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Water Feasibility Study

Robert Sinskey Vineyards Major Modification P19-00161
Planning Commission Hearing December 2, 2020

WATER FEASIBILITY STUDY

ROBERT SINSKEY VINEYARDS

6320 Silverado Trail

Napa, California, 94558

APN 031-230-017

SUMMIT

CIVIL STRUCTURAL WATER|WASTEWATER ELECTRICAL PLANNING

Project No. 2019156
November 5, 2019

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LIST OF ENCLOSURES

SYSTEM DESCRIPTION

Robert Sinskey Vineyards is applying for a Use Permit (UP) Modification for the existing winery facility to increase employees and daily, by-appointment visitors. There are no proposed changes to the approved wine production of 143,000 gallons per year. Summit has prepared the following Water Feasibility Study, which evaluates the capacity of the existing water system to meet the proposed facility demands. The existing Public Water System (PWS ID CA-28-01042) serving the winery property can meet the facility demands and consolidation with another existing water system is not required as this is an existing public water system.

The existing winery parcel (APN: 031-230-017) consists of a winery/hospitality building, onsite vineyards, landscaping, and both a process wastewater (PW) and sanitary sewage (SS) treatment system (see Enclosure A for an overall site plan). Water sources for the property consist of three active groundwater wells. Well completion reports for these wells are included in Enclosure B. These three wells are rotated in use to supply the water demand of the winery (Table 1). Vineyard and landscape irrigation water demand is supplied using the treated effluent from the PW constructed treatment wetlands. All three wells are capable of being used to supplement the irrigation demand if required. Additionally, a fourth well located on an adjacent parcel also owned by Robert Sinskey Vineyards is capable of being used to meet water demand. This fourth well will be excluded from this analysis due to the three on-site wells being more than capable of meeting on-site water demand.

Table 1: Well source information.

Source	Primary Use	Status	Annular Seal Depth (ft)	Capacity (gallons/minute)
Well 1	Domestic/Process/Irrigation	Active	Unknown	12
Well 2	Domestic/Process/Irrigation	Active	21	30-40
Well 3	Domestic/Process/Irrigation	Active	51	30
			TOTAL	72-82

The existing water treatment system includes an ozonation system (used to precipitate iron and manganese), media filtration, four concrete storage tanks (totaling 32,500 gallons), and a UV disinfection system prior to distribution to the winery. Additionally, treated PW water from the constructed wetlands is stored in two on-site storage tanks (totaling 132,000 gallons) for fire flows and irrigation. Approximately 69,000 gallons of this storage is reserved for irrigation of the on-site vineyards and landscaping.

With the proposed Use Permit modifications, the facility has an estimated average water demand of 3,886 gallons/day (gpd) and a peak demand of 6,036 gpd to meet all process and domestic needs (see Enclosure C). The anticipated water demand for the facility is expected to be met with the three existing wells that supply the potable water needs for the facility. Assuming a conservative 8-hour operational day cumulatively, the on-site wells are required to supply at least 13 gallons/minute (gpm) to meet peak demand. There are no major concerns of meeting this peak demand requirement considering wells 2 and 3 can meet this demand by themselves.

The maximum daily demand (MDD) for this facility is estimated to be 13,581 gpd based on the calculated peak demand of 6,036 gpd and a maximum peaking factor of 2.25. This MDD translates to a 28-gpm supply requirement for the on-site wells, over an 8-hour demand period. This demand can be met by using well 2 at maximum capacity (40 gpm) or a combination of wells 1, 2, or 3.

WATER DEMAND

The proposed UP modifications include an increase to the number of employees and daily, by-appointment visitors. Wine production volume will remain the same. The water demand increase is expected to correlate to the estimated wastewater generation flows for sanitary sewerage. Additionally, Robert Sinskey Vineyards will have to amend their Public Water System permit to account for the change from a Transient Non-Community (TNC) Water System to a Non-Transient Non-Community (NTNC) Water System. This change is the result of increasing the number of employees from 15 to 42.

