



WATER AVAILABILITY ANALYSIS

PARABLE WINERY
4300 SILVERADO TRAIL
CALISTOGA, CALIFORNIA

APN 020-120-028

PROPERTY OWNER:

Trey Eppright
3215 Steck Avenue, Ste. 101
Austin, TX 78757

October 11, 2024
Project #4122063.0





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EXECUTIVE SUMMARY

Parable Winery (APN 020-120-028) is applying for a Use Permit Modification to construct a new winery building to replace the burned winery building, installation of new landscaping, and to add visitation to the existing winery program. There is an existing residence at the site that will remain with up to two (2) full-time residents. The winery is currently entitled for the production of 20,000 gallons of wine per year, and includes 3 full-time employees. The project proposes modification in two phases:

- Phase I includes a request to add one part-time employee, and to allow 20 visitors per day and 10 events per year with 30 guests at each event.
- The Phase II modification includes a request to increase production to 30,000 gallons of wine per year. The Phase II modification also includes a request to add one full-time employee and one additional part-time employee above the Phase I request, and also includes the request to allow 30 visitors per day and add one additional marketing event per year with 50 guests.

The parcel is sized at 10.29 ± acres. There are three existing wells on the winery parcel. Well #1 is used for the winery and domestic water supply, and well #2 is currently unused and planned to be abandoned. Well #3 had been used for vineyard irrigation in the past, but the well is not being used at this time. A groundwater recharge rate adopted for the site is 0.3 ac-ft/ac/yr for Valley Floor. This provides an annual allowable water allotment of 3.087 ac-ft/yr for the 10.29-acre parcel.

Also proposed in this Modification is a new Process Wastewater Treatment System. The proposed system will utilize treated process wastewater for vineyard irrigation. Utilizing the treated process water results in a decrease in Groundwater Use at the site.

Below is a summary of the existing and proposed water use. Detailed calculations can be found on page 3.

Table 1: Phase I Water Usage

Usage Type	Existing Usage [af/yr]	Standard Usage [af/yr]	Proposed Usage [af/yr]
Vineyard			
Irrigation – Well	0.815	0.815	0.815
Irrigation – Recycled Process Wastewater (Credit)	0	-0.287	-0.287
Landscaping	0.100	0.190	0.190
Residential			
Existing Residence	0.500	0.500	0.500
Winery			
Process Water	0.430	0.430	0.368
Domestic Water	0.036	0.119	0.119
Totals (Acre-ft per Year)	1.881	1.767	1.705
Estimated Water Recharge Rate (Acre-ft per Year)	3.087	3.087	3.087



Table 2: Phase II Water Usage

Usage Type	Existing Usage [af/yr]	Standard Usage [af/yr]	Proposed Usage [af/yr]
Vineyard			
Irrigation – Well	0.815	0.815	0.815
Irrigation – Recycled Process Wastewater (Credit)	0	-0.446	-0.446
Landscaping	0.100	0.190	0.190
Residential			
Existing Residence	0.500	0.500	0.500
Winery			
Process Water	0.430	0.645	0.552
Domestic Water	0.036	0.169	0.169
Totals (Acre-ft per Year)	1.881	1.873	1.78
Estimated Water Recharge Rate (Acre-ft per Year)	3.087	3.087	3.087

The proposed Phase I modifications for the Parable Winery project will result in a decrease in the use of groundwater of 0.176 af/yr for a total annual usage of 1.705 af/yr. The Phase II modifications will also result in a decrease in the use of groundwater of 0.101 af/yr for a total annual usage of 1.78 af/yr which is less than the estimated groundwater recharge rate for the parcel of 3.087 af/yr. This decrease is due to the use of the treated process wastewater for vineyard irrigation.

TIER III WELL PROXIMITY TO SIGNIFICANT STREAMS

RSA+ has determined that the nearest site well is greater than 4,900 feet from The Napa River. The only well that is within 1,500 feet of a significant stream is the irrigation well (Well #3) near Silverado Trail which is not currently in use, and it is 1,498 feet from the stream, see Well Proximity Exhibit.

Based on the estimated yield of 10 gpm, the well is right at the transition between using Table 3 and Table 4 for the Tier 3 analysis described in The Napa County Water Availability Analysis (WAA) - Guidance Document.

The well has a plastic casing depth of 50 feet and first perforations occur at 160 feet, see Well Completion Report in Appendix 3. Soil Conductivity in the area of the well is considered to be very low per Table F5 of the WAA – Guidance Document. See attached Web Soil Survey map for saturated hydraulic conductivity. Based on these criteria the well is an acceptable distance from the surface water channel based per Table 3 (more than 500 feet) and Table 4 (more than 1,000 feet).



