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**Water/Wastewater System Information
Pickett Road Wine Company Major
Modification
P19-00172-MOD**

TRANSIENT NON-COMMUNITY
WATER SYSTEM INFORMATION

FOR THE

KELLY FLEMING WINERY

LOCATED AT:
2339 Pickett Road
Calistoga, CA 94515
NAPA COUNTY APN 018-050-067

PREPARED FOR:
Kelly Fleming Winery
Care Of: Kelly Fleming
2339 Pickett Road
Calistoga, CA 94515
Telephone: (707) 942-6849

PREPARED BY:



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

Job Number: 19-124

Michael R. Muelrath

Michael R. Muelrath R.C.E. 67435

9/24/2019

Date



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INTRODUCTION

Kelly Fleming Winery is applying for a Use Permit Modification for their winery facility located at 2339 Pickett Road, in Napa County, California. The subject property, known as Napa County Assessor's Parcel Number 018-050-067, is located at the end of Pickett Road approximately one mile northeast of the intersection of Pickett Road and Silverado Trail.

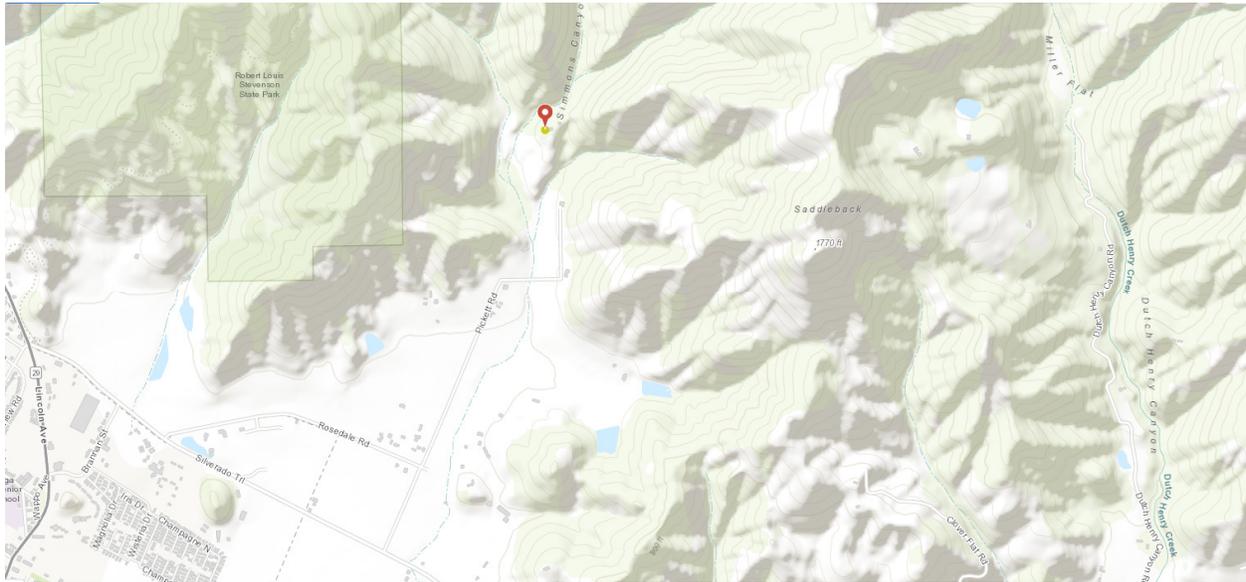


Figure 1: Location Map

The Use Permit (P05-0441-UP) issued by Napa County for this winery facility allows the construction and operation of a winery with the following characteristics:

- Wine Production:
 - 12,000 gallons of wine per year
 - Crushing, fermenting, aging and bottling
- Employees:
 - Three (3) full-time employees
 - Two (2) part-time employees
- Marketing Plan:
 - Daily Tours and Tastings by Appointment
 - 8 visitors per day maximum
 - 20 visitors per week maximum
 - Private Food and Wine Events
 - 4 per month
 - 24 guests maximum
 - Private Food and Wine Events
 - 4 per year
 - 60 guests maximum

Existing improvements on the property include the winery, residence, vineyard, groundwater wells, paved, dirt and gravel driveways and the utility infrastructure associated with this type of agricultural and residential development.

The Use Permit Modification being reviewed proposes the following operational characteristics:

- Wine Production:
 - 12,000 gallons of wine per year (no change)
 - Crushing, fermenting, aging and bottling

- Employees:
 - Six (6) full-time employees
 - Four (4) part-time employees

- Marketing Plan:
 - Daily Tours and Tastings by Appointment
 - 24 visitors per day maximum
 - Private Food and Wine Events
 - 10 per year
 - 24 guests maximum
 - Private Release Events
 - 3 per year
 - 50 guests maximum
 - Private Food and Wine Events
 - 10 per year
 - 60 guests maximum
 - Wine Auction Related or Similar Charity Events
 - 1 per year
 - 125 guests maximum

Please see the Winery Use Site Plan of a Portion of the Lands of Fleming prepared by Albion Surveys (attached) for approximate locations of existing and proposed facilities.

Since the number of employees plus the number of visitors is expected to exceed 24 for 60 or more days out of the year, the project will be required to implement a Transient Non-Community Public Water System.

Kelly Fleming Winery has requested that Applied Civil Engineering Incorporated (ACE) prepare a brief report outlining the anticipated technical, managerial and financial aspects of the water system that will be required to serve the proposed winery to accompany the winery Use Permit Modification application as required by Napa County.

WATER SYSTEM NAME

The water system will be known as the “Kelly Fleming Winery Water System”.

NAME OF PERSON WHO PREPARED THIS REPORT

This report was prepared by Michael Muelrath, PE of Applied Civil Engineering Incorporated. Information regarding the parameters of the subject Use Permit Modification application were provided by Kelly Fleming Winery.

TECHNICAL CAPACITY

System Description

Water for the existing winery is currently provided by an existing groundwater well. The existing well has the required 50 foot deep, 3 inch wide annular seal however. This well will serve the public water system. The well is located approximately 1,200 feet north of the winery development as illustrated on the Winery Use Site Plan of a Portion of the Lands of Fleming prepared by Albion Surveys.