Proposed Water Uses

Domestic water use at the facility will be based on the following needs:

- Process needs for production capacity of 143,000 gallons of wine per year
- Maximum Employees On-site = 42 per day
- Maximum Tasting Visitors = 257 per day (132 public and 125 by-appointment, 75 of which may have wine pairings)
- Every-Other-Week Marketing Event = 50 attendees max, 28 events per year
- Monthly Marketing Event = 80 attendees max, 12 events per year
- Biannual Marketing Event = 150 attendees max, 2 events per year

Winery Process Water Demand

Water demand for wine production is expected to correlate to the PW generated at the facility. Based on typical flow data from wineries of similar size and characteristics, the projected PW generation for wine production is calculated and summarized in Table 2.

Table 2: Existing and projected winery process water demand.

Parameter	Value	Units
Existing Annual Production	143,000	gal wine / year
PW Generation Rate [a]	5.0	gal PW / gal wine
Annual PW Flow	715,000	gal PW
Total Annual Winery Process Water Demand	715,000	gal water / year
Average PW Flow/Process Water Demand (based on 365 days/year)	1,960	gal PW / day
Peak PW Flow/Process Water Demand [b]	3,910	gal PW / day
Annual Production Water Demand	2.2	acre-ft water/year
Notes:		
a. Generation rate based on observations by Robert Sinskey Vineyards.		
b. The harvest month of September accounts for approximately 16.4% of the annual water demand in wineries of similar size		

The expected annual water use for the existing 143,000 gallons of wine/year production capacity is 715,000 gallons/year (2.2 acre-ft/year), with an average demand of 1,960 gpd, and a peak demand of 3,910 gpd. Winery process water demand will be provided by the existing domestic wells serving the public water system.

Domestic Water Demand

Domestic water use at the facility is determined based on the total number of employees, daily visitors, and event guests. SS generation is expected to be equivalent to the water demand for domestic uses. Using Napa County standards, the proposed domestic water demand for the winery facility is estimated using the following scenarios:

Daily Tasting w/o Events							
Employee (maximum on-site)	42	x	15	gpcd	=	630	gal/day
Tasting Visitors w/ Pairings	75	x	6	gpcd	=	450	gal/day
Tasting Visitors w/o Pairings	182	x	3	gpcd	=	546	gal/day
Total					=	1,626	gal/day
Daily Tasting w/ 5 days/week Event							
Employee (maximum on-site)	42	x	15	gpcd	=	630	gal/day
Tasting Visitors w/ Pairings	75	x	6	gpcd	=	450	gal/day
Tasting Visitors w/o Pairings	182	x	3	gpcd	=	546	gal/day
Event Guests w/ Pairings	50	x	6	gpcd	=	300	gal/day
Total					=	1,926	gal/day
Daily Tasting w/ Every-Other-Week Event							
Employee (maximum on-site)	42	x	15	gpcd	=	630	gal/day
Tasting Visitors w/ Pairings	75	x	6	gpcd	=	450	gal/day
Tasting Visitors w/o Pairings	182	x	3	gpcd	=	546	gal/day
Event Guests w/ Catered Dinners	50	x	10	gpcd	=	500	gal/day
Total					=	**2,126**	gal/day
Daily Tasting w/ Monthly Marketing Event							
Employee (maximum on-site)	42	x	15	gpcd	=	630	gal/day
Tasting Visitors w/ Pairings	75	x	6	gpcd	=	450	gal/day
Event Guests w/ Pairings	80	x	6	gpcd	=	480	gal/day
Total					=	2,106	gal/day
Daily Tasting w/ Biannual Event							
Employee (maximum on-site)	42	x	15	gpcd	=	630	gal/day
Tasting Visitors w/ Pairings	75	x	6	gpcd	=	450	gal/day
Tasting Visitors w/o Pairings	182	x	3	gpcd	=	546	gal/day
Event Guests w/o Pairings	150	x	3	gpcd	=	450	gal/day
Total					=	2,076	gal/day

ASSUMPTIONS

1) From the conditions of approval of UPVMM #P11-00441-VMM, up to 75 of the tasting visitors are allowed pairings with their wine

2) Food service is excluded for the biannual event. All other events may have food services as detailed in the conditions of approval for UPVMM #P11-00441-VMM

The estimated average demand with increased employees and visitation is 1,626 gpd, and the estimated peak demand is 2,126 gpd. Domestic water demand will be provided by the existing domestic wells serving the public water system.