GROUNDWATER USE CALCULATION – PHASE I

Existing Vineyard Irrigation and Landscaping Water Demand

Vineyard – Irrigation from well – (0.5 af/ac-yr x	1.63	acres vineyard) =	0.815	af/yr
Vineyard – Irrigation from PWW Credit	0	gal/yr =	0.00	af/yr
Landscape – (0.5 af / 100,000-gallon wine x	20,000	gal wine/year =	0.100	af/yr

Existing Winery Process Water Demand

Process Water – (2.15 af / 100,000 gallon wine x	20,000	gal wine/year) =	0.430	af/yr
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Existing Residential Water Demand

Ex Primary Res – (1 x	0.5	af/yr) =	0.500	af/yr
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Existing Winery Domestic Water Demand

FT Employees – (15 gal/person/day x 260 days/yr x	3	employees/day) =	0.036	af/yr
PT Employees – (15 gal/person/day x 165 days/yr x	0	employees/day) =	0.00	af/yr
Average Visitors – (3 gal/person/day x	0	visitors/day) =	0.00	af/yr
Marketing Events – (0 visitors @ 15 gal/guest x	0	days/yr) =	0.00	af/yr

Total = 0.036 af/yr

Total Existing Water Demand

Total = 1.881 af/yr

			Proposed Standard	Proposed Reduced
Proposed Vineyard Irrigation and Landscaping Water Demand				
Vineyard – Irrigation from well – (0.5 af/ac-yr x	1.63	acres vineyard) =	0.815 af/yr	0.815 af/yr
Vineyard – Irrigation from PWW Credit	20,000	(See Appendix 2)	-0.287 af/yr	-0.287 af/yr
Landscape – (See WELO Calculation in Appendix 4)	20,000	(See Appendix 4)	0.190 af/yr	0.190 af/yr
Proposed Winery Process Water Demand				
^{(1) (2)} Process Water – (2.15 af / 100,000 gallon wine x	20,000	gal wine/year) =	0.430 af/yr	0.368 af/yr
Proposed Residential Water Demand				
Proposed Primary Res - (1 x	0.5	residence) =	0.500 af/yr	0.500 af/yr
Proposed Winery Domestic Water Demand				
FT Employees – (15 gal/person/day x 260 days/yr x	3	employees/day) =	0.036 af/yr	0.036 af/yr
PT Harvest Employees – (15 gal/pers/day x 45 days/yr x	1	employees/day) =	0.002 af/yr	0.002 af/yr
⁽³⁾ Average Visitors – (3 gal/person/day x	20	visitors/year) =	0.067 af/yr	0.067 af/yr
⁽⁴⁾ Marketing Events – (30 visitors @ 15 gal/guest x	10	days/yr) =	0.014 af/yr	0.014 af/yr
Total =			0.119 af/yr	0.119 af/yr
Total Proposed Water Demand			Total = 1.767 af/yr	1.705 af/yr

Net Saving in Water Demand = 0.176 af/year (Phase I only)

Estimates per Napa County Water Availability Analysis – Guidance Document, May 12, 2015 unless noted:

⁽¹⁾ 2.15 ac-ft per 100,000 gallons wine per Napa County WAA – Guidance Document

⁽²⁾ Reduced water use to 6 gallons per gallon of wine or 1.84 ac-ft per 100,000 gallons wine (14% reduction)

⁽³⁾ 3 gallons of water per guest per Napa County WAA – Guidance Document

⁽⁴⁾ 15 gallons of water per guest per Napa County WAA – Guidance Document



GROUNDWATER USE CALCULATION – PHASE II

Existing Vineyard Irrigation and Landscaping Water Demand

Vineyard – Irrigation from well – (0.5 af/ac-yr x	1.63	acres vineyard) =	0.815	af/yr
Vineyard - Irrigation from PWW Credit	0	gal/yr =	0.00	af/yr
Landscape – (0.5 af / 100,000-gallon wine x	20,000	gal wine/year =	0.100	af/yr

Existing Winery Process Water Demand

Process Water – (2.15 af / 100,000 gallon wine x	20,000	gal wine/year) =	0.430	af/yr
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Existing Residential Water Demand

Ex Primary Res – (1 x	0.5	af/yr) =	0.500	af/yr
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Existing Winery Domestic Water Demand

FT Employees – (15 gal/person/day x 260				
days/yr x	3	employees/day) =	0.036	af/yr
PT Employees – (15 gal/pers/day x 165 days/yr x	0	employees/day) =	0.0	af/yr
Average Visitors – (3 gal/person/day x	0	visitors/day) =	0.0	af/yr
Marketing Events – (0 visitors @ 15 gal/guest x	0	days/yr) =	0.0	af/yr
Total =			0.036	af/yr

Total Existing Water Demand

Total = 1.881 af/yr

			Proposed Standard	Proposed Reduced
Proposed Vineyard Irrigation and Landscaping Water Demand				
Vineyard – Irrigation from well – (0.5 af/ac-yr x	1.63	acres vineyard) =	0.815 af/yr	0.815 af/yr
Vineyard – Irrigation from PWW Credit	30,000	(See Appendix 2)	-0.446 af/yr	-0.446 af/yr
Landscape – (See WELO calculation in Appendix 4)	30,000	(See Appendix 4)	0.190 af/yr	0.190 af/yr
Proposed Winery Process Water Demand				
^{(1) (2)} Process Water – (2.15 af / 100,000 gallon wine x	30,000	gal wine/year) =	0.645 af/yr	0.552 af/yr
Proposed Residential Water Demand				
Proposed Primary Res - (1 x	0.5	residence) =	0.500 af/yr	0.500 af/yr
Proposed Winery Domestic Water Demand				
FT Employees – (15 gal/person/day x 260 days/yr x	4	employees/day) =	0.048 af/yr	0.048 af/yr
PT Harvest Employees – (15 gal/pers/day x 455 days/yr x	2	employees/day) =	0.004 af/yr	0.004 af/yr
⁽³⁾ Average Visitors – (3 gal/person/day x	30	visitors/year) =	0.101 af/yr	0.101 af/yr
⁽⁴⁾ Marketing Events – (30 visitors @ 15 gal/guest x	10	days/yr) =	0.014	0.014
⁽⁴⁾ Marketing Events – (50 visitors @ 15 gal/guest x	1	days/yr) =	0.002 af/yr	0.002 af/yr
Total =			0.169 af/yr	0.169 af/yr
Total Proposed Water Demand			Total = 1.873 af/yr	1.78 af/yr

