“G”

Wastewater Feasibility Study

Bergman Family Winery P17-00428
Planning Commission Hearing December 19, 2018

ONSITE WASTEWATER DISPOSAL FEASIBILITY STUDY

FOR THE

BERGMAN FAMILY VINEYARDS WINERY

LOCATED AT:
3285 St. Helena Highway
St. Helena, CA 94574
NAPA COUNTY APN 022-080-010

PREPARED FOR:
Bergman Family Vineyards LLC
Care Of: Alan and Pam Bergman
3285 St. Helena Highway
St. Helena, CA 94574
Telephone: (310) 701-4300

PREPARED BY:

APPLIED CIVIL ENGINEERING INCORPORATED

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

Job Number: 14-129

Michael R. Muelrath

Michael R. Muelrath R.C.E. 67435

12/11/2017
Date

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INTRODUCTION

Bergman Family Vineyards LLC is applying for a Use Permit to construct and operate a new winery located at 3285 St. Helena Highway in Napa County, California. The subject property, known as Napa County Assessor's Parcel Number 022-080-010, is located approximately 0.3 miles west of St. Helena Highway and is accessed via a shared private driveway that traverses from St. Helena Highway through the adjacent State Park property.

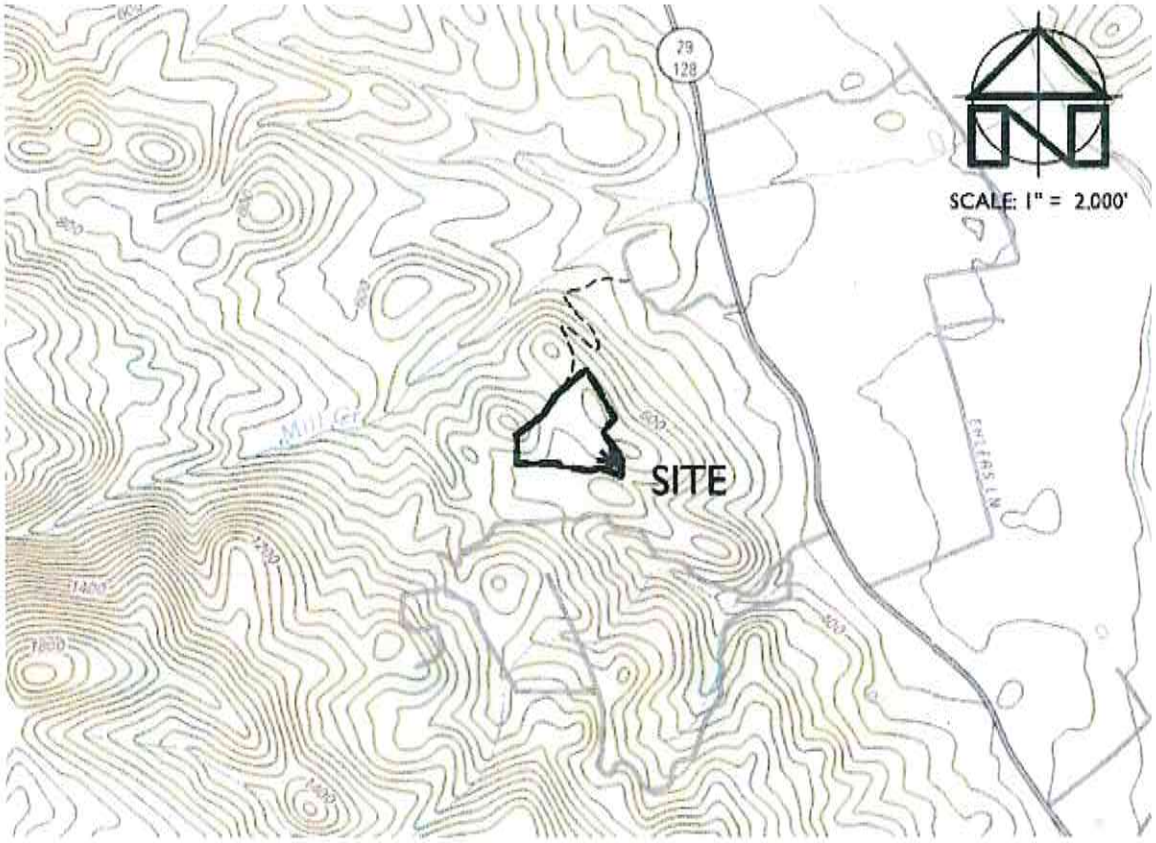


Figure 1: Location Map

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

- Wine Production:
  - 8,000 gallons of wine per year
  - Crushing, fermenting, aging and bottling

- Employees:
  - 2 full time employees
  - 2 part time employees

- Marketing Plan:
  - Daily Tours and Tastings by Appointment
    - None
  - Marketing Events
    - None

Existing development on the property includes a single-family residence, a second dwelling unit, vineyard and the access and utility infrastructure typical of this type of rural residential and agricultural development. Please see the Bergman Family Vineyards Winery Use Permit Conceptual Site Improvement Plans for approximate locations of existing and proposed features.

Bergman Family Vineyards LLC 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 the existing and / or new onsite wastewater disposal system(s). The remainder of this report describes the onsite soil conditions, the existing septic system that serves the residence and second dwelling unit, the predicted winery process and sanitary wastewater flows and outlines conceptual designs for options for onsite wastewater treatment and disposal.

SOILS INFORMATION

The United States Department of Agriculture Soil Conservation Service Soils Map for Napa County shows the following soils type mapped on the property:

Aiken loam, 2 to 15 percent slopes

Boomer gravelly loam, 30 to 50 percent slopes

Forward gravelly loam, 9 to 30 percent slopes

A site specific soils analysis was conducted during a site evaluation performed by Adobe Associates on June 5, 2014 (E14-00431). The site evaluation consisted of the excavation and observation of eight test pits throughout the property. The test pits generally revealed variable depths of acceptable soil with gravelly loam, loam and clay loam texture.

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

EXISTING SEPTIC SYSTEM INFORMATION

There is one existing septic system on the subject property and it serves the main residence and second dwelling unit. According to permit records the system was designed by Adobe Associates and was installed in 2014. The system consists of one 1,500 gallon septic tank located just west of the main residence, one 1,200 gallon septic tank located just west of the second dwelling unit and a standard gravity distribution leach field located just east of the entry gate, in the vicinity of Test Pits Q, R, S & T. The leach field was designed to have 455 lf of trench and a design capacity of 600 gpd. Earthtone Construction, the project general contractor, reported that the lines were extended slightly during construction to maximize use of the available area and that a total of 505 lf of leach line was installed. This would correspond to a design flow capacity of 665 gpd.

PREDICTED WASTEWATER FLOW

The winery onsite wastewater disposal system(s) must be designed for the peak winery process wastewater flow and the peak sanitary wastewater flow from the proposed winery.

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:

$$\text{Annual Winery Process Wastewater Flow} = \frac{8{,}000 \text{ gallons wine}}{\text{year}} \times \frac{6 \text{ gallons wastewater}}{1 \text{ gallon wine}}$$

Annual Winery Process Wastewater Flow = 48,000 gallons per year

$$\text{Average Daily Winery Process Wastewater Flow} = \frac{48{,}000 \text{ gallons}}{\text{year}} \times \frac{1 \text{ year}}{365 \text{ days}}$$

Average Daily Winery Process Wastewater Flow = 132 gallons per day (gpd)

$$\text{Peak Winery Process Wastewater Flow} = \frac{8{,}000 \text{ gallons wine}}{\text{year}} \times \frac{1.5 \text{ gallons wastewater}}{1 \text{ gallon wine}} \times \frac{1 \text{ year}}{30 \text{ crush days}}$$

Peak Winery Process Wastewater Flow = 400 gpd

Winery Sanitary Wastewater

The peak sanitary wastewater flow from the winery is calculated based on the number of winery employees. There are no plans to have tours and tastings or 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. Based on these assumptions, the peak winery sanitary wastewater flow is calculated as follows:

Employees

Peak Sanitary Wastewater Flow = 4 employees X 15 gpd per employee

Peak Sanitary Wastewater Flow = 60 gpd

Total Peak Winery Sanitary Wastewater Flow

As previously noted, the winery will not host tours and tasting or marketing events. Therefore, the total peak winery sanitary wastewater flow is 60 gpd.

RECOMMENDATIONS

Based on the anticipated wastewater flows we recommend that the process wastewater be pretreated and disposed of via surface irrigation and that the sanitary wastewater be disposed of via the existing residential septic system.

Sanitary Wastewater Treatment and Disposal

As previously described the existing residential septic system has a design capacity of 665 gpd which is in excess of the residential design flow of 600 gpd. The net excess design capacity is 65 gpd which is adequate to handle the additional 60 gpd of sanitary wastewater that will be generated by winery employees.

Sanitary Wastewater Reserve Area

The reserve area for the main residence and second dwelling unit septic system is located in a wooded area south of the main residence in the vicinity of Test Pits M, N, O & P. The reserve area must accommodate the total of six bedrooms for the main residence and second dwelling unit (720 gpd) and the sanitary wastewater flow from the winery (60 gpd). Since the slope is 20% or more the reserve area size is increased by 50% and is calculated as follows:

$$\text{Required Reserve Area} = 200\% \times \frac{\text{Peak Flow}}{\text{Soil Application Rate}} \times 150\%$$

$$\text{Require Reserve Field Area} = 200\% \times \frac{780 \text{ gpd}}{0.6 \text{ gpd per square foot}} \times 150\%$$

Required Reserve Area = 3,900 square feet

There is enough area to accommodate the required 3,900 square feet of reserve area in the vicinity of Test Pits M, N, O & P as shown on the Bergman Family Vineyards Winery Use Permit Conceptual Site Improvement Plans in Appendix 2.