MAXIMUM DAILY DEMAND (MDD)

The MDD will occur during the facility's peak months (September – October) and is determined based on the peak projected water demand for process and domestic water as follows below:

Table 3: Estimated MDD for Proposed UP Modification.

Demand	Flow (gpd)	8-hr Demand(gpm)
Process Water	3,910	8.1
Domestic Water	2,126	4.4
TOTAL	**6,036**	**12.6**

MAX DAY DEMAND

Estimated MDD 6,036 gpd X 2.25	=	13,581 Gallons
Existing Storage Onsite	=	32,500 Gallons

The existing public water system's 32,500 gallons of treated water storage is still capable of meeting the new MDD associated with the proposed increase in use.

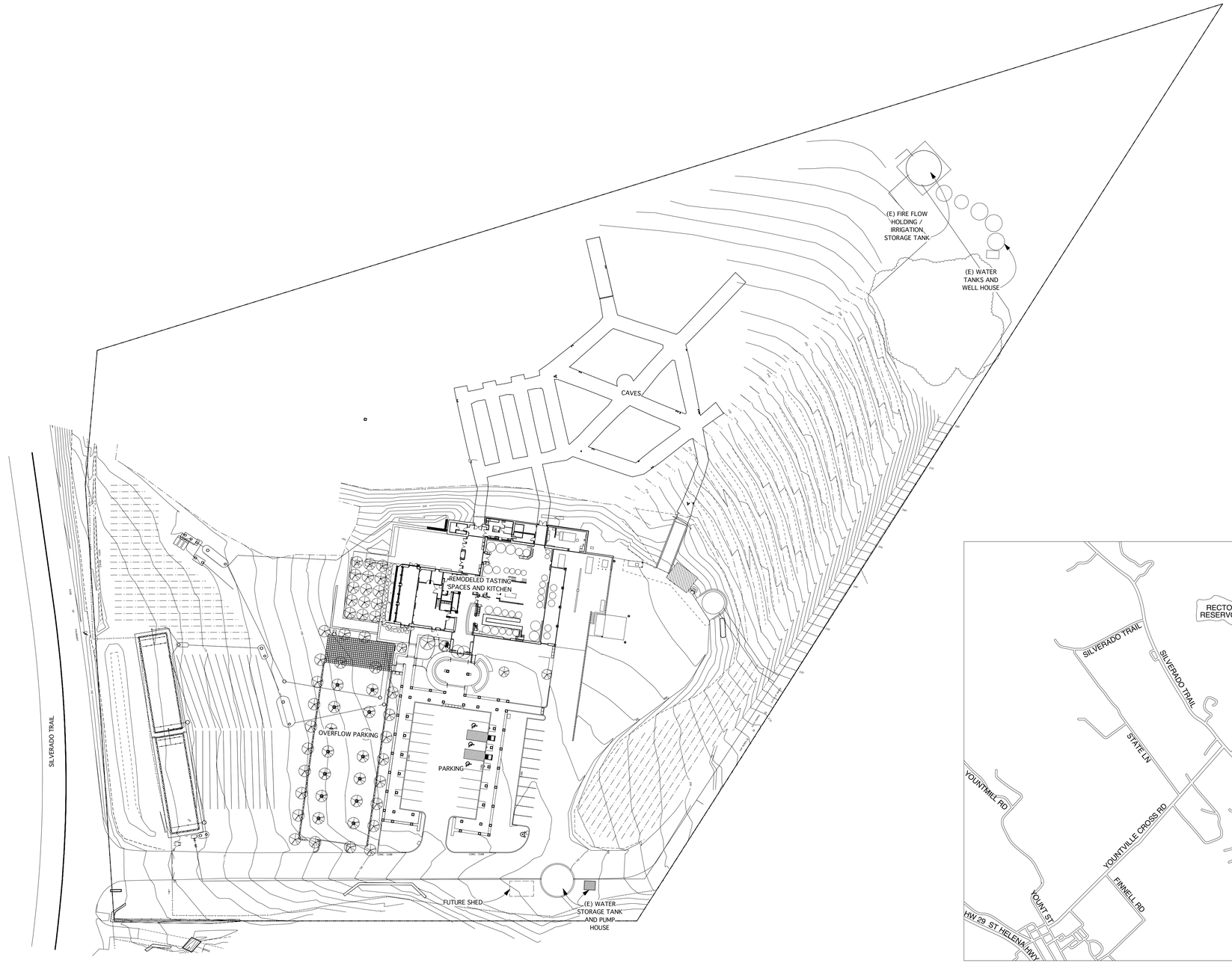
MANAGEMENT

Sinskey Vineyards, Inc., owns and operates Robert Sinskey Vineyards and is responsible for all finances, operations, compliance requirements, and establishment of policies. The facility's domestic water system will be classified as non-transient, non-community and is managed by employees of the winery. Major repairs, replacements and other engineering and professional services are contracted out.

FINANCIAL

Sinskey Vineyards, Inc., is not currently encumbered by any judgements, liens, or other financial liability that would prevent the operation of the Robert Sinskey Vineyards water system. The operating and maintenance costs of the system are covered by the income from retail wine sales. There will be no expected primary financial impacts since the current water system has sufficient supply capacity to meet the increase in water demand.