The well has been constructed per Napa County standards and treatment must be provided as required to meet applicable local, state and federal water quality requirements. Detailed plans for the water treatment system will be prepared and presented to Napa County for review during the building permit and water system permit stage.

Water Demand Projection

Napa County Water Availability Analysis Guidelines were used to estimate the annual water demand for the existing winery including the parameters of the proposed Use Permit Modification. It is planned that the public water system well will supply the winery facility and residential uses only. All vineyard and landscape irrigation will be supplied by other existing wells located on the subject property. The total proposed water use for the public water system well is estimated to be 1.5 acre-feet per year. Using the projected annual domestic water demand of 1.3 acre-feet per year, we have calculated an average daily demand of approximately 1,339 gallons and a maximum daily demand (MDD) of approximately 3,013 gallons (calculated using a peaking factor of 2.25 per California Waterworks Standards Section 64554b.3.(C)).

Source Adequacy

The existing well has the required minimum 50 foot deep, 3 inch wide concrete annular seal to meet the requirements for public water systems. A copy of the Well Completion Report providing information about the new well will be included with the water system application with the winery building permit application package to document adequacy of the seal.

Water Supply Capacity

Assuming a conservative well pumping cycle of 12-18 hours per day the new well must be capable of producing at least 2.8-4.2 gallons per minute to meet the water system's MDD. The existing well had an estimated capacity of 25 gallons per minute at the time of drilling according to the Well Completion Report prepared by Don Huckfeldt. A pumping test was performed in 2015 which indicates a yield of 2.6 gpm. Given the difference in yield from this test compared to the

original estimate we recommend that a new test, in accordance with County and State requirements must be performed. If the well does not provide acceptable yield, then a new well will be required.

Once the water system is permitted and constructed, we recommend that the water level, yield and drawdown in the well be monitored on an ongoing basis to detect any trends in changing water table levels and well yield so that alternate sources can be developed if needed.

The existing water system also includes a 10,500 gallon water storage tank which exceeds the MDD (2,612 gallons) storage requirement.

Water Quality Characterization

It will be necessary to perform a full panel of water quality testing, including chemical and bacteriological analysis prior to water system permit application. The water treatment system must then be designed to reduce all required contaminant levels to below the regulatory maximum contaminant level (MCL) for each constituent, as applicable. Based on preliminary testing of existing onsite wells and experience with other wells in the project area we judge that it will be feasible to provide treatment as needed to meet water quality requirements for the new public water system.

Consolidation Analysis

We have reviewed the California Environmental Health Tracking Program Water System Map Viewer (http://www.cehtp.org/page/water/water_system_map_viewer) and found three systems identified on the map that are located within 3 miles of the subject property. The three systems are:

- 1) City of Calistoga
- 2) Calistoga Farmworker Center
- 3) Tucker Acres Mutual Water Co.

We have reviewed possibility of connecting to one of these with the Napa County Local Agency Formation Commission and have determined that it is not feasible to connect to an existing water system due to the fact that the property is outside of the service areas and also outside of the sphere of influence of all public water systems in the vicinity of the project area (see correspondence in Appendix 2).

MANAGERIAL

Organization

Management and routine operation of the water system will be performed by the winery staff. One staff member will be responsible for performing sampling, reporting and keeping up to date records onsite in accordance with Napa County requirements. The winery staff person in charge of the water system will consult with water system specialists as needed if issues arise with any

components of the water system. The water system manager will report directly to the property owner, Kelly Fleming.

Land Ownership

The well, storage tank and piping are all located on the same property as the winery that it will serve. This property is owned by Kelly Fleming (see ownership documents in Appendix 4). Since the well and all water system components are planned to be located on the winery property, no access or maintenance easements will be required.

Water Rights

The Kelly Fleming Winery Water System will use groundwater from a non-adjudicated groundwater basin exclusively and is therefore not subject to water rights through the State Water Resources Control Board.

FINANCIAL

There will be no revenue generated by the water system.

The expected expenses for the water system can be broken down into initial startup cost and ongoing operational cost as shown below.

Startup Cost

Startup cost includes the well and pump for the well, water transmission piping, water storage tank(s), water treatment system equipment, booster pump(s) and installation. While a majority of this system is existing and anticipated to be utilized without substantial modification pending well yield testing and water quality testing we are providing an estimate of construction cost for budgeting and capital improvement replacement purposes. Based on previous experience we estimate that the cost for the well, well pump, water transmission piping, water storage tank, booster pump, water treatment system equipment and installation to be approximately \$179,400 (see budget spreadsheet in Appendix 3).

Actual costs will be dependent upon the location of the various components as well as results of the water quality testing and design of the water treatment system.

Annual Operating Cost

Annual operating cost for the water system will include a portion of one employee's salary, cost for performing quarterly and annual water quality testing, equipment maintenance, replacement of consumable items, electrical service charges, professional fees and capital replacement allowance. The actual cost to operate and maintain the water system will be dependent on the final water system configuration. We estimate that the annual cost associated with operating and maintaining the water system will be approximately \$20,500 per year (see budget spreadsheet in Appendix 3).

Funding

The startup cost will be financed along with the construction of the other winery improvements that are part of this permit or will be funded directly by the winery as deemed appropriate by the owner. The winery's annual budget must include a line item for water system operation and maintenance expenses to ensure finances are available to operate and maintain the water system throughout the life of the winery.

APPENDIX I: Winery Use Site Plan of a Portion of the Lands of Fleming
prepared by Albion Surveys (Reduced to 8.5" x 11")

APPENDIX 2: Correspondence with LAFCO

Mike Muelrath

From: Freeman, Brendon <bfreeman@napa.lafco.ca.gov>
Sent: Monday, September 23, 2019 1:22 PM
To: Mike Muelrath
Subject: RE: Water Service at 2339 Pickett Lane, Napa County

Good afternoon Mike,

I am confirming the proposed public water system located at the Kelly Fleming Winery at 2339 Pickett Lane, Calistoga, Napa County, CA (APN 018-050-067) is located outside the jurisdictional boundaries and spheres of influence of all cities and special districts in Napa County that are authorized to provide public water service. While the property is located less than one mile from the City of Calistoga, the property can't be annexed to the City nor served by the City under state law.