It should also be noted that pretreatment must be provided to treat the sanitary wastewater to meet Napa County pretreated effluent standards (BOD<30 mg/l, TSS < 30 mg/l) prior delivery to the subsurface drip septic system in the event that the primary system fails and the reserve area is installed and used. 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 to utilize the reserve area (again, only in the event that the primary system was to fail). Septic tanks will be sized in accordance with the requirements of the selected pretreatment system.

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:

Parameter	Pre-treatment*	Post Treatment**
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 0.4 acres of land area located just south and west of the proposed winery building that can be used to dispose of the treated winery process wastewater via surface irrigation. This area is forested and is large enough to allow percolation of the treated process wastewater when it is applied between rain storms in the winter if needed to maintain adequate tank storage capacity. This area could be expanded dramatically if desired by the Applicant as long as the land dispersal area is outside of all 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 0.4 acre dispersal 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 dispersal area. The water balance calculation assumes a monthly wastewater generation rate and a monthly land application schedule based on our past experience with projects of this type. The water balance calculations

show that the water generated by winery production operations most months can be effectively managed after treatment by applying it to the identified area without the needs for extensive storage. However, we recommend a minimum storage tank capacity of 10,000 gallons to provide operational flexibility in timing of land applications (see Appendix 3).

CONCLUSION

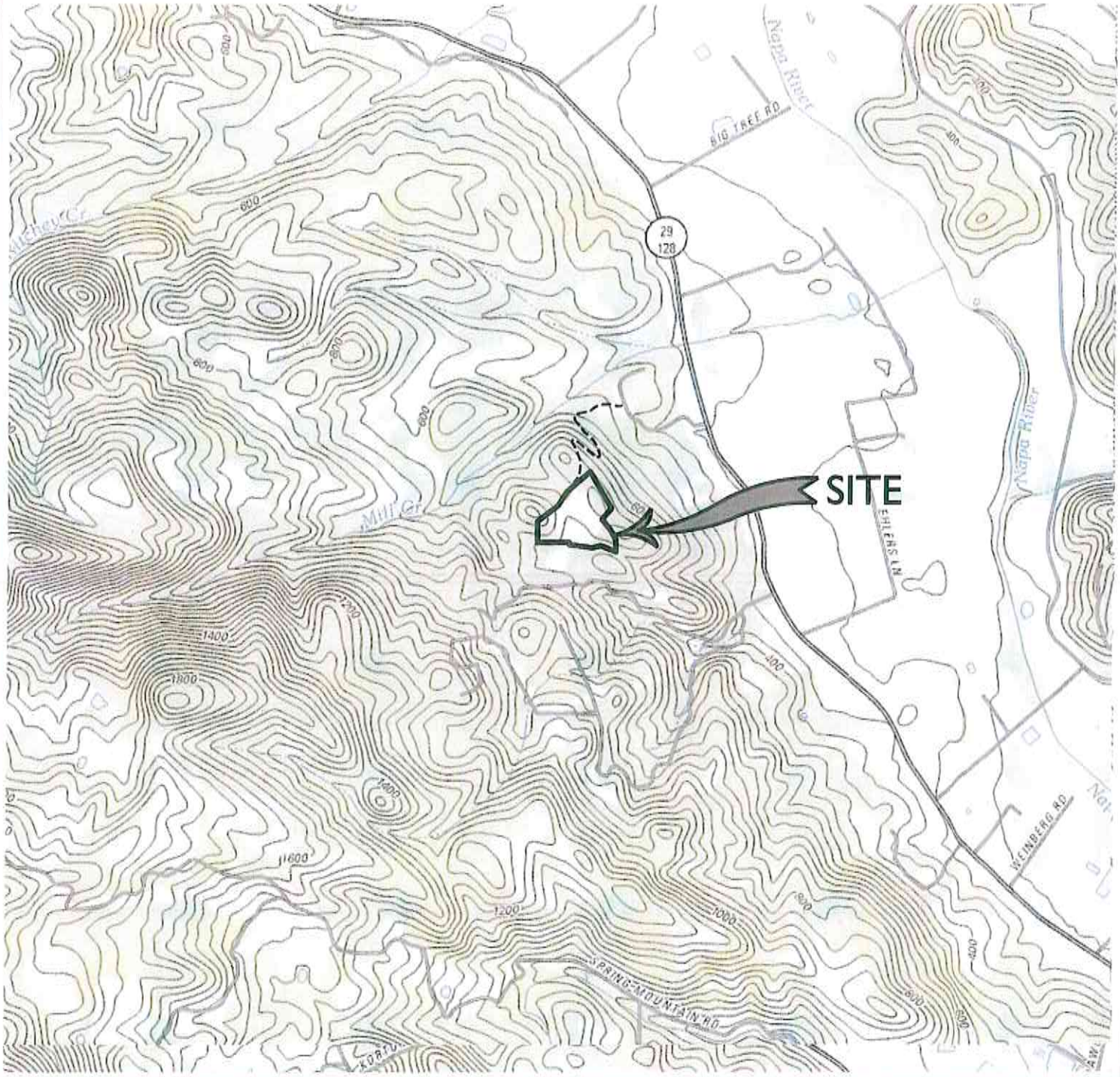
It is our opinion that the sanitary wastewater from the proposed winery can be accommodated in the existing residential septic system and that the winery process wastewater can be pretreated and disposed of via surface application as described above. Full design calculations and construction plans for both of the wastewater systems must be prepared in accordance with Napa County standards at the time of building permit application.

APPENDIX 1: 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'



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

BERGMAN FAMILY VINEYARDS

3285 SAINT HELENA HIGHWAY NORTH
SAINT HELENA, CA 94574
APN 022-080-010

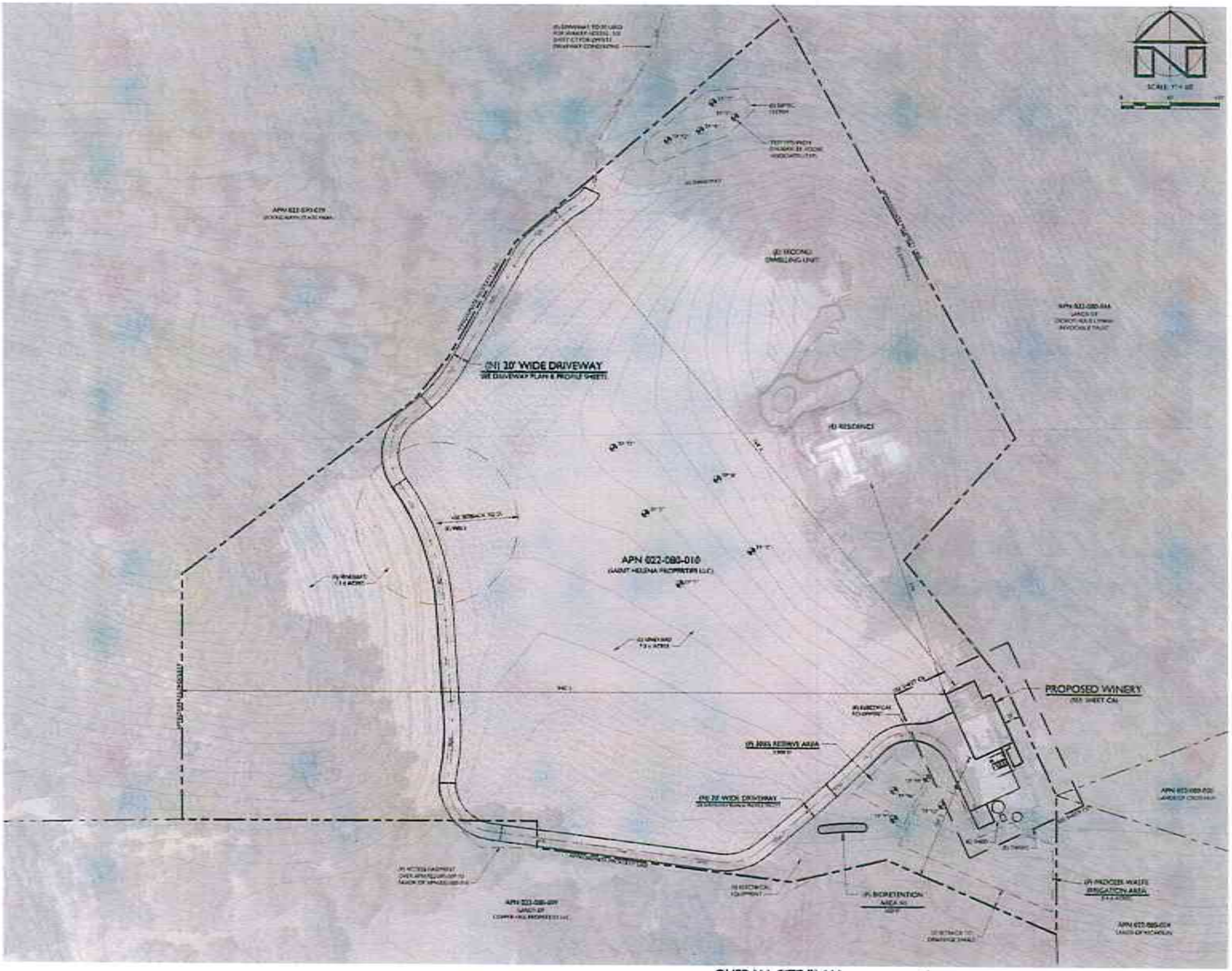
JOB NO. 14-129 PAGE 1 OF 1 DECEMBER 2017

APPENDIX 2: Bergman Family Vineyards

Winery Use Permit Conceptual Site Improvement Plans Reduced to 8.5" x 11"