Net Saving in Water Demand = 0.101 af/year (Including Phase II)

Estimates per Napa County Water Availability Analysis – Guidance Document, May 12, 2015 unless noted:

⁽¹⁾ 2.15 ac-ft per 100,000 gallons wine per Napa County WAA – Guidance Document

⁽²⁾ Reduced water use to 6 gallons per gallon of wine or 1.84 ac-ft per 100,000 gallons wine (14% reduction)

⁽³⁾ 3 gallons of water per guest per Napa County WAA – Guidance Document

⁽⁴⁾ 15 gallons of water per guest per Napa County WAA – Guidance Document



Appendix 1

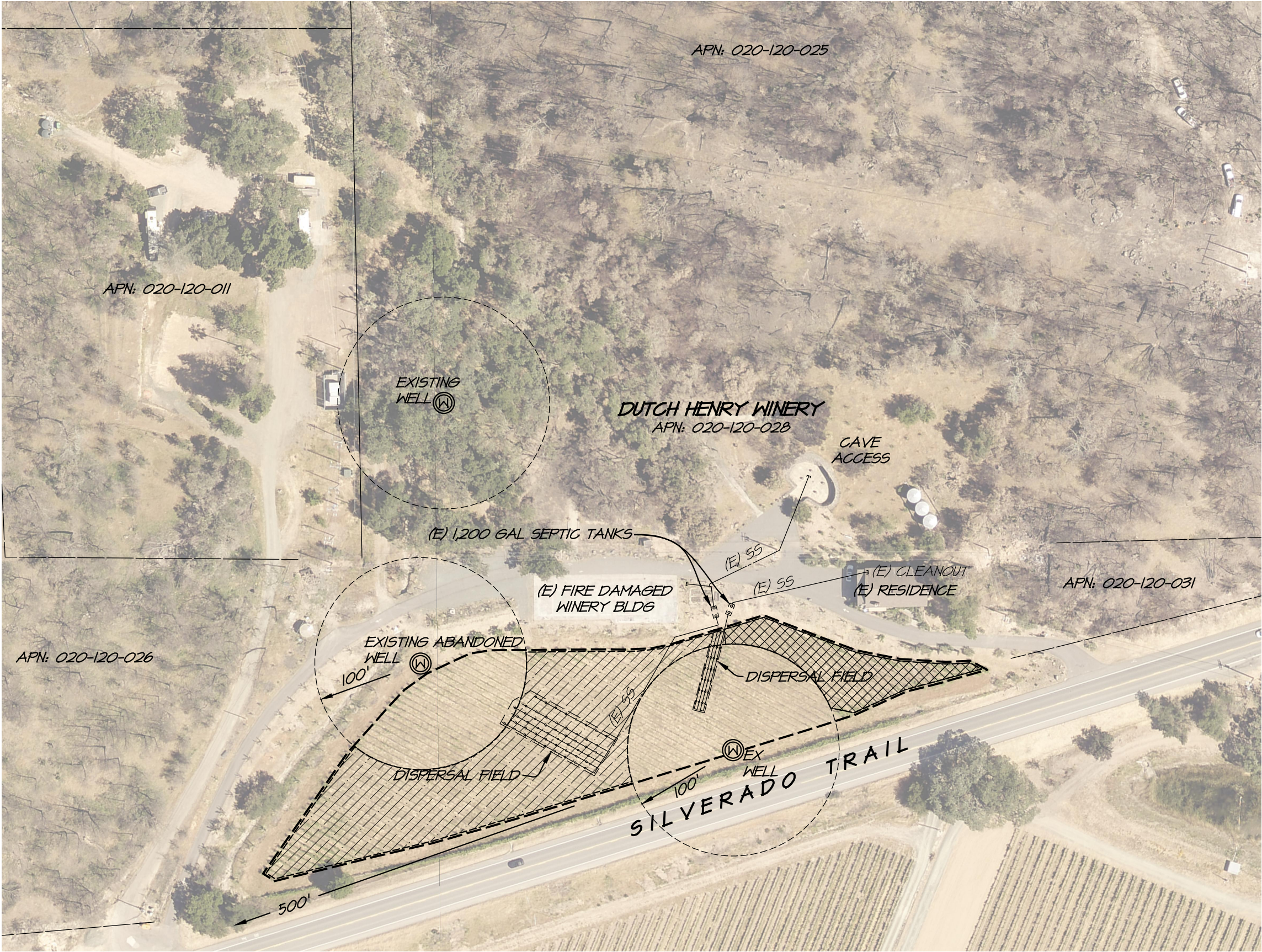
Vineyard Area Exhibit

PARABLE WINERY

VINEYARD IRRIGATION AREA

NAPA COUNTY

CALIFORNIA



LEGEND

PROPERTY LINE

VINEYARD AREA

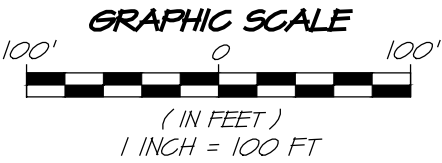
PROCESS WASTEWATER IRRIGATION AREA