ENCLOSURE A
OVERALL SITE PLAN



1 A0.1 EXISTING SITE PLAN
1" = 50'-0"

0 25 50

NORTH

2 A0.1 VICINITY MAP
N.T.S.

Revision Date	I.D.

ARKIN · TILT
ARCHITECTS
Ecological Planning & Design

1101 8th Street, #180
Berkeley, CA 94710
phone 510.528.9830
fax 510.528.0206
info@arkintilt.com
www.arkintilt.com

ROBERT SINSKEY VINEYARDS
6320 SILVERADO TRAIL
NAPA, CA 94558
A.P.N. # 031-230-017

EXISTING SITE PLAN

DATE: 08/14/2019
JOB: RSV
SCALE: 1" = 50'-0"
DRAWN: ATA
SHEET: A0.1


WELL D
WELL C
WELL B
WELL A
Where:
Well A = Well 1
Well B = Well 2
Well C = Well 3

ENCLOSURE B
WELL COMPLETION REPORTS

BRELJE AND RACE LABORATORIES, INC.
Providing quality laboratory analysis since 1967

BACTERIOLOGICAL EXAMINATION OF WATER

REPORTED TO:
Robert Sinskey Winery
6320 Silverado Trail
Napa, CA 94558

DATE REPORTED: July 10, 2019
COLLECTED BY : AM/B&R Labs

Log Number	Date Collected	Date Set	Date Completed	Sample Source	Total Coliform	E. coli
719-14571	07/03/19	07/04/19	07/05/19	Tasting Room kitchen sink UV treated	Absent	Absent

Std. Mthds. 9223B Colilert

COPY SENT TO: NCHD

Called _____
Date _____

Approved By Jamie Lynch
BRELJE & RACE LABORATORIES, INC.