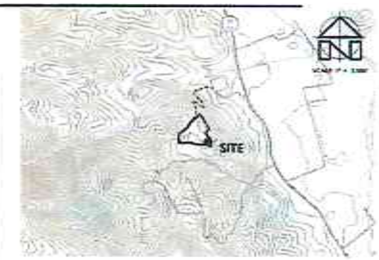
BERGMAN FAMILY VINEYARDS

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS



OVERALL SITE PLAN

SCALE: 1" = 40'



LOCATION MAP

SCALE: 1" = 2,000'

PROJECT INFORMATION:

PROPERTY OWNER:
SAINT HELENA PROPERTIES LLC
3285 SAINT HELENA HIGHWAY
SAINT HELENA, CA 94574

APPLICANT:
BERGMAN FAMILY VINEYARDS LLC
3285 SAINT HELENA HIGHWAY
SAINT HELENA, CA 94574

SITE ADDRESS:
3285 SAINT HELENA HIGHWAY
SAINT HELENA, CA 94574

ASSESSOR'S PARCEL NUMBER:
022-080-010

PARCEL SIZE:
16.24± ACRES

PROJECT SIZE:
1.5± ACRES

ZONING:
AGRICULTURAL WATERSHED (AW)

DOMESTIC WATER SOURCE:
PRIVATE WELLS & WATER TANKS

FIRE PROTECTION WATER SOURCE:
STORAGE TANK

WASTEWATER DISPOSAL:
ONSITE TREATMENT AND DISPERSAL

CALL BEFORE YOU DIG

SHEET INDEX:

C1	OVERALL SITE PLAN
C2	DRIVEWAY PLAN & PROFILE STA 35+50 TO STA 41+50
C3	DRIVEWAY PLAN & PROFILE STA 41+50 TO STA 46+50
C4	DRIVEWAY PLAN & PROFILE STA 46+50 TO STA 52+50±
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C8	OFFSITE DRIVEWAY PROFILE STA 10+00 TO STA 36+00
C9	IMPERVIOUS SURFACE EXHIBIT
C10	STORMWATER CONTROL PLAN EXHIBIT

FLOOD HAZARD NOTE:

ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP NUMBER 06055C0245E, EFFECTIVE SEPTEMBER 26, 2008, THE PROJECT SITE IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA.

ABBREVIATIONS:

AB	AGGREGATE BASE	LF	LINEAR FEET
AC	ASPHALT CONCRETE	LP	LOW POINT
AD	AREA DRAIN	OC	ON CENTER
AP	ANGLE POINT	OD	OUTSIDE DIAMETER
BTM	BOTTOM	OG	ORIGINAL GRADE
CONF	CONFORM	(P)	PROPOSED
CP	CONTROL POINT	PC	POINT OF CURVATURE
DCV	DOUBLE CHECK VALVE	PCC	PORTLAND CEMENT CONCRETE
DI	DROP INLET	PL	PROPERTY LINE
DS	DOWN SPOUT	PT	POINT OF TANGENCY
(E)	EXISTING	PVC	POLYVINYL CHLORIDE
EC	END CURVE	PW	PROCESS WASTE
ELEV	ELEVATION	PWCO	PROCESS WASTE CLEANOUT
EP	EDGE OF PAVEMENT	RSV	RECIRCULATING SPLITTER VALVE
EOC	EDGE OF CONCRETE	SD	STORM DRAIN
(F)	FUTURE	SDCO	STORM DRAIN CLEANOUT
FDC	FIRE DEPARTMENT CONNECTION	SDMH	STORM DRAIN MANHOLE
FF	FINISH FLOOR	SF	SQUARE FEET
FG	FINISH GRADE	SHLDR.	SHOULDER
FH	FIRE HYDRANT	SS	SANITARY SEWER
FL	FLOW LINE	SSCO	SANITARY SEWER CLEANOUT
FS	FINISH SURFACE	SSMH	SANITARY SEWER MANHOLE
FSR	FIRE SPRINKLER RISER	TC	TOP FACE OF CURB
GB	GRADE BREAK	TW	TOP OF WALL
GM	GAS METER	TYP	TYPICAL
HP	HIGH POINT	WM	WATER METER
INV	INVERT	WV	WATER VALVE
IPS	IRON PIPE SIZE	XFMR	TRANSFORMER
IRR	IRRIGATION		

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

BERGMAN FAMILY VINEYARDS

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS

OVERALL SITE PLAN

PREPARED UNDER THE DIRECTION OF:

DRAWN BY: SM

CHECKED BY: MAM

DATE: DECEMBER 11, 2017

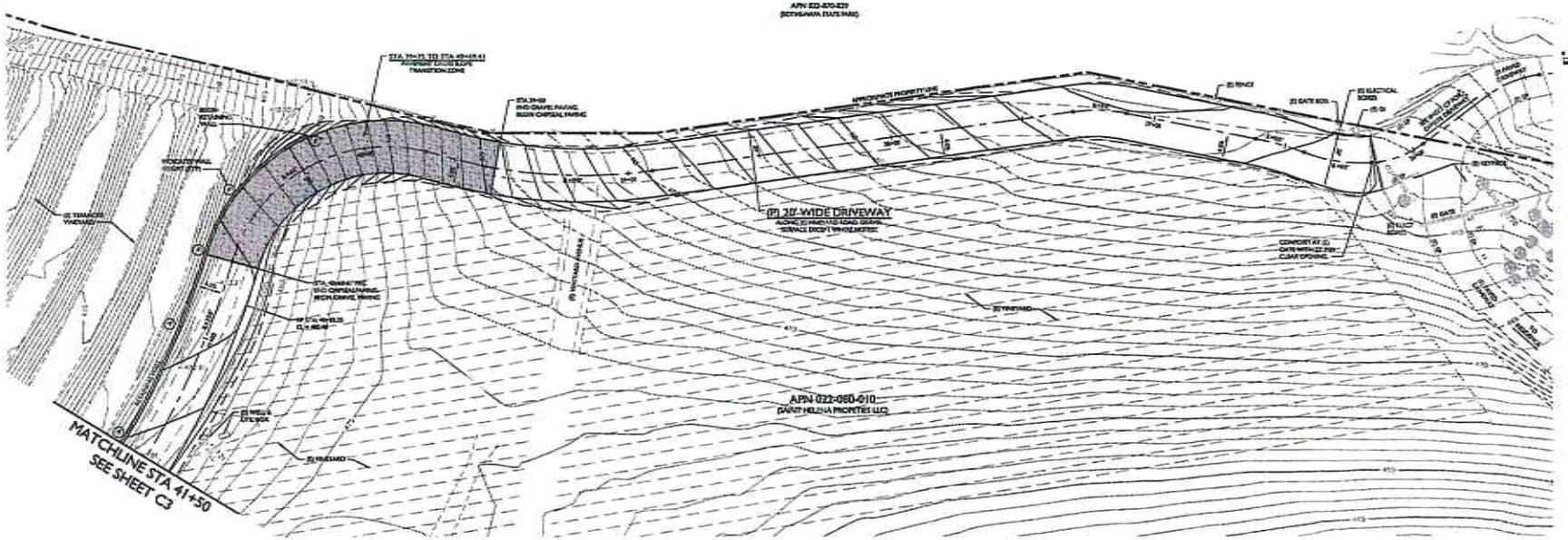
REVISIONS: BY:

JOB NUMBER: 14-129

FILE: 14-129MP_CSP.DWG

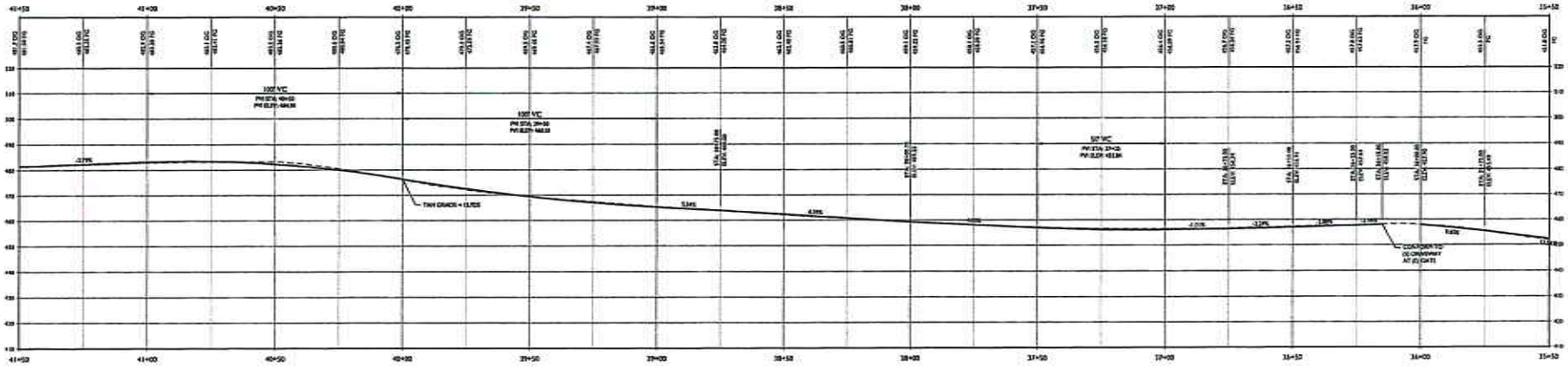
ORIGINAL SIZE: 24" X 36"

SHEET NUMBER: C1 OF 10



DRIVEWAY PLAN VIEW STA 35+50 TO STA 41+50

SCALE: 1" = 20'



DRIVEWAY PROFILE STA 35+50 TO STA 41+50

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 20'

APPLIED CIVIL ENGINEERING
1234 Vine Lincoln Avenue
St. Helena, CA 94574
(707) 333-5448 (707) 333-5379 Fax
www.appliedcivil.com