WELL LOCATION

VINEYARD AREA AVAILABLE FOR
PROCESS WASTEWATER IRRIGATION

COVER CROP AREA AVAILABLE FOR
PROCESS WASTEWATER IRRIGATION

TOTAL VINEYARD AREA:	1.63 ACRES
TOTAL VINEYARD AREA AVAILABLE FOR PROCESS WASTEWATER IRRIGATION:	0.93 ACRES
COVER CROP AREA FOR PROCESS WASTEWATER IRRIGATION:	0.17 ACRES



RSA⁺

1515 FOURTH STREET
NAPA, CALIF. 94559
OFFICE | 707 | 252.3301
+ www.RSAcivil.com +

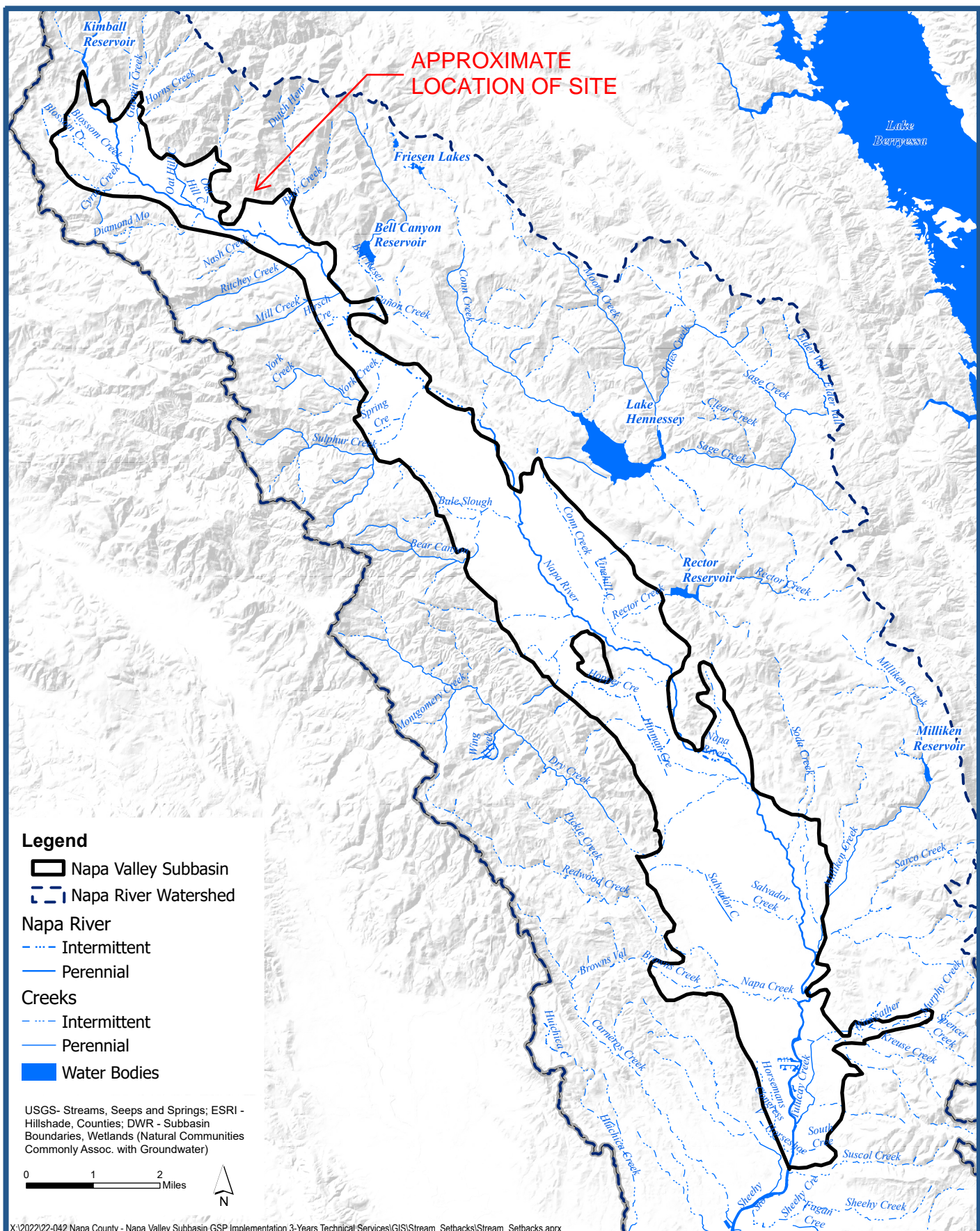
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EST.
1980



Appendix 2

Well Proximity Exhibit & Well Distance Standards and Construction Assumptions



PARABLE WINERY
WELL PROXIMITY EXHIBIT
NAPA COUNTY CALIFORNIA



LEGEND

PROPERTY LINE

WELL SETBACK

STREAM SETBACK

WELL LOCATION

GRAPHIC SCALE

200'