Well #2

TRIPLICATE
Owner's Copy

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in
No. 271120

Notice of Intent No. _____
Local Permit No. or Date 8-12-1988

State Well No. _____
Other Well No. _____

(1) OWNER: Name Sinskey Vineyards
Address 6320 Silverado Trail
City Napa, Ca. ZIP 94558

(2) LOCATION OF WELL (See instructions):
County Napa Owner's Well Number _____
Well address if different from above _____
Township 7 North Range 4 West Section 29
Distance from cities, roads, railroads, fences, etc. _____

A.P. # 31-230-02

WELL LOCATION SKETCH

(3) TYPE OF WORK:
New Well [X] Deepening [ ]
Reconstruction [ ]
Reconditioning [ ]
Horizontal Well [ ]
Destruction [ ] (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic [X]
Irrigation [X]
Industrial [ ]
Test Well [ ]
Municipal [ ]
Other [ ]
(Describe)

(5) EQUIPMENT:
Rotary [X] Reverse [ ]
Cable [ ] Air [X]
Other [ ] Bucket [ ]

(6) GRAVEL PACK:
Yes [X] No [ ] Size 3/8pea
Diameter of bore 8 3/4
Packed from 21 to 420 ft.

(7) CASING INSTALLED:
Steel [ ] Plastic [X] Concrete [ ]

From ft.	To ft.	Dia. in.	Gage or Wall
+1	423	5	F-480

(8) PERFORATIONS:
Type of perforation or size of screen

From ft.	To ft.	Slot size
75	175	1/8
195	295	1/8
335	419	1/8

(9) WELL SEAL:
Was surface sanitary seal provided? Yes [X] No [ ] If yes, to depth 21 ft.
Were strata sealed against pollution? Yes [ ] No [X] Interval _____ ft.
Method of sealing concrete

(10) WATER LEVELS:
Depth of first water, if known 160 ft.
Standing level after well completion 120 ft.

(11) WELL TESTS:
Was well test made? Yes [X] No [ ] If yes, by whom? Driller
Type of test Pump [ ] Bailer [ ] Air lift [X]
Depth to water at start of test 120 ft. At end of test 380 ft.
Discharge 75 gal/min after 4 hours Water temperature _____
Chemical analysis made? Yes [ ] No [X] If yes, by whom? _____
Was electric log made Yes [ ] No [X] If yes, attach copy to this report

(12) WELL LOG: Total depth 423 ft. Completed depth 420 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	25	Yellow Clay&Rock
25	45	Volcanic Ash-Sandy
45	61	Volcanic Ash-Volcanic Rock
61	80	Volcanic Ash, Fractured
80	90	Volcanic Ash, Fractured
90	100	Grey Volcanic Rock
100	105	Hard Volcanics
105	120	Grey Volcanic Ash 60% Sandstone 40%
120	140	Volcanic Ash
140	180	Volcanic Ash
180	200	Volcanic Ash 40% Sandstone 60%
200	280	Volcanic Ash
280	400	Grey Volcanic, Shale

Work started 8-10 19 88 Completed 8-17 19 88

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

Signed _____ (Well Driller)
NAME Huckfeldt Well Drilling (Person, firm, or corporation) (Typed or printed)
Address 2110 Penny Lane
City Napa, Ca. ZIP 94559
License No. 439746 Date of this report 10-5-1988

DWR 188 (REV. 12-86) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

86 96355

707-255-7044

JOE IMBODEN

WELL TESTING • FLOW PURITY • MINERAL

STATE LICENSE NO. C-61-150427

EST. 1946

1032 Pueblo Avenue

Napa, California
94558

TEST DATE
2/19/91
INVOICE NO.
1789

CUSTOMER

SINSKEY WINERY
6320 SILVERADO TRAIL
NAPA, CA

REALTOR

SALES PERSON

PARCEL NO. 31-230-02

ESCROW NO.