Pursuant to California Government Code Section 56133, cities and special districts may not extend water service outside their jurisdictional boundaries and spheres of influence unless there exists a documented threat to public health or safety involving the subject property. It is my understanding there is no such threat involving the subject property.

With all of this in mind, there are no public water service options available to the subject property involving a city or special district.

Please let me know if you have any questions or if there's anything else I can provide that may be helpful.

Thank you and have a good week,

Brendon Freeman, Executive Officer
Local Agency Formation Commission of Napa County
1030 Seminary Street, Suite B
Napa, California 94559
Office: (707) 259-8645
Mobile: (707) 363-1783
www.napa.lafco.ca.gov



From: Mike Muelrath <mike@appliedcivil.com>
Sent: Monday, September 23, 2019 8:38 AM
To: Freeman, Brendon <bfreeman@napa.lafco.ca.gov>
Subject: Water Service at 2339 Pickett Lane, Napa County

Hi Brendon,

We are working on a public water system application for the Kelly Fleming Winery at 2339 Pickett Lane, Calistoga, Napa County, CA (APN 018-050-067). As part of the application we will need a note from you relative to this property's ability to connect to an existing public water system.

I look forward to your response and feel free to call with any questions.

Thank you,

Mike

Applied Civil Engineering Incorporated

(707) 320-4968 (Telephone)

(707) 320-2395 (Facsimile)

(707) 227-7166 (Mobile)

APPENDIX 3: Budgeting Spreadsheets

FIVE YEAR BUDGET PROJECTION (Small Community Water System)

INSTRUCTIONS: Yellow-shaded cells are for data entry; all other cells are locked except line item descriptions which can be changed if needed. Years 2 through 5 will be compounded automatically by the inflation factor in Cell G6.

System Name:

Kelly Fleming Winery

Inflation Factor (%):

3.0

System ID Number:

TBD

LINE	EXPENSES AND SOURCE OF FUNDS	2019	2020	2021	2022	2023
1	OPERATIONS AND MAINTENANCE (O&M) EXPENSES					
2	Salaries and Benefits	6,240.00	6,427.20	6,620.02	6,818.62	7,023.17
3	Contract Operation and Maintenance	0.00	0.00	0.00	0.00	0.00
4	Power and Other Utilities	2,500.00	2,575.00	2,652.25	2,731.82	2,813.77
5	Fees Regulatory	674.00	694.22	715.05	736.50	758.59
6	Treatment Chemicals	0.00	0.00	0.00	0.00	0.00
7	Coliform Monitoring	240.00	247.20	254.62	262.25	270.12
8	Chemical Monitoring	50.00	51.50	53.05	54.64	56.28
9	Transportation	0.00	0.00	0.00	0.00	0.00
10	Materials, Supplies, and Parts	500.00	515.00	530.45	546.36	562.75
11	Office Supplies	100.00	103.00	106.09	109.27	112.55
12	Miscellaneous	500.00	515.00	530.45	546.36	562.75
13	Additional O&M for New Project	0.00	0.00	0.00	0.00	0.00
14	Total O&M Expenses:	10,804.00	11,128.12	11,461.96	11,805.82	12,160.00
16	GENERAL AND ADMINISTRATIVE EXPENSES					
17	Engineering and Professional Services	680.00	700.40	721.41	743.05	765.35
18	Depreciation and Amortization	0.00	0.00	0.00	0.00	0.00
19	Insurance	0.00	0.00	0.00	0.00	0.00
20	Existing Contribution to CIP (From CIP J48)	8,920.63	8,920.63	8,920.63	8,920.63	8,920.63
21	O&M Reserve	0.00	0.00	0.00	0.00	0.00
22	Other Reserves	0.00	0.00	0.00	0.00	0.00
23	Miscellaneous	100.00	103.00	106.09	109.27	112.55
24	** New Funding Project Costs	0.00	0.00	0.00	0.00	0.00
25	Additional New Project Contribution to CIP (From CIP J59)	0.00	0.00	0.00	0.00	0.00
26	** Debt Service	0.00	0.00	0.00	0.00	0.00
27	Total General and Administrative Expenses:	9,700.63	9,724.03	9,748.13	9,772.95	9,798.52
28	TOTAL EXPENSES (Line 14+ Line 27):	20,504.63	20,852.15	21,210.09	21,578.77	21,958.52
30	REVENUES RECEIVED					
31	Cash Revenues (Water Rates)	0.00	0.00	0.00	0.00	0.00
32	** Depreciation Reserves	0.00	0.00	0.00	0.00	0.00
33	** Fees and Services	0.00	0.00	0.00	0.00	0.00
34	** Hookup Charges	0.00	0.00	0.00	0.00	0.00
35	** Withdrawal from CIP or Other Reserves	0.00	0.00	0.00	0.00	0.00
36	** Other Fund Sources: Interest, Etc.	0.00	0.00	0.00	0.00	0.00
37	** Grants	0.00	0.00	0.00	0.00	0.00
38	** SRF Loan	0.00	0.00	0.00	0.00	0.00
39	** Business Loans	0.00	0.00	0.00	0.00	0.00
40	TOTAL REVENUE (Lines 31 through 39):	0.00	0.00	0.00	0.00	0.00
41	NET LOSS OR GAIN:	-20,504.63	-20,852.15	-21,210.09	-21,578.77	-21,958.52

Report Prepared by (Name and Title): _____

Date: _____

(** Inflation factor not applied to future year projections)

	2019	2020	2021	2022	2023
Number of Customers:	1	1	1	1	1
Average Monthly Revenue Needed Per Customer:	1708.72	1737.68	1767.51	1798.23	1829.88

(total expenses ÷ # of customers ÷ 12)

SIMPLIFIED CAPITAL IMPROVEMENT PLAN (CIP)