0

200'

(IN FEET)

1 INCH = 200 FT

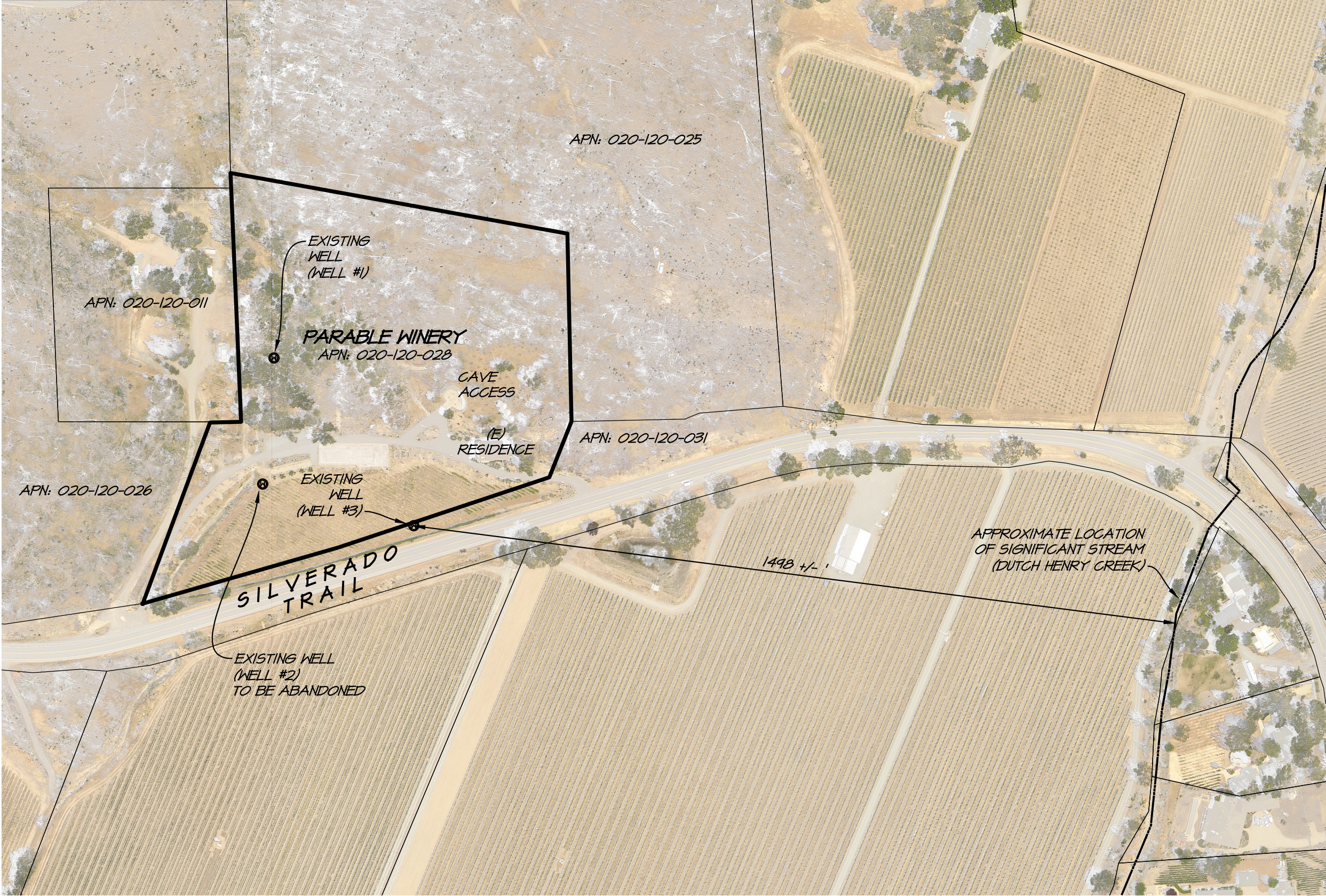
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PARABLE WINERY
WELL PROXIMITY EXHIBIT
NAPA COUNTY CALIFORNIA



LEGEND

PROPERTY LINE

WELL SETBACK

STREAM SETBACK

W

WELL LOCATION

GRAPHIC SCALE

200'

0

200'

(IN FEET)

1 INCH = 200 FT

RSA⁺

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Very low pumping capacity wells in unconfined aquifers will typically require a minimum amount of information due to the limited potential for surface water flow depletion. Other well types located at distances of 1500 feet or greater from surface waters will also likely require a minimum amount of information, particularly when it can be shown that the project well targets aquifer units not hydraulically connected to surface water.

Table 3. Well Distance Standards and Construction Assumptions; **Very low capacity** pumping rates (i.e., **less than 10 gpm**), constructed in unconsolidated deposits in the upper part of the aquifer system (unconfined aquifer conditions).