BUYER

SELLER

WELL DIA-5" PVC. DEPTH- 423' LEVEL-320'

TIME	G.P.M	LEVEL
10:15	40	220' STATIC LEVEL
10:45	40	250'
11:15	38	260'
11:45	38	268'
12:15	38	280'
12:45	38	280'
1:15	38	280'
1:45	38	280'
2:15	38	280' STABALIZED LEVEL

Joe Imboden

NOTICE

UNDER THE MECHANICS LIEN LAW (CALIFORNIA CODE OF CIVIL PROCEDURE, SECTION 1181 ET SEQ.) ANY CONTRACTOR, SUBCONTRACTOR, LABORER, SUPPLIER OR OTHER PERSON WHO HELPS TO IMPROVE YOUR PROPERTY BUT IS NOT PAID FOR HIS WORK OR SUPPLIES, HAS A RIGHT TO ENFORCE A CLAIM AGAINST YOUR PROPERTY. THIS MEANS THAT, AFTER A COURT HEARING, YOUR PROPERTY COULD BE SOLD BY A COURT OFFICER AND THE PROCEEDS OF THE SALE USED TO SATISFY THE INDEBTEDNESS. THIS CAN HAPPEN EVEN IF YOU HAVE PAID YOUR OWN CONTRACTOR IN FULL. IF THE SUBCONTRACTOR, LABORER, OR SUPPLIER REMAINS UNPAID.

ABOVE PARAGRAPH REQUIRED BY STATE CONTRACTORS LICENSE BOARD

A FINANCE CHARGE OF 1½% PER MONTH (18% PER YEAR) WILL BE CHARGED COMMENCING 30 DAYS AFTER BILLING DATE.

$200

ORIGINAL
File with DWR

Page 1 of 1
Owner's Well No. 3
Date Work Began 7/12/93, Ended 8/1/93
Local Permit Agency County of Napa E.H.
Permit No. 33403 Permit Date 7/2/93

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 97960

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	4	Top Soil
4	26	Loose Vol Ash Tan
26	88	Lite Brown Vol Ash
88	109	Lite Grey Sandstone Ash
109	127	Hard Vol Rock
127	130	Grey Ash
130	200	Hard Fractrd Rock
200	222	Grey Ash
222	280	Broken Blue Shale
280	282	Hard Rock
282	290	Clay Hard Shale
290	475	Shale Clay Mix.

TOTAL DEPTH OF BORING 475 (Feet)
TOTAL DEPTH OF COMPLETED WELL 230' (Feet)

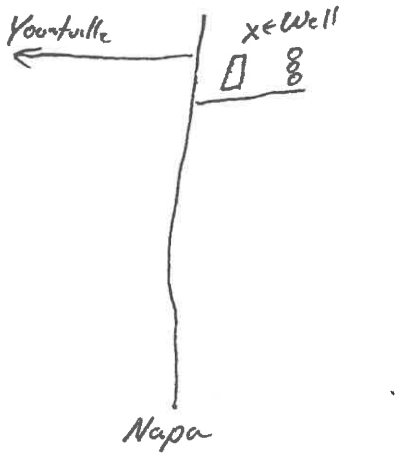
WELL OWNER

Name Sinsky Winery
Mailing Address 6320 Silverado Trail
City Yountville State Ca ZIP 94558

WELL LOCATION

Address Same as above
City
County
APN Book 31 Page 230 Parcel 17
or Township ___ Range ___ Section ___
or Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH



Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USE(S) (✓)

___ MONITORING
WATER SUPPLY
✓ Domestic
___ Public
___ Irrigation
___ Industrial
___ "TEST WELL"
___ CATHODIC PROTECTION
___ OTHER (Specify)

DRILLING METHOD Air FLUID ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL 119' (Ft.) & DATE MEASURED 8/6/93
ESTIMATED YIELD* 60 (GPM) & TEST TYPE ___
TEST LENGTH 2 (Hrs.) TOTAL DRAWDOWN NA (Ft.)
* *May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL/ GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	60'	9"	✓				PVC 450	5"	200	-
60	100	8"	✓				" "	5"	200	
100	230	8		✓			" "	"	200	.030

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	51	✓			
51	475			✓	3/8 Pea

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME D Bess Pump & Well (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS 1115 MT George Ave CITY Napa STATE Ca ZIP 94558
Signed ___ (WELL DRILLER/AUTHORIZED REPRESENTATIVE) DATE SIGNED 8/20/93 C-57 LICENSE NUMBER 481027