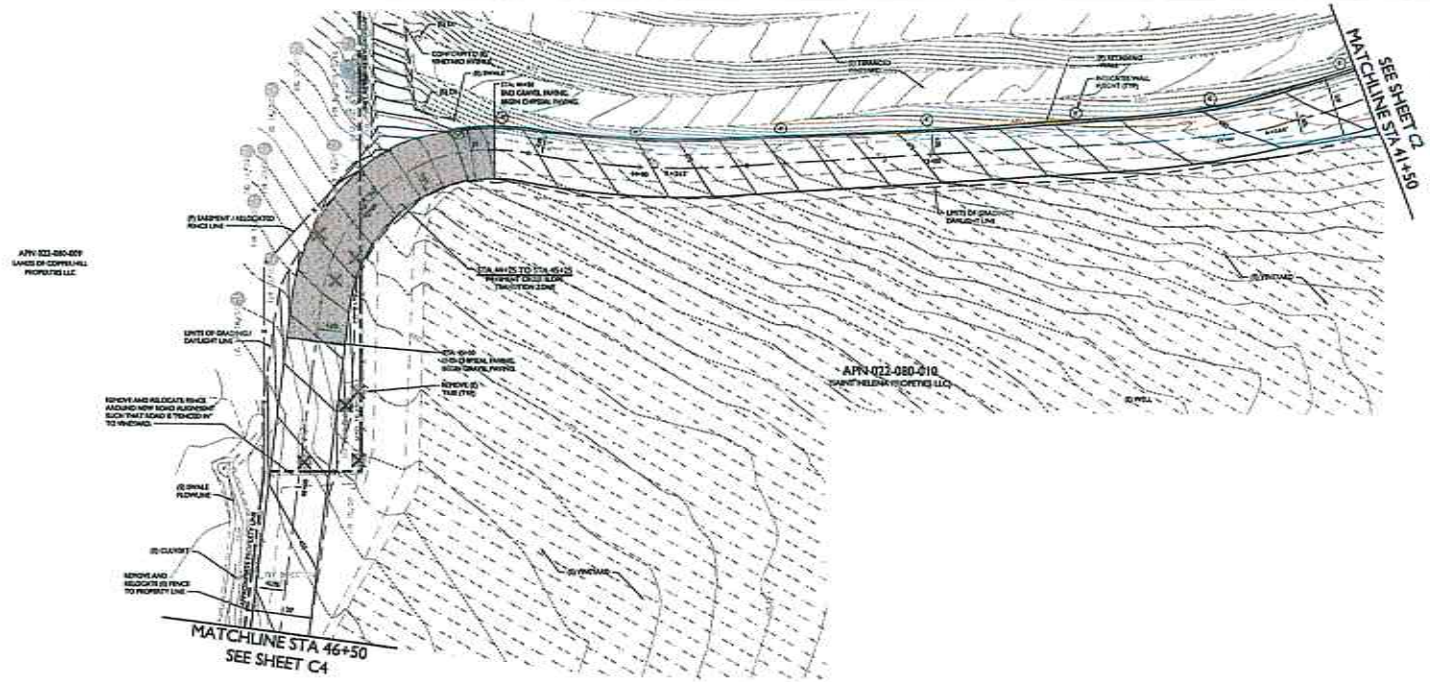
BERGMAN FAMILY VINEYARDS

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS
DRIVEWAY PLAN & PROFILE STA 35+50 TO STA 41+50

PREPARED UNDER THE DIRECTION OF:

DRAWN BY: SPS
CHECKED BY: MRM
DATE: DECEMBER 11, 2017
REVISIONS: BY:

JOB NUMBER: 16-129
FILE: 16-129WP_PMP.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER: C2
OF 10



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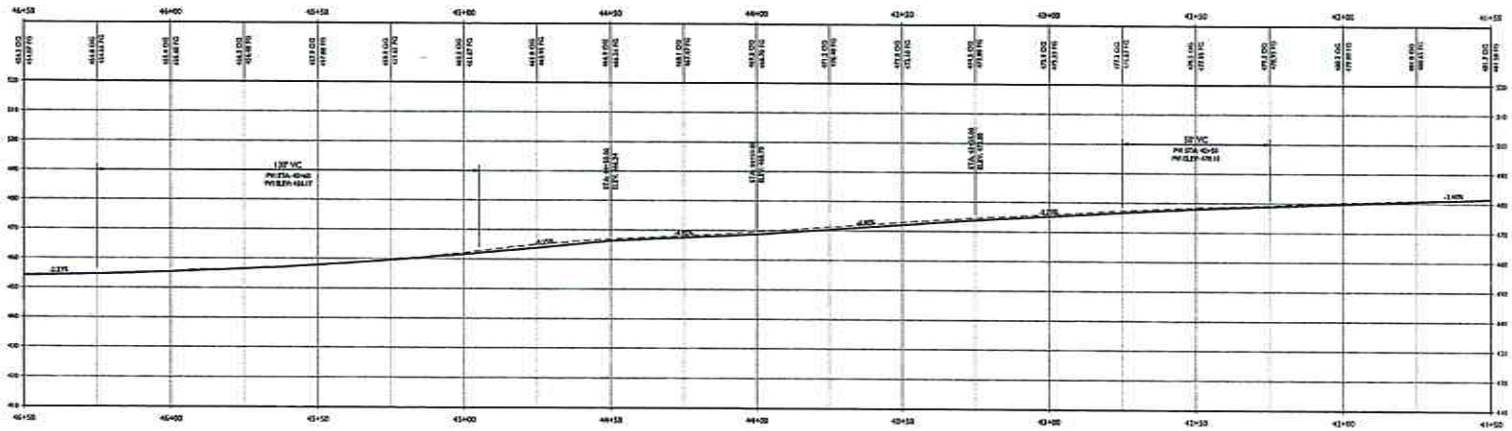

DRIVEWAY PROFILE STA 41+50 TO STA 46+50

SCALE: 1" = 20'

APPLIED
1234 West Lincoln Avenue
Yountville, CA 94599
(707) 320-4918 (FAX) 320-320-144
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WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS

DRIVEWAY PLAN & PROFILE STA 41+50 TO STA 46+25

PREPARED UNDER THE DIRECTION OF:

DRAWN BY: SMS

CHECKED BY: PRM

DATE: DECEMBER 11, 2017

REVISIONS: BY:

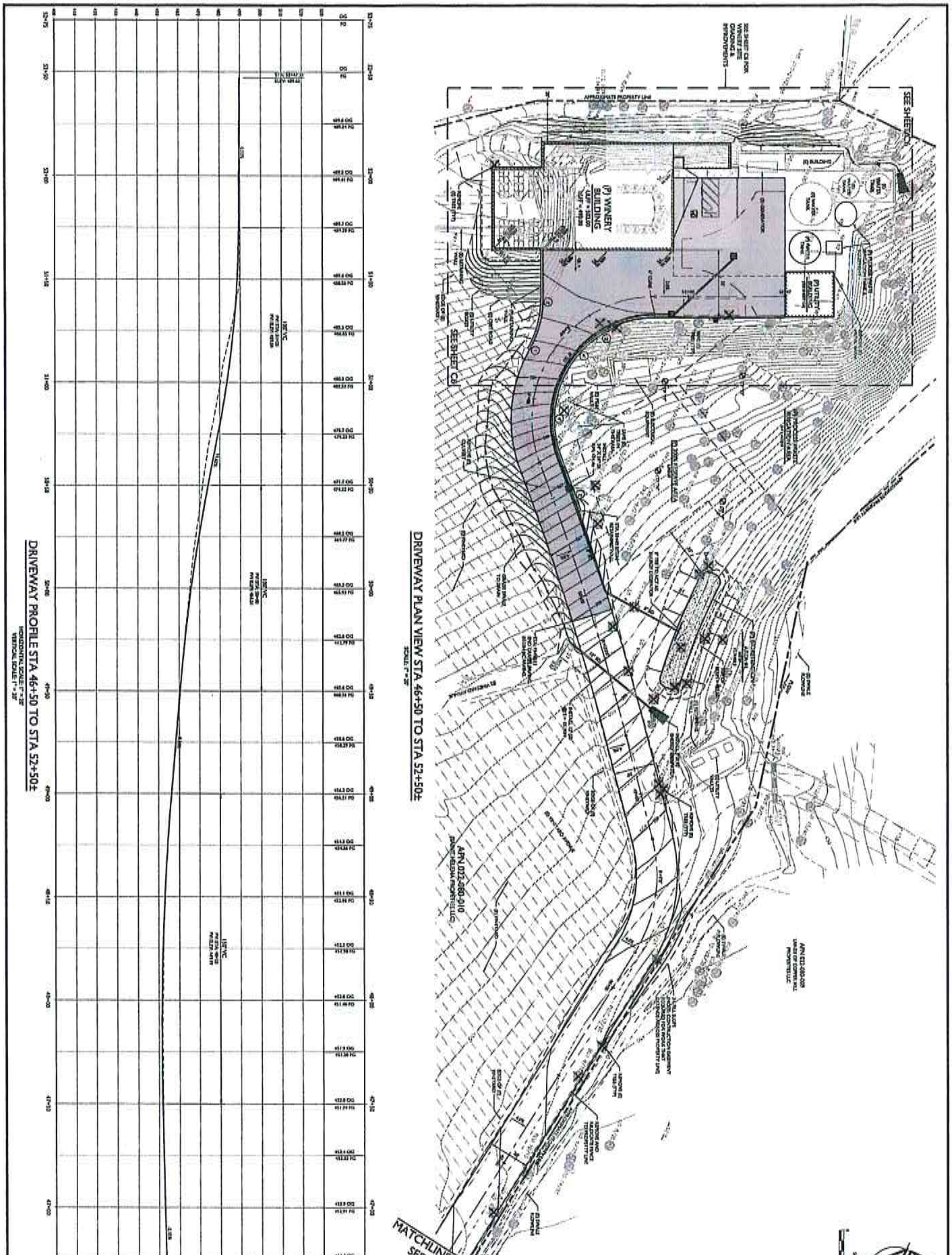
JOB NUMBER: 14-129

FILE: 14-129PP_PEP.DWG

ORIGINAL SIZE: 24" X 36"