Aquifer Hydraulic Conductivity (ft/day)	Acceptable Distance from Surface Water Channel			Minimum Surface Seal Depth (feet)	Depth of Uppermost Perforations (feet)
	500 feet	1000 feet	1500 feet		
80	✓			50	100
50	✓			50	100
30	✓			50	100
0.5	✓			50	100

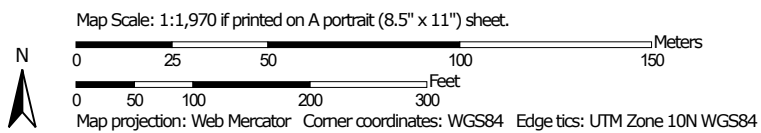
Table 4. Well Distance Standards and Construction Assumptions; **Low capacity** pumping rates (i.e., **between 10 gpm and 30 gpm**), constructed in unconsolidated deposits in the upper part of the aquifer system (unconfined aquifer conditions).

Aquifer Hydraulic Conductivity (ft/day)	Acceptable Distance from Surface Water Channel			Minimum Surface Seal Depth (feet)	Depth of Uppermost Perforations (feet)
	500 feet	1000 feet	1500 feet		
80			✓	50	150
50			✓	50	150
30			✓	50	100
0.5		✓		50	100

Saturated Hydraulic Conductivity (Ksat)—Napa County, California
(K - factor)




Soil Map may not be valid at this scale.




MAP LEGEND

Area of Interest (AOI)





 Area of Interest (AOI)

Background





 Aerial Photography

Soils





Soil Rating Polygons

-  ≤ 6.1403
-  > 6.1403 and ≤ 36.7273
-  > 36.7273 and ≤ 37.3478
-  Not rated or not available


Soil Rating Lines

-  ≤ 6.1403
-  > 6.1403 and ≤ 36.7273
-  > 36.7273 and ≤ 37.3478
-  Not rated or not available






Soil Rating Points

-  ≤ 6.1403
-  > 6.1403 and ≤ 36.7273
-  > 36.7273 and ≤ 37.3478
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Napa County, California
Survey Area Data: Version 16, Sep 11, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2022—Apr 25, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
152	Hambright rock-Outcrop complex, 30 to 75 percent slopes	36.7273	5.1	50.1%
155	Kidd loam, 15 to 30 percent slopes	37.3478 CONVERTED TO FT- DAY = 10.586	0.0	0.1%
168	Perkins gravelly loam, 1 to 10 percent slopes, MLRA 14	6.1403 CONVERTED TO FT- DAY = 1.74	5.1	49.7%
Totals for Area of Interest			10.2	100.0%

Description

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Rating Options

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): All Layers (Weighted Average)

Table F-5. Representative Hydraulic Conductivity values for WAA analysis of Napa Valley Floor unconsolidated alluvial aquifer materials ³		
Hydraulic Conductivity, K, class	Hydraulic Conductivity range¹, ft./day	Hydraulic Conductivity value, ft./day (used for scenario results)
high	80 - 140	80
moderate	50 - 80	50
low	30 - 50	30
very low ²	0.5 - 30	0.5, 10
¹ Hydraulic conductivity range have been developed from mapped values from Faye (1973) and interpretations based on a review of well driller's logs and other geologic data available through 2011 (LSCE and MBK, 2013). ² A hydraulic conductivity value of 0.5 ft./day was applied for calculations of groundwater and surface water interaction (Tables 3, 4 and 5). A hydraulic conductivity value of 10 ft./day was applied for calculations of well interference (Table 2B and F1). ³ Representative hydraulic conductivity values shown here are applicable to the unconsolidated alluvial aquifer materials in the Napa Valley Floor and not aquifer zones beneath the Napa Valley Floor alluvium or outside of the Napa Valley Floor.		

County staff will review well construction permits and records for wells within 500 feet of the proposed project. Information about existing wells within 500 feet of the proposed project site will include the following as available: the location of those wells relative to the project well(s), total depth, depth of screened intervals, annular seal depths, the geologic or lithologic record made as part of well construction, the elevation of the static water level in the well post-construction, the elevation of water levels while pumping, and the pump depth setting.

Tables F-6 to F-9 present, for comparison purposes, the results of scenarios intended to represent the groundwater drawdown experienced in the vicinity of a proposed project after a 24-hour continuous pumping period. The results in **Tables F-6 and F-7** indicate that drawdown in a confined aquifer would be greater than drawdown in an unconfined aquifer for a given pumping rate. These results also indicate that wells pumping at rates less than 30 gallons per minute (gpm) for periods of time less than 24-consecutive hours will likely have negligible drawdown effects at distances beyond 25 feet in a confined aquifer.

These scenarios are presented for comparison purposes. Actual drawdown due to well interference will have to be calculated using well construction information and site-specific hydrogeologic information and/or values from **Tables F-2, F-3, F-4 and F-5** that are applicable to site-specific conditions.



Appendix 3

Well Completion Report

Environmental

Cover Sheet

APN	020 - 120 - 026 - 000
Permit #	
Program	Well
DocType	WL
Street #	4300
Street Name	Silverado Trail
Year	2012



Well 020-120-026-000

WL 4300

Silverado Tr 2012

STATE OF CALIFORNIA
WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. **0947973**

Page 1 of 1

Owner's Well No. 10-8-12

Date Work Began 10-8-12 Ended 10-19-12

Local Permit Agency Napa County

Permit No. E12-00472 Permit Date 8-13-12

DWR USE ONLY - DO NOT FILL IN

STATE WELL NO./STATION NO.	
LATITUDE	LONGITUDE
APN/TRS/OTHER	

GEOLOGIC LOG

ORIENTATION (°) Vertical Horizontal ANGLE (SPECIFY) N/A

DEPTH FROM SURFACE (Fl. to Fl.)