Date: 9/24/2019

System ID No.: TBD

System Name: Kelly Fleming Winery Water System

Service Connections: 1

*Enter information only in YELLOW shaded cells

QTY	COMPONENT	UNIT COST	INSTALLED COST	AVG LIFE, YEARS	ANNUAL RESERVE	MONTHLY RESERVE	MONTHLY RESERVE PER CUSTOMER
1	Drilled Well, 6", steel casing Depth: 600	80	48000	25	1920.00	160.00	160.00
0	Drilled Well, 8", steel casing Depth: 0	130	0	25	0.00	0.00	0.00
0	Drilled Well, 12", steel casing Depth:	200	0	25	0.00	0.00	0.00
1	Wellhead Electrical Controls	700	700	25	28.00	2.33	2.33
0	Submersible Pump, 20 HP	9000	0	7	0.00	0.00	0.00
0	Submersible Pump, 3 HP	2000	0	7	0.00	0.00	0.00
1	Submersible Pump, 5 HP	3500	3500	7	500.00	41.67	41.67
1	Booster Pump Station, 10 HP, complete	14000	14000	5	2800.00	233.33	233.33
1	Booster Pump Station Electrical Controls	5000	5000	5	1000.00	83.33	83.33
0	Pressure Tank Gallons:	1.5	0	10	0.00	0.00	0.00
1	Pressure Tank Gallons: 80	1.5	120	10	12.00	1.00	1.00
0	Storage Tank, Plastic Gallons: 10000	0.5	0	10	0.00	0.00	0.00
0	Storage Tank, Redwood Gallons:	1.3	0	40	0.00	0.00	0.00
0	Storage Tank, Redwood Gallons:	1.3	0	40	0.00	0.00	0.00
0	Storage Tank, Steel Gallons:	1.2	0	50	0.00	0.00	0.00
0	Storage Tank, Steel Gallons:	1.2	0	50	0.00	0.00	0.00
0	Storage Tank, Steel Gallons:	1.2	0	50	0.00	0.00	0.00
1	Storage Tank, Concrete Gallons: 10500	1.5	15750	80	196.88	16.41	16.41
1	Master Meter, 2"	450	450	10	45.00	3.75	3.75
0	Master Meter, 3"	800	0	10	0.00	0.00	0.00
0	Master Meter, 4"	2500	0	10	0.00	0.00	0.00
0	Hypochlorinator w/ Tank & Pump, Complete	800	0	10	0.00	0.00	0.00
0	Pipe w/ sand bedding, 1" (Enter linear feet for quantity)	20	0	50	0.00	0.00	0.00
3000	Pipe w/ sand bedding, 2" (Enter linear feet for quantity)	25	75000	50	1500.00	125.00	125.00
0	Pipe w/ sand bedding, 3" (Enter linear feet for quantity)	30	0	50	0.00	0.00	0.00
0	Pipe w/ sand bedding, 4" (Enter linear feet for quantity)	35	0	50	0.00	0.00	0.00
0	Pipe w/ sand bedding, 6" (Enter linear feet for quantity)	50	0	50	0.00	0.00	0.00
0	Standpipe Hydrant, 1-1/2"	700	0	20	0.00	0.00	0.00
0	Standpipe Hydrant, 2-1/2"	900	0	20	0.00	0.00	0.00
0	Customer Meter w/ Box & Shutoff, Complete	250	0	20	0.00	0.00	0.00
10	Distribution Valve, 2"	150	1500	10	150.00	12.50	12.50
0	Distribution Valve, 3"	250	0	10	0.00	0.00	0.00
0	Distribution Valve, 4"	600	0	20	0.00	0.00	0.00
0	Distribution Valve, 6"	850	0	20	0.00	0.00	0.00
1	Air & Vacuum Relief Valve, Typical	375	375	20	18.75	1.56	1.56
1	Calcite Filter and Softening	7500	7500	20	375.00	31.25	31.25
1	UV	7500	7500	20	375.00	31.25	31.25
0		7500	0	1	0.00	0.00	0.00
0							
SUBTOTAL Existing CIP Costs			\$179,395.00		\$8,920.63	\$743.39	\$743.39
NEW Project CIP Costs							
	OTHER ITEM		0	1	0.00	0.00	0.00
	OTHER ITEM		0	1	0.00	0.00	0.00
	OTHER ITEM		0	1	0.00	0.00	0.00
	OTHER ITEM		0	1	0.00	0.00	0.00
	OTHER ITEM		0	1	0.00	0.00	0.00
	OTHER ITEM		0	1	0.00	0.00	0.00
	OTHER ITEM		0	1	0.00	0.00	0.00
	OTHER ITEM		0	1	0.00	0.00	0.00
SUBTOTAL New Project CIP Costs			\$0.00		\$0.00	\$0.00	\$0.00
TOTAL Existing and New Project CIP:			\$179,395.00		\$8,920.63	\$743.39	\$743.39

Report Prepared by (Title): _____

Date: _____

NOTE: Installed costs are averages and include all materials and contracted labor and equipment.

NOTES:

APPENDIX 4: Ownership Documents



2010-0004140

Recorded	REC FEE	17.00
Official Records		
County of		
Napa		
JOHN TUTEUR		
Assessor-Recorder-Cou		
00:00AM 25-Feb-2010	CW	Page 1 of 4

RECORDING REQUESTED BY:

First American Title Company of Napa

AND WHEN RECORDED

MAIL DOCUMENT AND TAX STATEMENT TO:

Fleming
2343 Pickett Road
Calistoga, CA 94515

APN 018-050-067

GRANT DEED

The undersigned Grantor(s) declare(s):

Documentary Transfer Tax \$0.00;
City Transfer Tax \$0.00;
Survey Monument Fee \$0.00

REALTY NOT SOLD:

No Consideration. Transfer to a Revocable Trust – Exempt per R&T Code 11930

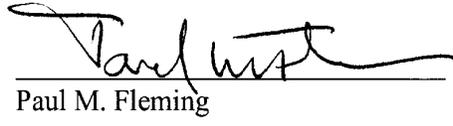
FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, **PAUL M. FLEMING AND KELLY M. FLEMING, HUSBAND AND WIFE** (collectively "**Grantor**"), hereby **GRANT** to **KELLY M. FLEMING, AS TRUSTEE OF THE KELLY M. FLEMING TRUST, DATED DEC. 17, 1999**, and any amendments thereto ("**Grantee**"), all of its right, title and interest, now or hereafter enjoyed, or held, in and to that certain real property located in the City of Calistoga, County of Napa, State of California and more particularly described in Exhibit A attached hereto and incorporated herein by this reference (the "**Property**").

