, ET AL" PREPARED BY ALBION SURVEYS INC., DATED AUGUST 2001. APPLIED CIVIL ENGINEERING INCORPORATED ASSUMES NO LIABILITY REGARDING THE ACCURACY OR COMPLETENESS OF THE TOPOGRAPHIC INFORMATION OR PROPERTY LINE LOCATIONS.
3. AERIAL PHOTOGRAPH WAS OBTAINED FROM THE NAPA COUNTY GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASE AND IS DATED APRIL 9, 2011.
4. ACCORDING TO FEMA FIRM COMMUNITY PANEL 06055C0245E THE SUBJECT PARCEL IS DETERMINED TO BE OUTSIDE OF THE FEMA FLOOD BOUNDARIES. SEE FEMA FIRM COMMUNITY PANEL 06055C0245E FOR MORE INFORMATION.



2074 West Lincoln Avenue
 Napa, CA 94558
 (707) 320-4968 (707) 320-2395 Fax
 www.appliedcivil.com

3646 SMR VINEYARD LLC
 3646 SPRING MOUNTAIN ROAD
 SAINT HELENA, CA 94574
 APN 022-150-026



SCALE: 1" = 2,000'

APN 022-150-010
(HERNE ROAD LLC)

APPROXIMATE PROPERTY LINE

APPROXIMATE PROPERTY LINE

AREA 2
SEE SHEET 4
FOR TEST PIT
LOCATIONS
IN THIS AREA

100' WELL
SETBACK
(E) SPRING

100' WELL
SETBACK
(E) WELL

100' SETBACK

AREA 1
SEE SHEET 3
FOR TEST PIT
LOCATIONS
IN THIS AREA

(E) BUILDING

(E) POND

(E) RESIDENCE

APN 022-150-036
(MICHAEL C KEENAN)

APN 022-150-025
(STATE OF CALIFORNIA
DEPARTMENT OF PARKS AND
RECREATION)

AREA 4
SEE SHEET 6
FOR TEST PIT
LOCATIONS
IN THIS AREA

(E) LEACH
LINES

(E) VINEYARDS

AREA 3
SEE SHEET 5
FOR TEST PIT
LOCATIONS
IN THIS AREA

100' WELL
SETBACK
(E) WELL

APN 022-150-026
(3646 SMR VINEYARD LLC)

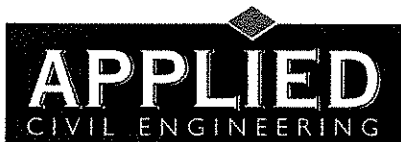
(E) VINEYARDS

APPROXIMATE PROPERTY LINE

APN 022-150-036
(MICHAEL C KEENAN)