DEPTH FROM SURFACE (Fl. to Fl.)	DESCRIPTION
0 to 80	brown ash & boulders
80 to 420	hard gray ash, streak of hard broken up black ash

Describe material, grain size, color, etc.

RECEIVED

DEC 30 2013

Napa County Planning, Building & Environmental Services

TOTAL DEPTH OF BORING 420 (Feet)

TOTAL DEPTH OF COMPLETED WELL 420 (Feet)

WELL OWNER

Name [Redacted]

Mailing Address [Redacted]

CITY [Redacted] STATE [Redacted] ZIP [Redacted]

Address 4300 Silverado Tr.

City Calistoga 94515

County Napa

APN Book 020-120-026 Page 1 Parcel 020-120-026

Township Range Section Section

Lat. DEG. MIN. SEC. N Long. DEG. MIN. SEC. W

LOCATION SKETCH

WEST EAST

Silverado Trail

Lommel rd.

4 mi

well

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

ACTIVITY (°)

☒ NEW WELL

MODIFICATION/REPAIR

☐ Deepen

☐ Other (Specify)

USES (°)

WATER SUPPLY

☒ Domestic ☐ Public

☒ Irrigation ☐ Industrial

MONITORING ☐

TEST WELL ☐

CATHODIC PROTECTION ☐

HEAT EXCHANGE ☐

DIRECT PUSH ☐

INJECTION ☐

VAPOR EXTRACTION ☐

SPARGING ☐

REMEDIATION ☐

OTHER (SPECIFY) ☐

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 60 (Fl.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 60 (Fl.) & DATE MEASURED 10-19-12

ESTIMATED YIELD 10 (GPM) & TEST TYPE Air Lift

TEST LENGTH 2 (Hrs.) TOTAL DRAWDOWN 500 (Fl.)

* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)	CASING (S)						DEPTH FROM SURFACE			ANNULAR MATERIAL				
				TYPE (X)				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)				GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE		
Fl.	to	Fl.	BLANK	SCREEN	CON- DUCTOR	FILL PIPE									Fl.	to	Fl.
0	50	11"	X				PLASTIC	5"	200		0	50	X				
50	160	8"	X								50	420	WELL PACK				#6
160	420	8"	FACT				PREF			3/32							

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 Pulliam Wells Drilling

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 2877 Piedmont W. Napa, Ca. 94558

CITY Napa STATE CA ZIP 94558

Signed [Signature] DATE SIGNED 11-12-12

C-57 LICENSED WATER WELL CONTRACTOR

C-57 LICENSE NUMBER 248677

ONBASE 3/11/14

DUPLICATE
Driller's Copy

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

Page 1 of 1

Owner's Well No. 0947973

Date Work Began 10-8-12 Ended 10-19-12

Local Permit Agency Napa County

Permit No. E12-00472 Permit Date 8-13-12

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (°) VERTICAL ANGLE (°) None

DEPTH FROM SURFACE

FLUID Mud

Describe material, grain size, color, etc.

0-80 brown ash & boulders
80-420 hard gray ash, streaks
of hard broken up
black ash

RECEIVED

DEC 30 2013

Napa County Planning, Building
& Environmental Services

TOTAL DEPTH OF BORING 420 (Feet)

TOTAL DEPTH OF COMPLETED WELL 420 (Feet)

WELL OWNER

Name Jess & Margaret Chafen

Mailing Address 4300 Silverado Tr.

City Calistoga State CA ZIP 94515

Address 4300 Silverado Tr.

City Calistoga State CA ZIP 94515

County Napa

APN Book Page Parcel 020-120-026

Township Range Section

Lat DEG. MIN. SEC. N Long DEG. MIN. SEC. W

WELL LOCATION

LOCATION SKETCH

ACTIVITY (✓)

☒ NEW WELL

MODIFICATION/REPAIR

☐ Deepen

☐ Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

USES (✓)

WATER SUPPLY

☒ Domestic ☐ Public

☒ Irrigation ☐ Industrial

MONITORING

☐ TEST WELL

CATHODIC PROTECTION

☐ HEAT EXCHANGE

☐ DIRECT PUSH

☐ INJECTION

☐ VAPOR EXTRACTION

☐ SPARGING

☐ REMEDIATION

☐ OTHER (SPECIFY)

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.**

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 60 (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 60 (Ft.) & DATE MEASURED 10-19-12

ESTIMATED YIELD 10 (GPM) & TEST TYPE AIR LIFT

TEST LENGTH 2 (Hrs.) TOTAL DRAWDOWN 400 (Ft.)

* May not be representative of a well's long-term yield.