"THIS INSTRUMENT IS FILED FOR RECORD BY
FIRST AMERICAN TITLE COMPANY OF NAPA AS
AN ACCOMMODATION ONLY. IT HAS NOT BEEN
EXAMINED AS TO ITS EXECUTION OR AS TO ITS
EFFECT UPON THE TITLE"

IN WITNESS WHEREOF, Grantor has caused its duly authorized representatives to execute this instrument as of the date hereinafter written.

DATED: 2/22, 2010

GRANTOR:


Paul M. Fleming

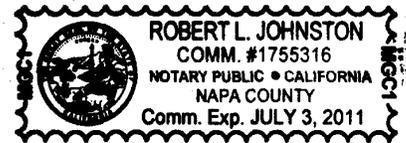

Kelly M. Fleming

STATE OF CALIFORNIA)
) ss.
COUNTY OF NAPA)

On FEBRUARY 22, 2010 before me,
ROBERT L. JOHNSTON, personally appeared
PAUL M. FLEMING, who proved to me on the basis of
satisfactory evidence to be the person ~~(s)~~ whose name ~~(s)~~ is/ ~~is~~ subscribed to the within
instrument and acknowledged to me that he/ ~~she/they~~ executed the same in his/ ~~her/their~~
authorized capacity ~~(ies)~~, and that by his/ ~~her/their~~ signature ~~(s)~~ on the instrument the
person ~~(s)~~, or the entity upon behalf of which the person ~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of
California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



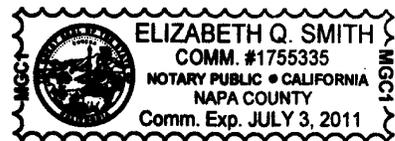
Signature Robert L. Johnston (Seal)

STATE OF CALIFORNIA)
) ss.
COUNTY OF NAPA)

On 02/23/10 before me,
ELIZABETH Q. SMITH personally appeared
KELLY M. FLEMING, who proved to me on the basis of
satisfactory evidence to be the person ~~(s)~~ whose name ~~(s)~~ is/are subscribed to the within
instrument and acknowledged to me that he/ ~~she/they~~ executed the same in his/ ~~her/their~~
authorized capacity ~~(ies)~~, and that by his/ ~~her/their~~ signature ~~(s)~~ on the instrument the
person ~~(s)~~, or the entity upon behalf of which the person ~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of
California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



Signature Elizabeth Q. Smith (Seal)

END OF DOCUMENT

EXHIBIT A

Legal Description

All the certain real property located in the City of Calistoga, County of Napa, State of California, described as follows:

EXHIBIT "A"

PARCEL ONE:

A portion of the lands of Paul M. Fleming and Kelly M. Fleming, Co-Trustees of The Paul and Kelly Fleming Trust dated December 10, 1997 as said lands are described as Parcel One in the Grant Deed from Ronald S. Kane, recorded August 14, 1998 as Series No 1998-023264 of Official Records of Napa County, together with all the lands of Kelly M. Fleming as described as Parcel One of the Grant Deed from Ruth L Peizer recorded August 14, 1998 as Series No 1998-023265 of Official Records of Napa County, said portions of lands and lands being more particularly described as a whole as follows

Beginning at the Northeast corner of the Northeast quarter of the Southwest quarter of Section 29, Township 9 North, Range 6 West, M D B & M , being shown on Map No 4640 filed April 1, 1993 in Book 29 of Surveys at Pages 7-8 in the office of the County Recorder of said Napa County; thence along the East line thereof South 01° 21' 59" West 1345.90 feet to the Southeast corner thereof, being the Northeast corner of the Southeast quarter of the Southwest quarter of said Section 29, thence along the East line thereof South 01° 21' 59" West 48.67 feet to the North line described in the Agreement Settling Boundary line between Virginia M. Black and David H. Duff recorded February 20, 1975 in Book 955 at Page 561 of Official Records of Napa County; thence along the North and West lines described as a fence line in said Agreement and having been more particularly delineated on said Map No 4640 the following six courses: South 89° 16' 52" West 73.38 feet, North 81° 05' 37" West 54.70 feet, South 89° 26' 24" West 217.58 feet, South 00° 06' 52" West 622.53 feet, South 00° 52' 19" West 681.25 feet to the South line of the Southeast quarter of the Southwest quarter of said Section 29, and South 01° 28' 10" West 484.30 feet to the South line of Lot 2 of Section 32, Township 9 North, Range 6 West M. D. B. & M; thence along said South line North 89° 59' 48" West 1010.92 feet to the Southwest corner of said Lot 2; thence along the West line of said Lot 2 North 01° 52' 10" East 460.13 feet to the Southwest corner of the Southeast quarter of the Southwest quarter of said Section 29; thence along the West line thereof North 01° 22' 23" East 1339.13 feet to the Northwest corner thereof; thence along the West line of the Northeast quarter of the Southwest quarter of said Section 29 North 01° 22' 23" East 1339.13 feet to the Northwest corner thereof; thence along the North line thereof North 88° 02' 36" East 1334.42 feet to the Point of Beginning.

APN: 018-050-067

PARCEL TWO:

A non-exclusive Easement for ingress, egress, access and utility purposes, 40 feet in width, within a portion of Lot 14 as shown on the map entitled, "Homestead Lots in Napa County, formerly the property of R. L. Kilburn", filed March 30, 1871 in Book 1 of Maps at page 100, in the office of the County Recorder of said Napa County, more particularly described as follows:

A strip of land, 40 feet in width, the southeasterly line of which is coincident with the southeasterly line of said Lot 14, said 40 foot strip extending southwesterly from the northerly line of said Lot 14 to the northerly line of Pickett Road as established for public use and as it exists as of the date herein.

Said easement to be appurtenant to the lands described in those certain Deeds recorded April 5, 1994 under Series Number 1994 011662; recorded February 20, 1992 under Series Number 1992 005178; recorded April 5, 1994 under Series Number 1994 011659, and recorded October 17, 1996 under Series Number 1996 025210 of Official Records of Napa County.