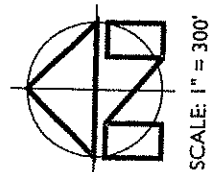
OVERALL SITE PLAN

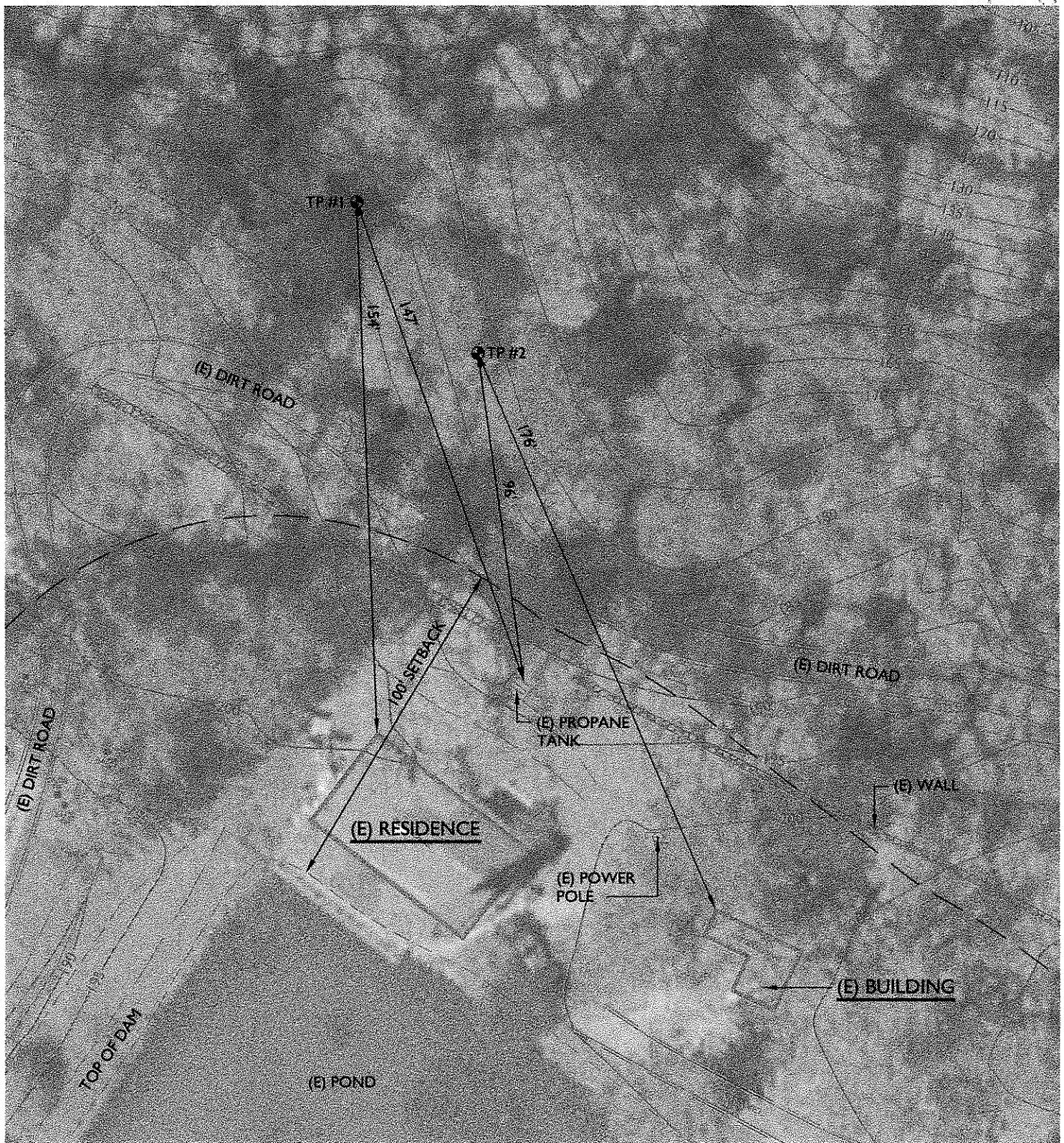
SCALE: 1" = 300'



2074 West Lincoln Avenue
Napa, CA 94558
(707) 320-4968 (707) 320-2395 Fax
www.appliedcivil.com

3646 SMR VINEYARD LLC
3646 SPRING MOUNTAIN ROAD
SAINT HELENA, CA 94574
APN 022-150-026



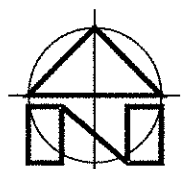


TEST PIT MAP - AREA I
SCALE: 1" = 40'