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

DATE 7/2/93
FEE $119.00
RECEIPT NO. 32403
BY

A.P.# 31-230-17
RECORD #

NAPA COUNTY
DEPT. OF ENVIRONMENTAL MANAGEMENT
APPLICATION & PERMIT TO CONSTRUCT A WATER WELL

NAME Sinskey Winery (Owner) ADDRESS 6320 Silverado Trail (Job Location)

NAME Dave Bess (Well Driller) PHONE # ADDRESS

TYPE OF WORK
New Class I PERMIT ✓ Test Hole Date Called In
New Class II PERMIT U.S.G.S. Map Received
Well Reconstruction Well Deepening Horizontal Well
Well Destruction High Hazard Low Hazard Hand Dug

PROPOSED USE
DOMESTIC IRRIGATION (Winery) INDUSTRIAL MUNICIPAL
TEST WELL HOT WATER (D.O.G. Clearance) OTHER

Sewage Disposal System (existing or proposed) Public Individual Private
Distance from well to any part of nearest sewage disposal system >100' (200+') feet.
Septic System Location Determined By:
Plot plan of well location received County road setback ft. from centerline.

WORKER'S COMPENSATION COVERAGE: (Check one of the following)
✓ A certificate of current Worker's Compensation Insurance coverage is presently on file with this office.
___ A certificate of current Worker's Compensation Insurance is being filed with this application.
___ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation laws in California.

****

TERMS OF PERMIT

1) Call at least 24 hours in advance to schedule an inspection.
2) Prior to receiving a Final Clearance on the well, a copy of the Department of Water Resources "Water Well Drillers Report" (DWR-188) must be returned to our Department.

Old Wells to be Destroyed:
Other Remarks: No haz. sites within 200'; no flood plain.

Signature of Applicant

7/2/93
Date

****

FOR OFFICE USE ONLY

	Date	By	Remarks
City Clearance			
Pub. Works Clearance			
Pre-Inspection			
Class II Approval			
Permit Issued	7/2/93	JM	
Const. Insp.			
Well Log Rec.			
Final Insp.			

White-Office Yellow-Owner Pink-Contractor
EHM Form Letter#6 / 12-14-88

ENCLOSURE C
WASTEWATER GENERATION AND WATER DEMAND

SUMMIT ENGINEERING, INC.	ROBERT SINSKEY VINEYARDS Water Availability Analysis Proposed Process Wastewater Flows (No Change)	PROJECT NO. BY: CHK:	2019156 JM GG

PROCESS WASTEWATER

Annual Volume

Annual Production (projected)					=	60,000	cases wine/year
Generation Rate (assumed)[a]					=	2.4	gal wine/case of wine
Annual Production	60,000	cases wine/year	x	2.4 gal wine/case of wine	=	143,000	gal wine/year
Generation Rate (assumed)[b]					=	165	gal wine/ton grapes
Tons Crushed	143,000	gal wine/year	÷	165 gal wine/ton grapes	=	867	tons grapes/year
Process Wastewater (PW) Generation Rate[c]	(assumed)				=	5.00	gal PW/gal wine
Annual PW Flow	143,000	gal wine/year	x	5.00 gal PW/gal wine	=	***715,000***	***gal PW/year***

Average Day Flow

	715,000	gal PW/year	÷	365 days	=	*1,959*	*gal PW/day*
					=	***1,960***	***gal PW/day***

Average, Day Peak Harvest Month Flow

Assume:
1. 16.4% of the PW flows are accounted for during September
2. 30 days in September

Peak Flow	715,000 gal PW/year / 30 days		x	16.4%	=	*3,909*	*gal PW/day*
					=	***3,910***	***gal PW/day***

a. 2.4 gallons of wine per case of wine
b. 165 Gal wine per ton of grapes is used as a wine industry standard
c. 6.0 gal of PW per gallon wine produced over the course of 1 year is based on the average of data from approximately 16 wineries
d. Peak week tonnage was based on input from winery (for existing production)