September 24, 2019

Job No. 19-124

Kim Withrow, REHS
Environmental Health Division
Napa County Planning, Building and Environmental Services Department
1195 Third Street, Suite 210
Napa, CA 94559

Re: Onsite Wastewater Disposal Feasibility Study for the
Kelly Fleming Winery Use Permit Modification Application
2339 Pickett Road, Calistoga, California APN 018-050-067
P05-0441-UP & P19-00172-MOD

Dear Ms. Withrow:

At the request of Kelly Fleming Winery we have evaluated the process and sanitary wastewater flows associated with the proposed Use Permit Modification. We have also analyzed the capacity of the existing process and sanitary wastewater systems serving the winery facility to determine if they are adequate to serve the proposed changes in use.

The Use Permit (P05-0441-UP) issued by Napa County for this winery facility allows the construction and operation of a winery with the following characteristics:

- Wine Production:
 - 12,000 gallons of wine per year
 - Crushing, fermenting, aging and bottling

- Employees:
 - Three (3) full-time employees
 - Two (2) part-time employees

- Marketing Plan:
 - Daily Tours and Tastings by Appointment
 - 8 visitors per day maximum
 - 20 visitors per week maximum

- Private Food and Wine Events
 - 4 per month
 - 24 guests maximum
- Private Food and Wine Events
 - 4 per year
 - 60 guests maximum

Existing improvements on the property include the winery, residence, second dwelling unit, vineyard, groundwater wells, paved, dirt and gravel driveways and the utility infrastructure associated with this type of agricultural and residential development.

The Use Permit Modification being reviewed proposes the following operational characteristics:

- Wine Production:
 - 12,000 gallons of wine per year (no change)
 - Crushing, fermenting, aging and bottling
- Employees:
 - Six (6) full-time employees
 - Four (4) part-time employees
- Marketing Plan:
 - Daily Tours and Tastings by Appointment
 - 24 visitors per day maximum
 - Private Food and Wine Events
 - 10 per year
 - 24 guests maximum
 - Private Release Events
 - 3 per year
 - 50 guests maximum
 - Private Food and Wine Events
 - 10 per year
 - 60 guests maximum
 - Wine Auction Related or Similar Charity Events
 - 1 per year
 - 125 guests maximum

Please see the Winery Use Site Plan of a Portion of the Lands of Fleming prepared by Albion Surveys (attached) for approximate locations of existing and proposed facilities.

The remainder of this letter describes the existing process and sanitary wastewater disposal systems, their design capacity, peak flows associated with the proposed changes in use and our analysis and recommendations related to the system's ability to handle the anticipated wastewater flows. All wastewater from the residence and second dwelling unit is handled independently of the winery wastewater systems and no change is planned for the residential wastewater system.

Existing Winery Wastewater Systems

The winery facility is serviced by separate process wastewater and domestic wastewater treatment and dispersal systems as described below.

Winery Process Wastewater Treatment and Dispersal System

According to permit records on file with Napa County and design calculations and plans prepared by Summit Engineering the winery process wastewater is pre-treated and then disposed of in a surface drip irrigation system. The system was approved in October 2007 (E08-00608) and the design capacity is 900 gpd.

The process wastewater flows from the winery facility to 3,000 and 1,500 gallon septic tanks and then into a 1,500 gallon sump tank all located just northeast of the winery. Process wastewater is then pumped from the sump tank to the 3,000 gallon recirculation / blend tank located approximately 500 feet north of the winery, near the dispersal field area. Water is treated via the recirculation tank and AdvanTex AX100 pod and is diverted to a 1,500 gallon sump tank after treatment. From the sump tank the treated process wastewater is pumped to a 10,500 gallon irrigation storage tank where it is stored until it is applied to the dispersal field area via an irrigation pump and surface drip irrigation system. Final disposal is via 11 surface drip lines that total 910 lineal feet.

There is a manual diversion valve that directs water from the outdoor work areas to storm drain or the process waste septic tanks as appropriate. A portion of the outdoor work area will be covered and the drains in that area will be re-plumbed to go direct to the process waste septic tank and not into the diversion valve. The remaining outdoor, uncovered work area drains will continue to be handled by the diversion valve.

Winery Domestic Wastewater Treatment and Dispersal System

According to permit records on file with Napa County and design calculations and plans prepared by Summit Engineering the winery domestic wastewater is pre-treated and then disposed of in a subsurface drip dispersal system. The system was approved in October 2007 (E08-00609) and the design capacity is 400 gpd.

The domestic wastewater flows from the winery facility to a 1,500 gallon septic tank and then into a 1,500 gallon sump tank all located just northeast of the winery. Wastewater from the kitchen area first passes through a grease interceptor located in the parking area and then flows into the septic tank and joins the other domestic waste flows. Domestic wastewater is then pumped from the sump tank to the 1,000 gallon recirculation / blend tank located approximately 500 feet north of the winery, near the dispersal field area. Domestic wastewater is treated via the recirculation tank and AdvanTex AX20 pod and is diverted to a 1,500 gallon sump tank after treatment. From the sump tank the treated process wastewater is pumped directly to the subsurface drip dispersal field which consists of approximately 280 lf of subsurface drip lines.

Proposed Wastewater Flows

The proposed process and sanitary wastewater flows for the proposed winery operating characteristics are outlined in the following sections.