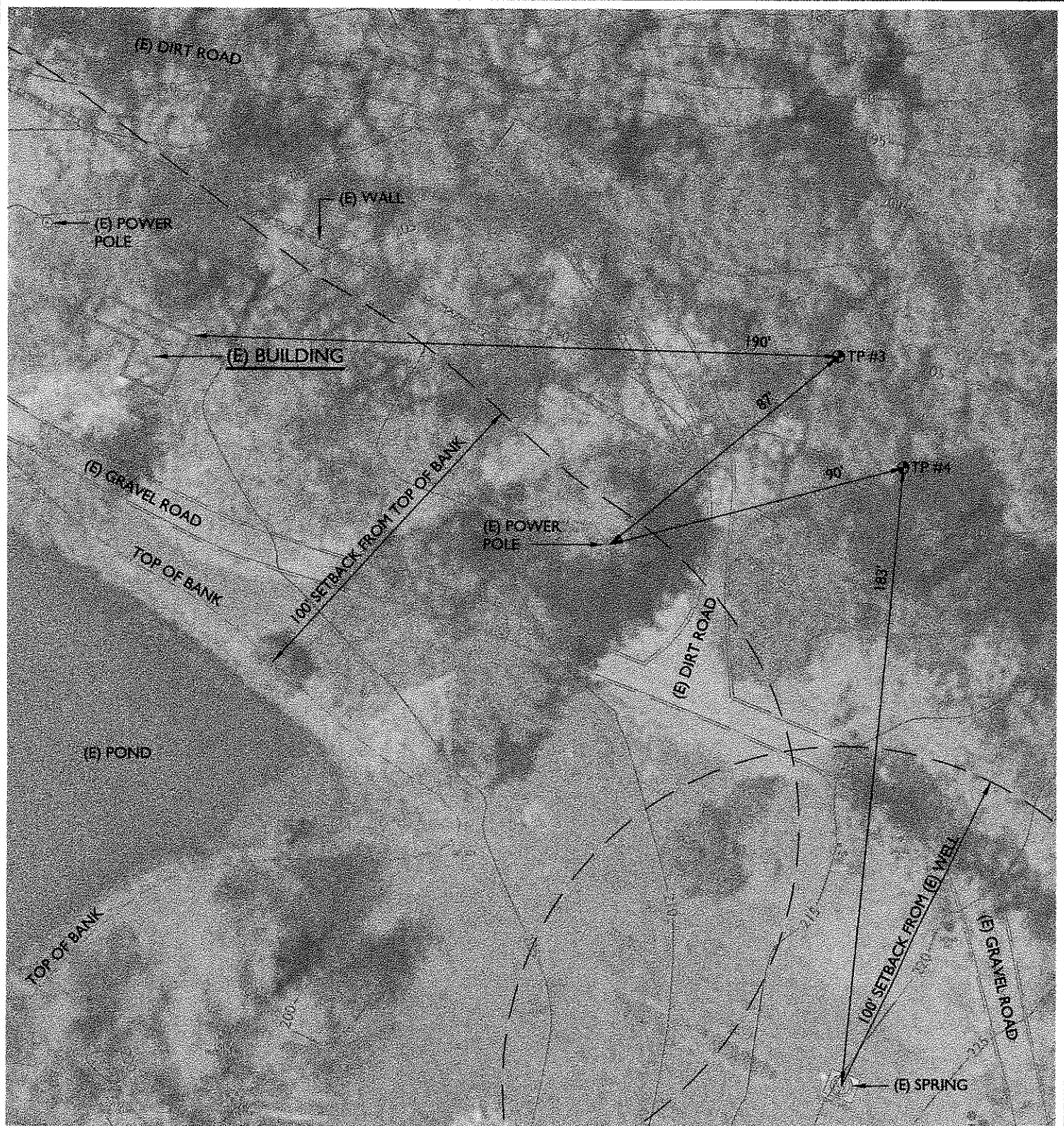


2074 West Lincoln Avenue
Napa, CA 94558
(707) 320-4968 (707) 320-2395 Fax
www.appliedcivil.com

3646 SMR VINEYARD LLC
3646 SPRING MOUNTAIN ROAD
SAINT HELENA, CA 94574
APN 022-150-026

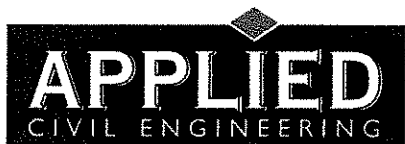


SCALE: 1" = 40'



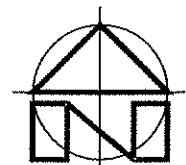
TEST PIT MAP - AREA 2

SCALE: 1" = 40'