SHEET NUMBER: C3

OF 10



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WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS

DRIVEWAY PLAN & PROFILE STA 46+25 TO STA 52+50 ±

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Napa, CA 94558
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www.appliedcivil.com

DATE: DECEMBER 11, 2017

JOB NUMBER: 14-239

SHEET NUMBER: C4 OF 10

DRIVEWAY CROSS SECTIONS STA 36+00 TO STA 51+75

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

BERGMAN FAMILY VINEYARDS

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS
DRIVEWAY CROSS SECTIONS STA 36+00 TO STA 51+75

PREPARED UNDER THE DIRECTION OF:

DRAWN BY: SMS
CHECKED BY: MSM
DATE: DECEMBER 11, 2017
REVISIONS / BY

JOB NUMBER: 14-129
FILE: 14-129PP_PRF.DWG
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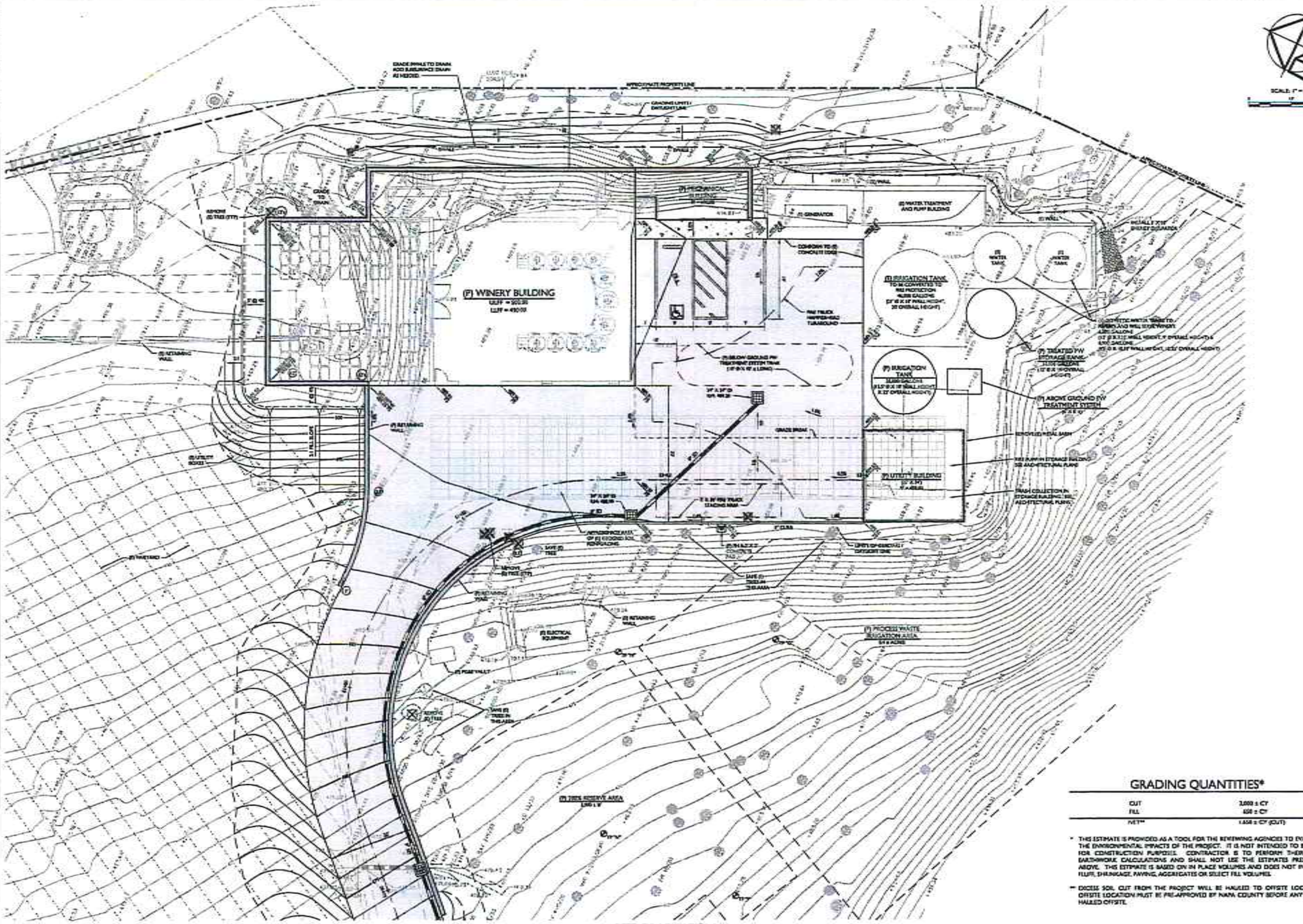

GRADING QUANTITIES*

CUT	2,000 ± CY
FILL	650 ± CY
NET**	1,650 ± CY (CUT)

* THIS ESTIMATE IS PROVIDED AS A TOOL FOR THE REVIEWING AGENCIES TO EVALUATE THE ENVIRONMENTAL IMPACTS OF THE PROJECT. IT IS NOT INTENDED TO BE USED FOR CONSTRUCTION PURPOSES. CONTRACTOR IS TO PERFORM THEIR OWN EARTHWORK CALCULATIONS AND SHALL NOT USE THE ESTIMATES PRESENTED ABOVE. THIS ESTIMATE IS BASED ON IN PLACE VOLUMES AND DOES NOT INCLUDE FLUFF, SHRINKAGE, PAVING, AGGREGATES OR SELECT FILL VOLUMES.

** EXCESS SOIL CUT FROM THE PROJECT WILL BE HAULED TO OFFSITE LOCATION. OFFSITE LOCATION MUST BE PRE-APPROVED BY NAPA COUNTY BEFORE ANY SOIL IS HAULED OFFSITE.

SITE GRADING PLAN

SCALE: 1" = 10'

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

BERGMAN FAMILY VINEYARDS

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS

SITE GRADING PLAN

PREPARED UNDER THE DIRECTION OF:

DRAWN BY:	SMI
CHECKED BY:	MRM
DATE:	DECEMBER 11, 2017
REVISIONS:	BY:
JOB NUMBER:	14-129
FILE:	14-129MP_GRA.DWG
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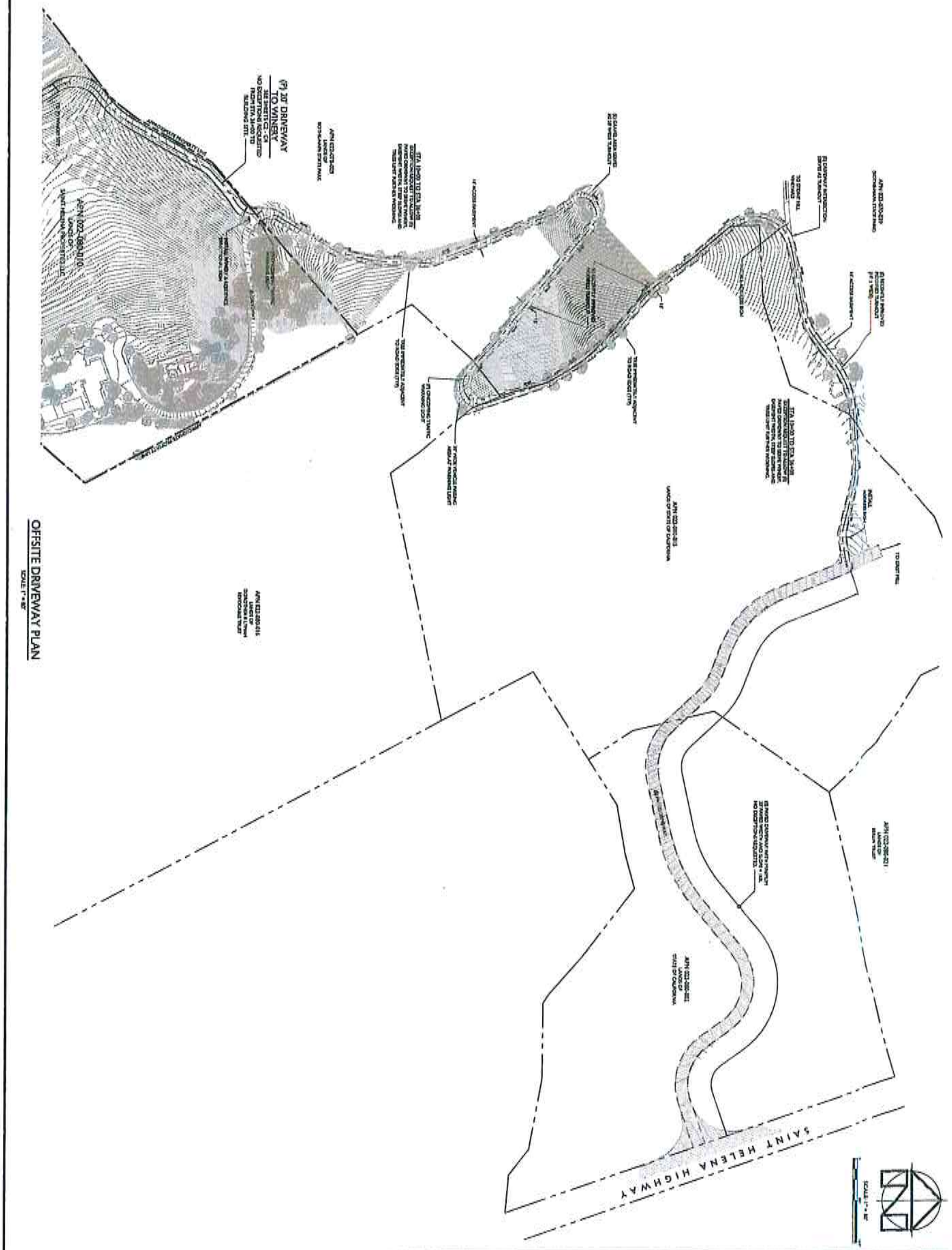