SUMMIT ENGINEERING, INC.	ROBERT SINSKEY VINEYARDS Water Availability Analysis Proposed Sanitary Sewage Flows	PROJECT NO. 2019156 BY: JM CHK: GG

SANITARY SEWAGE

Daily Tasting w/o Events				
Employee (maximum on-site)	42 x	15 gpcd	=	630 gal/day
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Tasting Visitors w/ Pairings	75 x	6 gpcd	=	450 gal/day
Tasting Visitors w/o Pairings	182 x	3 gpcd	=	546 gal/day
Event Guests w/o Pairings	150 x	3 gpcd	=	450 gal/day
Total			=	2,076 gal/day

ASSUMPTIONS

1) Peak tasting visitation (500) will not occur on days with events

1) From the conditions of approval of UPVMM #P11-00441-VMM, up to 75 of the tasting visitors are allowed pairings with their wine

2) Food service is excluded for the biannual event. All other events may have food services as detailed in the conditions of approval for UPVMM #P11-00441-VMM

SUMMIT ENGINEERING, INC. Consulting Civil Engineers	ROBERT SINSKEY VINEYARDS Water Availability Analysis Proposed Water Demand	PROJECT NO. 2019156 BY: JM CHK: GG

DOMESTIC WATER DEMAND

Daily Tasting w/o Events					
Employee (maximum on-site)	42	x	15 gpcd	=	630 gal/day
Tasting Visitors w/ Pairings	75	x	6 gpcd	=	450 gal/day
Tasting Visitors w/o Pairings	182	x	3 gpcd	=	546 gal/day
Total				=	1,626 gal/day

Daily Tasting w/ 5/day/week Event					
Employee (maximum on-site)	42	x	15 gpcd	=	630 gal/day
Tasting Visitors w/ Pairings	75	x	6 gpcd	=	450 gal/day
Tasting Visitors w/o Pairings	182	x	3 gpcd	=	546 gal/day
Event Guests w/ Pairings	50	x	6 gpcd	=	300 gal/day
Total				=	1,926 gal/day

Daily Tasting w/ Every-Other-Week Event					
Employee (maximum on-site)	42	x	15 gpcd	=	630 gal/day
Tasting Visitors w/ Pairings	75	x	6 gpcd	=	450 gal/day
Tasting Visitors w/o Pairings	182	x	3 gpcd	=	546 gal/day
Event Guests w/ Catered Dinners	50	x	10 gpcd	=	500 gal/day
Total				=	2,126 gal/day

Daily Tasting w/ Monthly Marketing Event					
Employee (maximum on-site)	42	x	15 gpcd	=	630 gal/day
Tasting Visitors w/ Pairings	75	x	6 gpcd	=	450 gal/day
Tasting Visitors w/o Pairings	182	x	3 gpcd	=	546 gal/day
Event Guests w/ Pairings	80	x	6 gpcd	=	480 gal/day
Total				=	2,106 gal/day

Daily Tasting w/ Biannual Event					
Employee (maximum on-site)	42	x	15 gpcd	=	630 gal/day
Tasting Visitors w/ Pairings	75	x	6 gpcd	=	450 gal/day
Tasting Visitors w/o Pairings	182	x	3 gpcd	=	546 gal/day
Event Guests w/o Pairings	150	x	3 gpcd	=	450 gal/day
Total				=	2,076 gal/day

PROCESS WATER DEMAND

Average Day Flow	=	1,960 gal/day
Average, Day Peak Harvest Month Flow	=	3,910 gal/day

TOTAL WATER DEMAND

	Average		Peak	
	gal/day	gal/min^3	gal/day	gal/min^3
Domestic Water	1,926	4.0	2,126	4.4
Process Water	1,960	4.1	3,910	8.1
Total	3,886	8.1	6,036	12.6

Peaking Factor	=	2.25	
MDD (based on peak demand)	**=**	**13,581 gal/day**	
3) Over 8 hours per day	**=**	13 gpm	(Peak)
		28 gpm	(MDD)

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