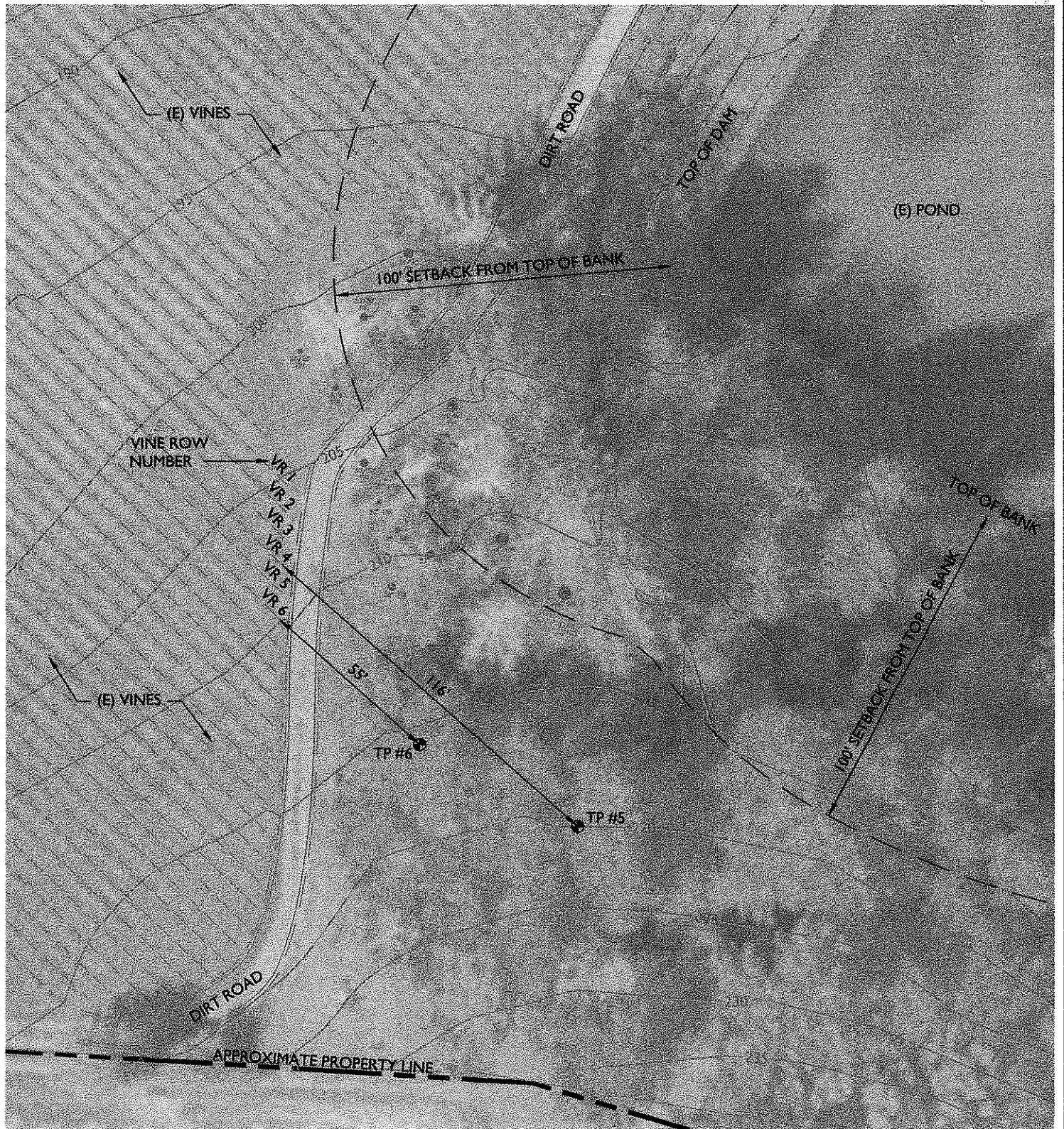


2074 West Lincoln Avenue
 Napa, CA 94558
 (707) 320-4968 (707) 320-2395 Fax
 www.appliedcivil.com

3646 SMR VINEYARD LLC
 3646 SPRING MOUNTAIN ROAD
 SAINT HELENA, CA 94574
 APN 022-150-026

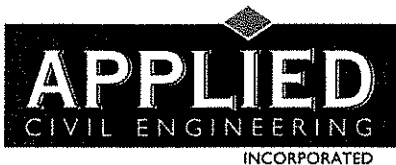


SCALE: 1" = 40'



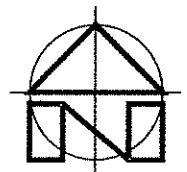
TEST PIT MAP - AREA 3

SCALE: 1" = 40'



2074 West Lincoln Avenue
 Napa, CA 94558
 (707) 320-4968 (707) 320-2395 Fax
 www.appliedcivil.com

3646 SMR VINEYARD LLC
 3646 SPRING MOUNTAIN ROAD
 SAINT HELENA, CA 94574
 APN 022-150-026



SCALE: 1" = 40'

From: [Mike Muelrath](#)
To: [Balcher, Wyntriss](#)
Cc: [Donna Oldford](#)
Subject: RE: 3646 SMR Vineyard Winery P14-00327
Date: Tuesday, February 02, 2016 8:59:53 AM

Wyntriss,

Hold and haul is requested as an interim solution to accommodate crush if the full wastewater system is not yet completed but the building is ready for operations.

If hold and haul were to continue for a duration of up to one year we estimate that the tanks would be pumped a total of 35 times assuming full wine production capacity.

Mike

Applied Civil Engineering
(707) 320-4968 (Telephone)
(707) 320-2395 (Facsimile)
(707) 227-7166 (Mobile)

From: Balcher, Wyntriss [mailto:Wyntriss.Balcher@countyofnapa.org]
Sent: Tuesday, February 02, 2016 8:57 AM
To: Mike Muelrath <mike@appliedcivil.com>
Cc: Donna Oldford <dboldford@aol.com>
Subject: 3646 SMR Vineyard Winery P14-00327

Mike,

I noted the project description has requested that the Hold and Haul Option discussed in your report be allowed as a possible interim option for the wastewater system. Please the reason for this to be necessary, how long this would occur, and please advise the number of haul events/year that this would be expected to occur.

Thank you

Wyntriss Balcher, Planner
Planning, Building, Environmental Services
1195 Third Street Suite 210
Napa, CA 94559
D. 707. 299.1351
F. 707. 299.4094

CONFIDENTIALITY NOTICE: This email message is intended only for the use of the individual or entity to which it is addressed, and may contain information that is privileged, confidential, and/or exempt from disclosure under applicable law. If you are not the intended recipient of the message, please contact the sender immediately and delete this message and any attachments. Thank you.