Proposed Process Wastewater Design Flows

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 12,000 gallon production capacity and the expectation that both white and red wine will be produced at the winery, we have assumed a conservative 30 day crush period. Using these assumptions, the annual, average daily and peak winery process wastewater flows are calculated as follows:

$$\text{Annual Winery Process Wastewater Flow} = \frac{12,000 \text{ gallons wine}}{\text{year}} \times \frac{6 \text{ gallons wastewater}}{1 \text{ gallon wine}}$$

$$\text{Annual Winery Process Wastewater Flow} = 72,000 \text{ gallons per year}$$

$$\text{Average Daily Process Wastewater Flow} = \frac{72,000 \text{ gallons wastewater}}{\text{year}} \times \frac{1 \text{ year}}{365 \text{ days}}$$

$$\text{Average Daily Winery Process Wastewater Flow} = 197 \text{ gallons per day}$$

$$\text{Peak Winery Process Wastewater Flow} = \frac{12,000 \text{ gallons wine}}{\text{year}} \times \frac{1.5 \text{ gallons wastewater}}{1 \text{ gallon wine}} \times \frac{1 \text{ year}}{30 \text{ crush days}}$$

$$\text{Peak Winery Process Wastewater Flow} = 600 \text{ gallons per day (gpd)}$$

Proposed Winery Sanitary Wastewater Design Flows

The peak sanitary wastewater flow from the winery is calculated based on the number of winery employees, the number of daily visitors for tastings and the number of guests attending scheduled marketing events. In accordance with Table 4 of the Napa County “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 tastings. Table 4 does not specifically address design wastewater flows for guests at marketing events. Since the applicant is proposing that food will be prepared in an onsite kitchen for events with up to 24 guests we have used 15 gallons per guest/meal similar to a restaurant. For larger events that area catered and meals are prepared offsite we have conservatively assumed 5 gallons of wastewater per guest. Based on these assumptions, the peak winery sanitary wastewater flows are calculated as follows:

Employees

$$\text{Peak Sanitary Wastewater Flow} = 10 \text{ employees} \times 15 \text{ gpd per employee}$$

$$\text{Peak Sanitary Wastewater Flow} = 150 \text{ gpd}$$

Daily Tastings

Peak Sanitary Wastewater Flow = 24 visitors per day X 3 gallons per visitor
Peak Sanitary Wastewater Flow = 72 gpd

Private Food and Wine Events (10 per year)

Peak Sanitary Wastewater Flow = 24 guests X 15 gallons per guest
Peak Sanitary Wastewater Flow = 360 gpd

Private Food and Wine Events (10 per year)

Peak Sanitary Wastewater Flow = 60 guests X 5 gallons per guest
Peak Sanitary Wastewater Flow = 300 gpd

Wine Club Release Events (3 per year)

Peak Sanitary Wastewater Flow = 50 guests X 5 gallons per guest
Peak Sanitary Wastewater Flow = 250 gpd

Wine Auction or Similar Charity Events (1 per year)

Peak Sanitary Wastewater Flow = 125 guests X 5 gallons per guest
Peak Sanitary Wastewater Flow = 625 gpd

Total Peak Winery Sanitary Wastewater Flow

In order to manage the peak sanitary wastewater flows to the disposal field portable toilets will be used for all events with more than 24 guests in attendance. Furthermore, no more than one event will be held on any given day. Therefore, the worst-case peak winery sanitary wastewater flow is calculated based on 10 employees, 24 visitors for tours and tastings and a marketing event for 24 people with a meal prepared onsite. The peak flow for this scenario is calculated as follows:

Total Peak Winery Sanitary Wastewater Flow = 150 gpd + 72 gpd + 360 gpd

Total Peak Winery Sanitary Wastewater Flow = 582 gpd

Existing Septic System Capacity

Winery Process Wastewater Treatment and Dispersal System

As noted above the permit for the existing winery process wastewater system indicates a design flow of 900 gpd.

Winery Domestic Wastewater Treatment and Dispersal System

As noted above the permit for the existing winery domestic wastewater system indicates a design flow of 400 gpd.

Proposed Design Flow vs Existing Capacity

Winery Process Wastewater Treatment and Dispersal System

The predicted Winery Process Wastewater Flow for the proposed winery operational characteristics (600 gpd) is less than the design capacity of the existing wastewater disposal system (900 gpd).

Winery Domestic Wastewater Treatment and Dispersal System

The predicted Combined Total Peak Winery Sanitary Wastewater Flow for the proposed winery operational characteristics (582 gpd) is more than the design capacity of the existing wastewater disposal system (400 gpd).

Recommendations

Winery Process Wastewater Treatment and Dispersal System

The process wastewater was designed to handle the existing production volume of 12,000 gallons of wine per year. No changes to production are proposed and thus no increase in process wastewater flow is anticipated. Therefore, no improvements are required for the existing process wastewater treatment and dispersal system.

Winery Domestic Wastewater Treatment and Dispersal System

The proposed operating characteristics result in an increase in design flow of 182 gallons per day relative to the design capacity of the existing septic system (400 gpd). In order to accommodate the additional flow the subsurface drip dispersal field will need to be expanded. Based on the soil application rate of 0.7 gpd / sf used in the original design the additional area needed is calculated as follows:

$$\text{Additional Area Required} = 182 \text{ gpd} / 0.70 \text{ gpd} / \text{sf}$$

$$\text{Additional Area Required} = 260 \text{ sf}$$

Assuming a 2 foot spacing between the drip laterals this equates to 130 lf of additional drip tubing being required. Based on our review of the original design drawings it appears that there is adequate room to add at least 130 lf of new drip tubing to accommodate the additional flows.

The existing septic tank, grease interceptor, sump tanks, recirculation tank and AdvanTex AX20 treatment unit are adequately sized to handle the increased flows.

Reserve Area

The reserve area must be 200% the size of a primary area for subsurface drip type systems and is sized as follows based on sandy clay loam soil with moderate subangular blocky soils as recorded during the site evaluation (E05-00046): $582 \text{ gpd} / 0.6 \text{ gpd/sf} \times 200\% = 1,940 \text{ sf}$. The existing reserve area is located just southwest of the winery building and it appears that there is adequate area there to accommodate the total required 1,940 sf of subsurface drip dispersal field in the area of TP #2, #3 and #6.

Summary

The calculations presented above illustrate that the wastewater flows associated with the proposed Use Permit Modification can be accommodated with a minor expansion to the existing domestic wastewater disposal system. No improvements are needed for the process wastewater system.

We trust that this provides the information you need to process the subject Use Permit Modification. Please feel free to contact us at (707) 320-4968 if you have any questions.