BERGMAN FAMILY VINEYARDS

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS

OFFSITE DRIVEWAY PLAN

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

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DRAWN BY:

CHECKED BY:

DATE: DECEMBER 11, 2017

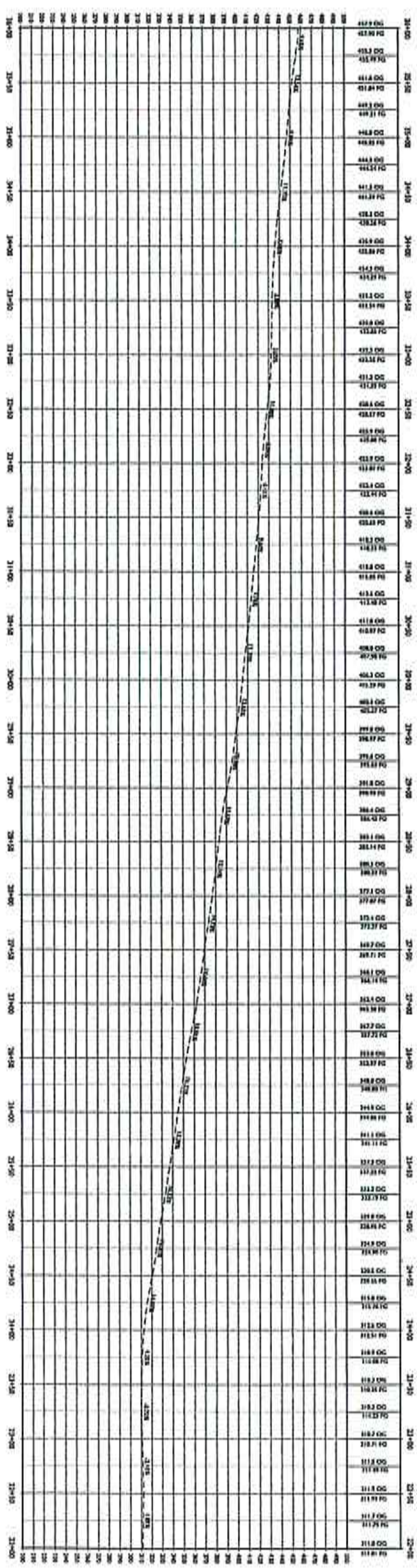
REVISIONS:

JOB NUMBER: 14-129

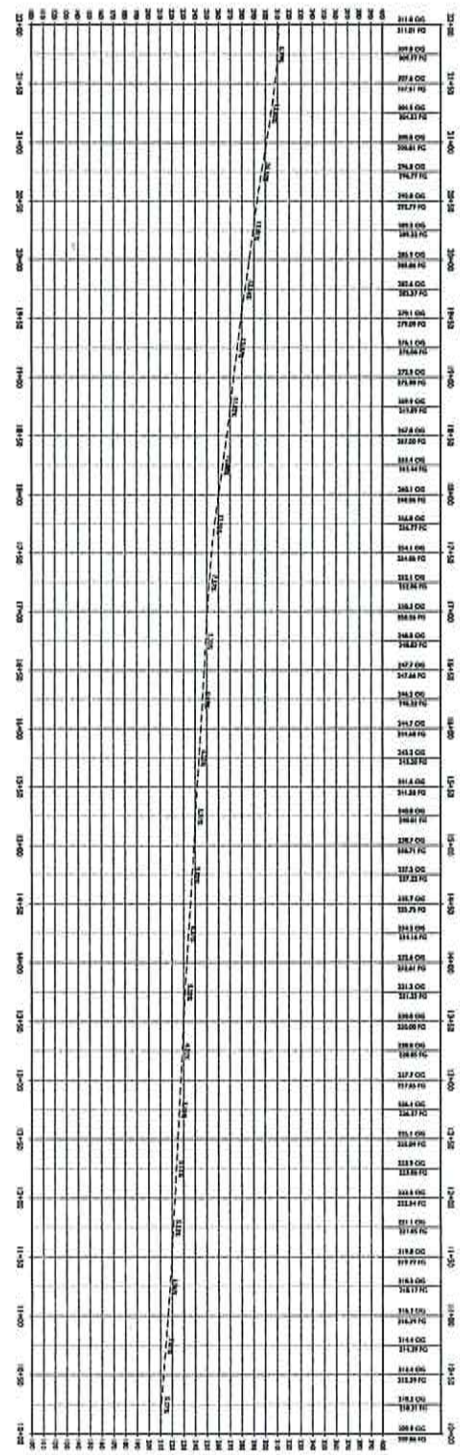
FILE: 14-129FP_0512.DWG

ORIGINAL SIZE: 24" X 36"

SHEET NUMBER: C7 OF 10



OFFSITE DRIVEWAY PROFILE
STA 22+00 TO STA 36+00



OFFSITE DRIVEWAY PROFILE
STA 10+00 TO STA 22+00

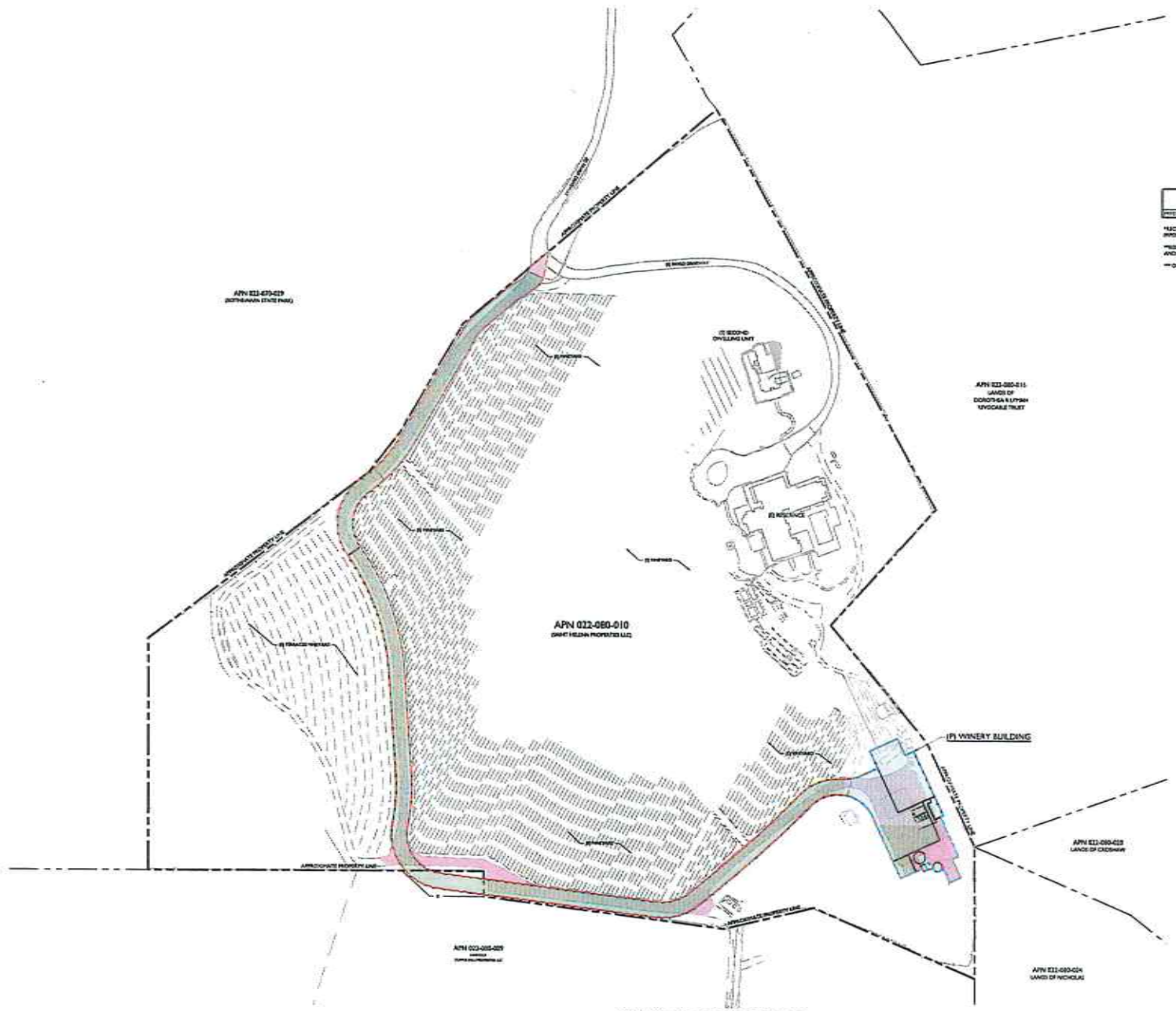
BERGMAN FAMILY VINEYARDS

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS
OFFSITE DRIVEWAY PROFILE STA 10+00 TO STA 36+00

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

PREPARED UNDER THE DIRECTION OF:

DRAWN BY: SPB
CHECKED BY: MKM
DATE: DECEMBER 11, 2017
REVISIONS:
JOB NUMBER: 14-129
FILE: 14-129-DRIVEWAY.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER: C8 OF 10



IMPERVIOUS SURFACE EXHIBIT

SCALE: 1" = 60'