Sincerely,

Applied Civil Engineering Incorporated

By:

Michael R. Muelrath

Michael R. Muelrath RCE 67435
Principal



Copy:

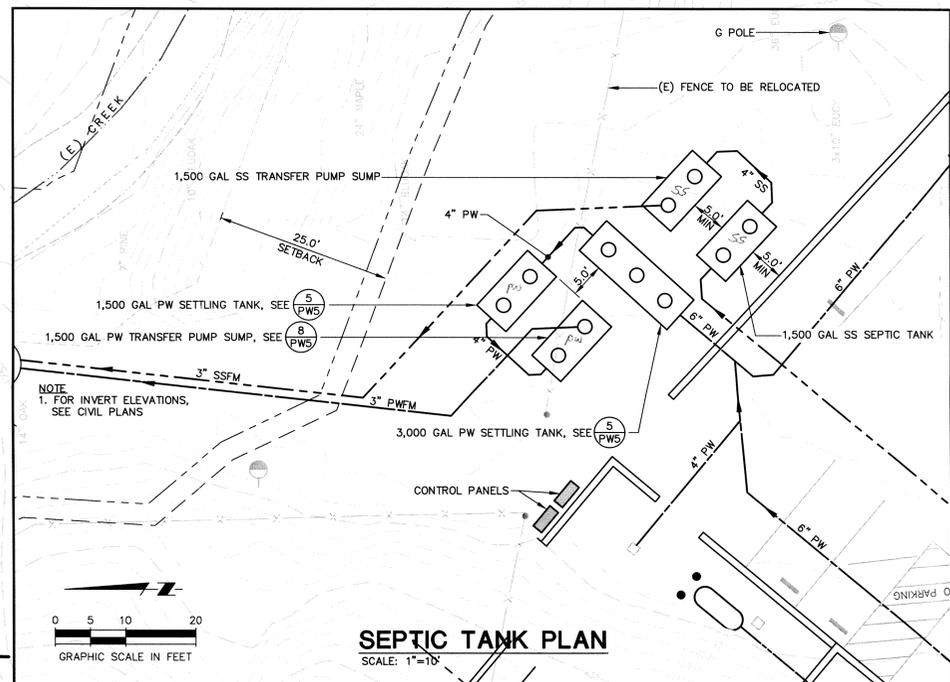
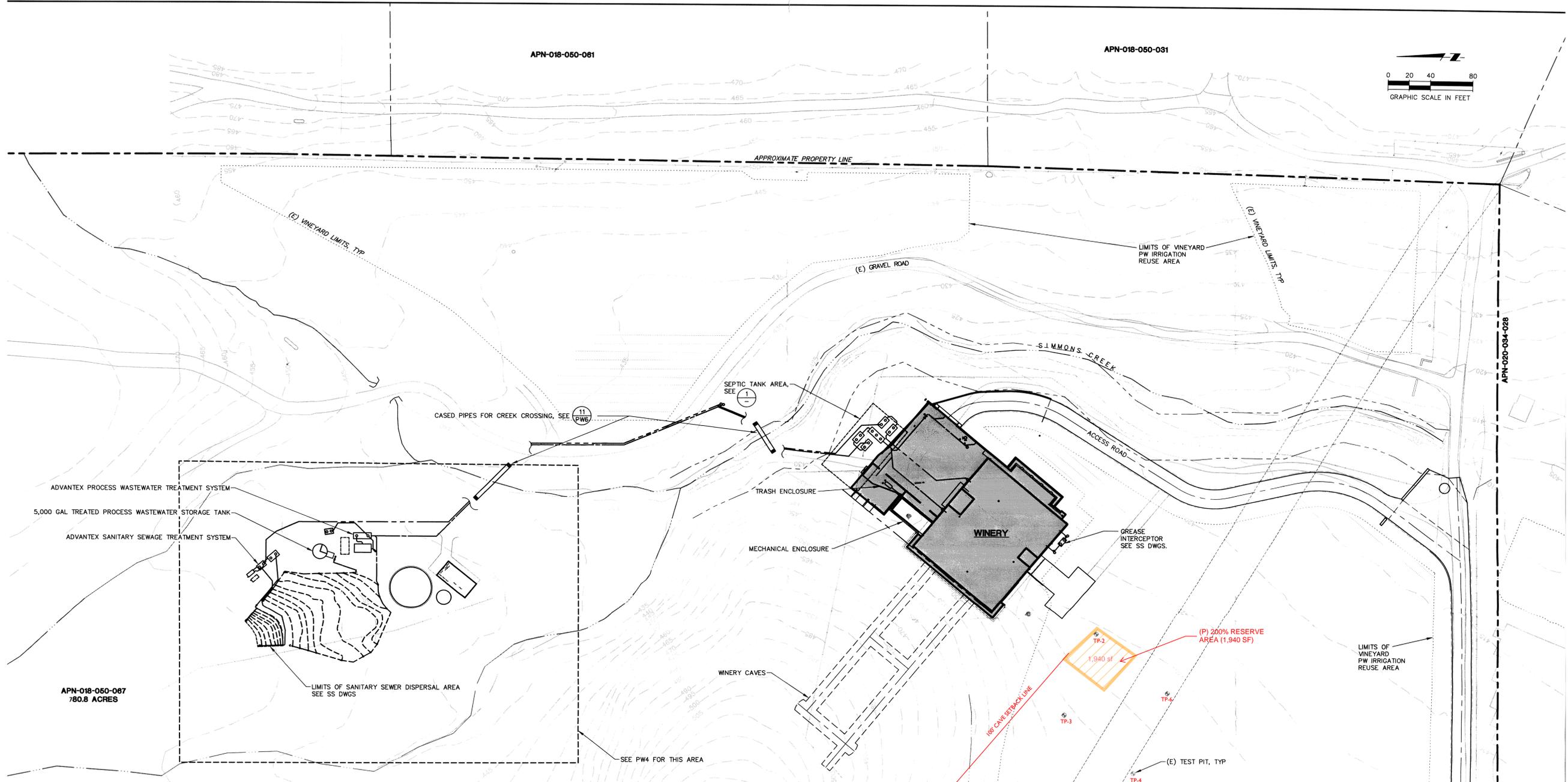
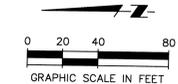
Kelly Fleming, Kelly Fleming Winery (via email)
Jon Webb, Albion Surveys (via email)

Attachments:

Wastewater System Exhibit

APN-018-050-061

APN-018-050-031



REFERENCE:
DESIGN DRAWINGS BY SUMMIT ENGINEER
ON FILE WITH NAPA COUNTY