APPLIED

APPLIED CIVIL ENGINEERING INCORPORATED

2015 West Lincoln Avenue
Visalia, CA 93291
(559) 739-3395 fax
www.appliedcivil.com

BERGMAN FAMILY VINEYARDS

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS

IMPERVIOUS SURFACE EXHIBIT

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DRAWN BY: SPC

CHECKED BY: MRM

DATE: DECEMBER 11, 2017

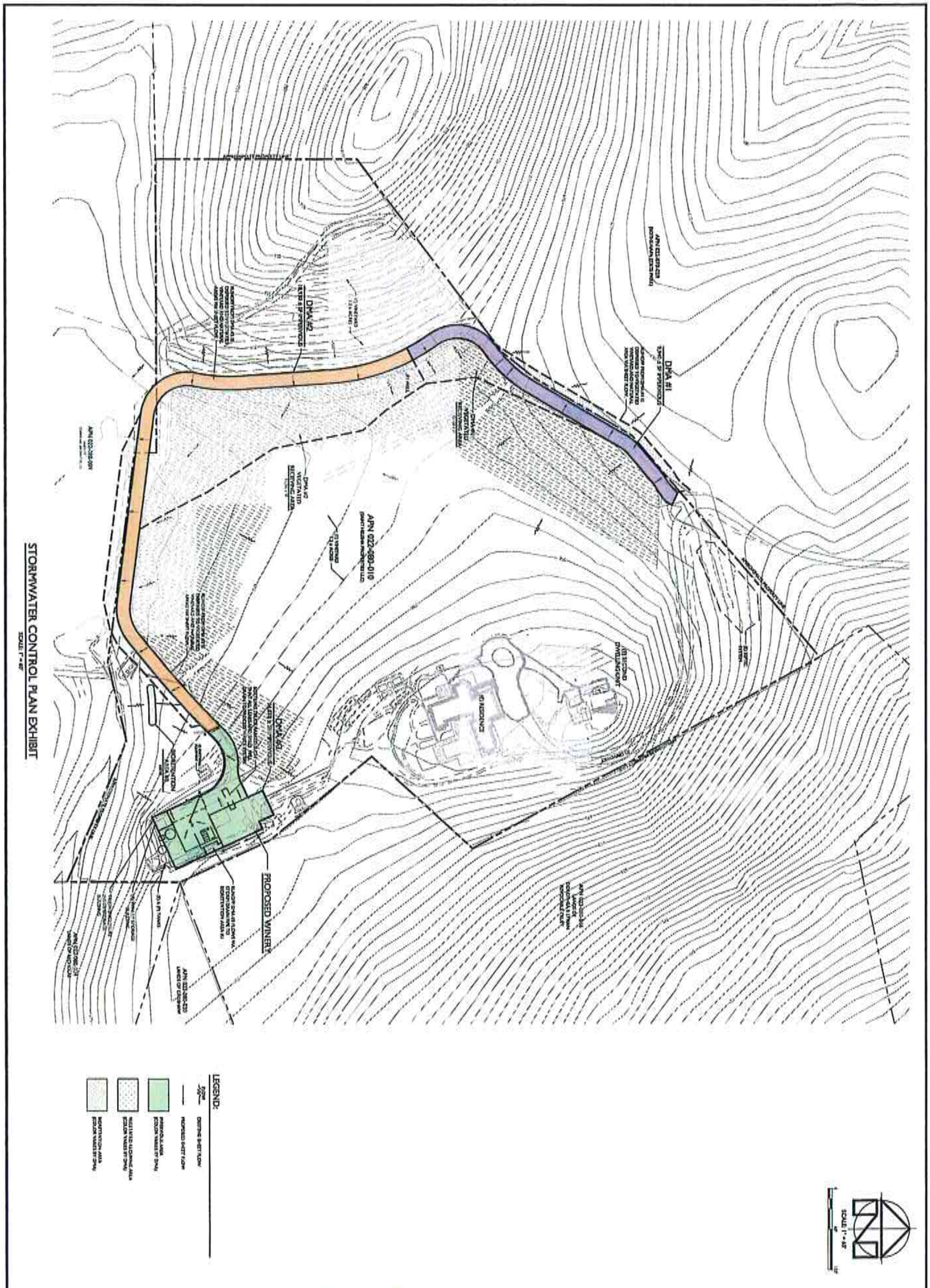
REVISIONS: BY:

JOB NUMBER: 14-129

FILE: 14-129CONCSLDWG

ORIGINAL SIZE: 24" X 36"

SHEET NUMBER: C9 OF 10



BERGMAN FAMILY VINEYARDS

WINERY USE PERMIT CONCEPTUAL SITE IMPROVEMENT PLANS
STORMWATER CONTROL PLAN EXHIBIT

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

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CHECKED BY: MRM
DATE: DECEMBER 11, 2017
REVISIONS BY:

JOB NUMBER: 14-129
FILE:
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER: C10 of 10

APPENDIX 3: Water Storage Tank Water Balance Calculations

Irrigation Storage Tank Water Balance

Month	Beginning Balance	Process Wastewater	Land Application Capacity	Ending Balance
January	0	2,400	8,689	0
February	0	2,400	8,689	0
March	0	2,400	8,689	0
April	0	1,920	8,689	0
May	0	1,920	8,689	0
June	0	2,400	8,689	0
July	0	4,800	8,689	0
August	0	6,240	8,689	0
September	0	8,160	8,689	0
October	0	8,160	8,689	0
November	0	4,800	8,689	0
December	0	2,400	8,689	0
		48,000	104,265	

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 empy in August, just prior to crush.
4. Where irrigation demand exceeds availble treated wastewater availability additional irrigation water will be provided by another source.

Winery Process Wastewater Generation Analysis

Annual Wine Production	8,000 gallons
Wastewater Generation Rate	6 gallons per gallon of wine
Annual Wasewater Generation	48,000 gallons
Crush Season Length	30 days
Wastewater Generated During Crush	1.5 gallons per gallon of wine
Peak Wastewater Generation Rate	400 gallons per day

Winery Process Wastewater Generation Table			
Month	Percentage of Annual Total	Monthy Flow (gallons)	Average Flow (gpd)
January	5.0%	2,400	77
February	5.0%	2,400	86
March	5.0%	2,400	77
April	4.0%	1,920	64
May	4.0%	1,920	62
June	5.0%	2,400	80
July	10.0%	4,800	155
August	13.0%	6,240	201
September	17.0%	8,160	272
October	17.0%	8,160	263
November	10.0%	4,800	160
December	5.0%	2,400	77
Total	100.0%	48,000	

Notes:

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

Land Application Schedule Analsysis

Total acres of land application area 0.4 acres

Application Rate 0.8 inches / month January through December

Land Application Schedule					
Month				Non-Seasonal Irrigation Application (gallons)	Total (gallons)
January				8,689	8,689
February				8,689	8,689
March				8,689	8,689
April				8,689	8,689
May				8,689	8,689
June				8,689	8,689
July				8,689	8,689
August				8,689	8,689
September				8,689	8,689
October				8,689	8,689
November				8,689	8,689
December				8,689	8,689
Total				104,265	104,265

Notes:

1. No crop in dispersal area therefore analysis conservatively based on infiltration only.

2. Non-Irrigation Application is for managing tank levels based on a conservative maximum of 5 pumping days per month based on historic weather data (Summit Engineering NBRID Capacity Study, 1996) and a saturated soil infiltration rate of 0.1 gallons per square foot per day uniformly over the entire area.

APPENDIX 4: Site Evaluation Report and Test Pit Map

SD E14-00431 SER

Napa County Department of Environmental Management

SITE EVALUATION REPORT

Please attach an 8.5" x 11" plot map showing the locations of all test pits triangulated from permanent landmarks or known property corners. The map must be drawn to scale and include a North arrow, surrounding geographic and topographic features, direction and % slope, distance to drainages, water bodies, potential areas for flooding, unstable landforms, existing or proposed roads, structures, utilities, domestic water supplies, wells, ponds, existing wastewater treatment systems and facilities.

Permit #:	E14 - 00431
APN:	022 - 090 - 010
(County Use Only) Reviewed by:	Date: 7/28/14

PLEASE PRINT OR TYPE ALL INFORMATION

Property Owner: Saint Helena Properties LLC	☒ New Construction (replacement) ☐ Addition ☐ Remodel ☐ Relocation ☐ Other:
Property Owner Mailing Address: 3285 St. Helena Hwy	☒ Residential - # of Bedrooms: 6 Design Flow: 550 gpd
City: St. Helena State: CA Zip:	☐ Commercial – Type: Sanitary Waste: gpd Process Waste: gpd
Site Address/Location: 3285 St. Helena Hwy	☐ Other: Sanitary Waste: gpd Process Waste: gpd

Evaluation Conducted By:

Company Name: Adobe Associates	Evaluator's Name: Steve Brown	Signature (Civil Engineer, R.E.H.S., Geologist, Soil Scientist)
Mailing Address: 1220 North Dutton Ave		Telephone Number: (707) 541-2300
City: Santa Rosa State: CA Zip: 95401		Date Evaluation Conducted: 6/5/14

Primary Area	Expansion Area
Acceptable Soil Depth: 72+ in. Test pit #'s: Q, R, S, T	Acceptable Soil Depth: 36 - 54 in. Test pit #'s: M, N, O, P
Soil Application Rate (gal. /sq. ft. /day): 0.33	Soil Application Rate (gal. /sq. ft. /day): 0.60
System Type(s) Recommended: Standard Trench (36" w/ 24" rock)	System Type(s) Recommended: Drip
Slope: 20 - 25 %. Distance to nearest water source: ft.	Slope: 20 - 25 %. Distance to nearest water source: 200+ ft.
Hydrometer test performed? No ☒ Yes ☐ (attach results)	Hydrometer test performed? No ☒ Yes ☐ (attach results)
Bulk Density test performed? No ☒ Yes ☐ (attach results)	Bulk Density test performed? No ☒ Yes ☐ (attach results)
Groundwater Monitoring Performed? No ☒ Yes ☐ (attach results)	Groundwater Monitoring Performed? No ☒ Yes ☐ (attach results)

Site constraints/Recommendations:

Standard system recommended in the area of Profiles Q-T
If additional expansion area is necessary, replacement system can be located near Profiles M-P as drip dispersal system

RECEIVED
JUL 23 2014
Napa County Planning, Building & Environmental Services

Planning, Building & Environmental Services

1195 Third Street, Suite 210
Napa CA 94559
www.countyofnapa.org
(707) 253-4417

David Morrison
Director

A Tradition of Stewardship
A Commitment to Service

RECEIPT

THIS IS NOT A PERMIT

Receipt Number:	102437	**Parcel No:**	022-080-010-000
Permit Number:	E14-00431	**Date:**	6/2/2014
Application Type:	Environmental / EM Permits / Sewage System / Site Evaluation		
Site Address:	3285 ST HELENA HWY, St Helena		
Applicant:	Greg Schram	**Phone:**	(707) 541-2300
Owner:	SAINT HELENA PROPERTIES LLC	**Phone:**	() -

Deposit/Payment List:

Receipt No.	Payor	Method	Date	Reference No.	Comments	Cashier	Payment Amount
102437	Adobe Associates, Inc.	Check	6/2/2014	27752	1220 North Dutton Ave., Santa Rosa CA 95401, (707)541-2300	ASCHMIDT	$311.20

Fees:

Fee	Invoice Number	Account	Fee Amount	Payment	Balance Due
General Plan Surcharge*	109319	1000-1700004-42301	$5.20	$5.20	$0.00
Sewage System Site Evaluation ($306.00)*	109319	1000-1702000-42302	$306.00	$306.00	$0.00
		Total:	**$311.20**	**$311.20**	**$0.00**

* Fees that represent the General Plan Surcharge of 1.7% are denoted with an asterisk (*).

3285 St. Helena Highway

May 30, 2014

Test Pit # M 20%

PLEASE PRINT OR TYPE ALL INFORMATION

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-20	GS	15	CL	SBK1	VFr	L	L	ML	ML	None
20-42	GS	15	CL	SBK1/2	Fr	Fr	VFr	MM	MM	None
42-54	GS	15	CL	SBK2	Fr	Fr	Fr	CM	CF	None
54-72		15	C	SBK2/3	F	F	Fr	FF	FF	C2F

Test Pit # N 16%

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-30	GS	40	Cob. GL	SBK1	Fr	Fr	VFr	CL	CL	None
30-54	GS	40	Cob. GL	SBK1/2	Fr	Fr	VFr	CF	CF	None
54-?	Cobbles, 16"+									

Test Pit # O 30%up, 20%down

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-42	GS	10	CL	SBK1	Fr	VFr	VFr	ML	CL	None
42-56		10	CL/C	SBK2	F	Fr	Fr	CF	CF	None

Attach additional sheets as needed

3285 St. Helena Highway

May 30, 2014

Test Pit # P 25%

PLEASE PRINT OR TYPE ALL INFORMATION

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0–36	GI	25	GCL	25	Fr	Fr	VFr	CL/CF	CL/CF	None
36–48		25	GC	25	F	F	Fr	FF	FF	C2F

Test Pit # Q 20%

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0–56	GI	25	GL	SBK1/2	Fr	Fr	VFr	ML	CL/CM	None
56–72		40	GL	SBK2	Fr	fr	Fr	CM	CF	None

Test Pit # R 25%

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0–54	GI	25	GL	SBK1/2	Fr	Fr	VFr	ML	CL/CM	None
54–72	GS	20	GCL	SBK2	F	Fr	Fr	CM	CF	None

Attach additional sheets as needed

3285 St. Helena Highway

May 30, 2014

Test Pit # S 25%

PLEASE PRINT OR TYPE ALL INFORMATION

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-28	GS	10	L	SBK1	Fr	Fr	VFr	ML	CL	None
28-54	GW	25	GCL	SBK2	Fr	Fr	VFr	CF	CF	None
54-72		25	GCL	SBK2	F	f	Fr	FF	FF	None

Test Pit # T

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-60	GC	15	L	SBK1/2	Fr	VFr	VFr	CL	CM	None
60-72		15	CL	SBK2	F	Fr	Fr	CM	CF	None

Test Pit #

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			

Attach additional sheets as needed

3285 St. Helena Highway

May 30, 2014

Test Pit # S 25%

PLEASE PRINT OR TYPE ALL INFORMATION

Horizon Depth (inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-28	GS	10	L	SBK1	Fr	Fr	VFr	ML	CL	None
28-54	GW	25	GCL	SBK2	Fr	Fr	VFr	CF	CF	None
54-72		25	GCL	SBK2	F	f	Fr	FF	FF	None

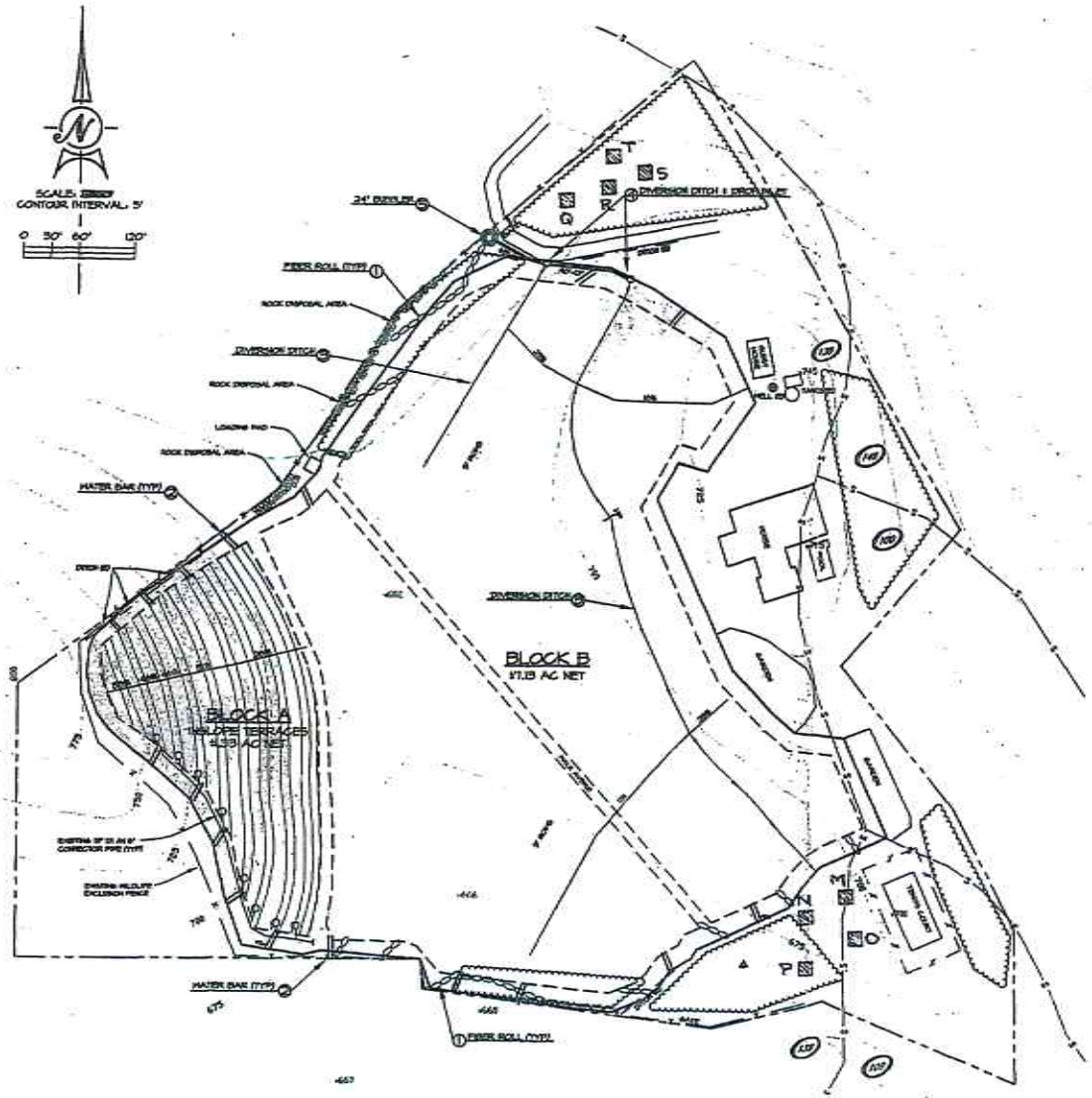
Test Pit # T

Horizon Depth (inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-60	GC	15	L	SBK1/2	Fr	VFr	VFr	CL	CM	None
60-72		15	CL	SBK2	F	Fr	Fr	CM	CF	None

Test Pit #

Horizon Depth (inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			

Attach additional sheets as needed



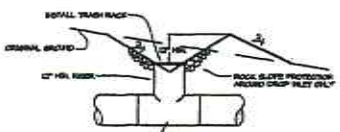
FIBER ROLL SEDIMENT BARRIER (ISOMETRIC VIEW)

FIBER ROLL SEDIMENT BARRIER (SECTION)

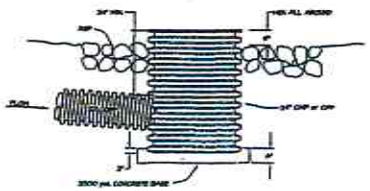
① FIBER ROLL
N.T.S.

② WATER BAR
N.T.S.

③ DIVERSION DITCH
N.T.S.



④ DIVERSION DITCH & DROP INLET
N.T.S.



⑤ 24" BUBBLER
N.T.S.

TOPOGRAPHIC MAPPING FROM NAPA COUNTY GIS DATABASE (2002)

Napa Valley Vineyard Engineering, Inc.
176 Main St., Suite B

■ = SOIL PROFILES (M-T) 5/30/14

BERGMAN VINEYARD

EROSION CONTROL PLAN
TRACK II-VINEYARD REPLANT

SHEET 2