DEPTH FROM SURFACE	BORE-HOLE DIA. (Inches)	CASING (S)					
		TYPE (✓)				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)
Ft. to Ft.		BLANK	SCREEN	CONDUCTOR	FILL PIPE		
0-50	11"	X				PLASTIC	5"
50-160	8"	X				"	"
160-420	8"					FACT PREF	"
							3/32

DEPTH FROM SURFACE	ANNULAR MATERIAL			
	TYPE			
Ft. to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0-50	X			
50-420				WELL PACK #6

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 Pullman Well Drilling

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 2877 Piedmont Ave. Napa, Ca. 94558

CITY Napa STATE CA ZIP 94558

Signed Bill Pullman DATE SIGNED 11-12-12

C-57 LICENSED WATER WELL CONTRACTOR C-57 LICENSE NUMBER 248677



Appendix 4

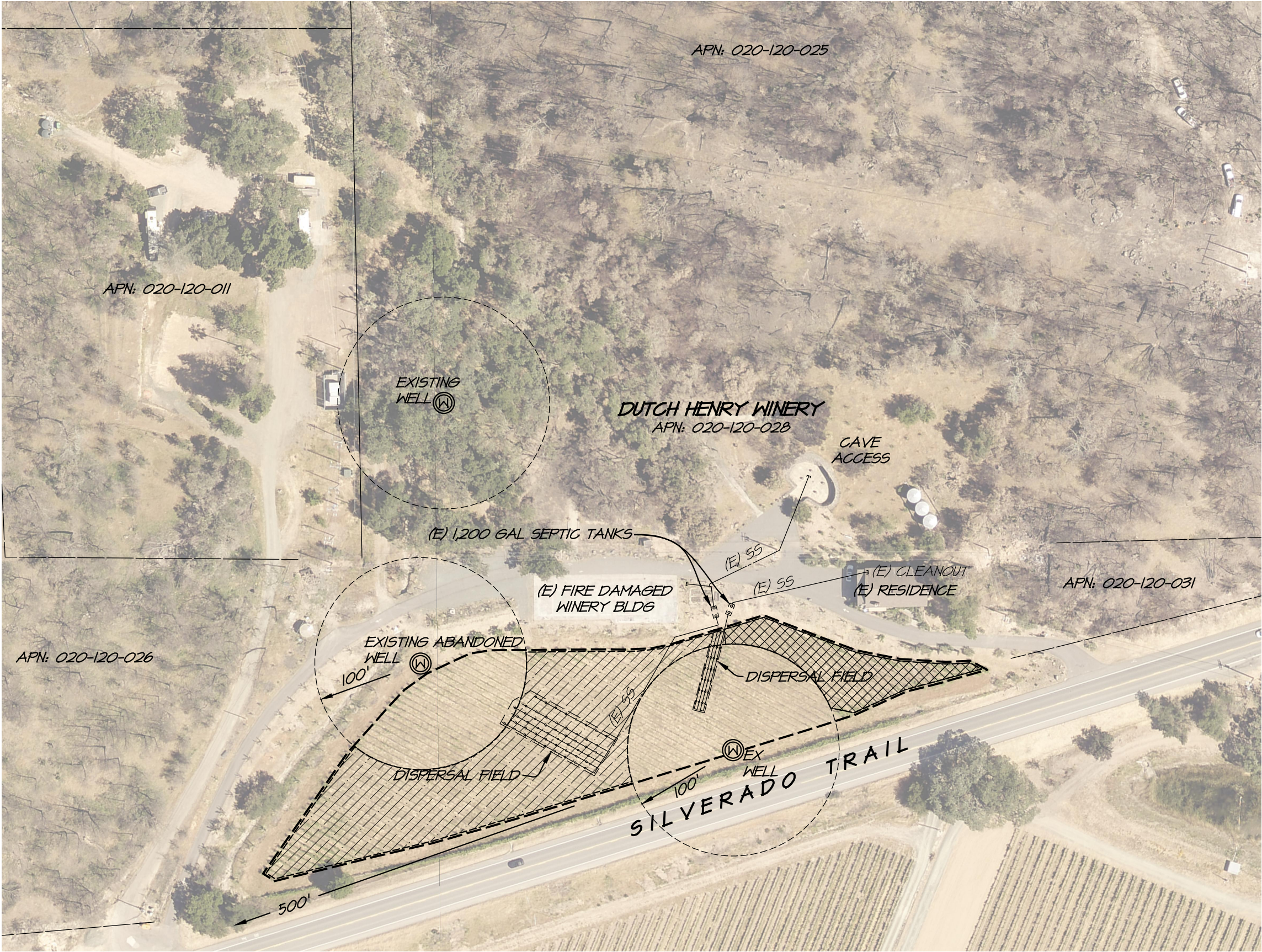
Irrigation Water Balance & WELO Calculation

PARABLE WINERY

VINEYARD IRRIGATION AREA

NAPA COUNTY

CALIFORNIA

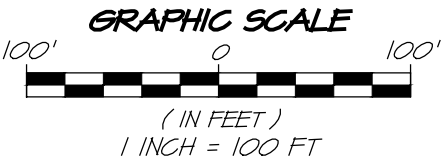


LEGEND

PROPERTY LINE

VINEYARD AREA

TOTAL VINEYARD AREA:	1.63 ACRES
TOTAL VINEYARD AREA AVAILABLE FOR PROCESS WASTEWATER IRRIGATION:	0.93 ACRES
COVER CROP AREA FOR PROCESS WASTEWATER IRRIGATION:	0.17 ACRES



RSA⁺

1515 FOURTH STREET
NAPA, CALIF. 94559
OFFICE | 707 | 252.3301
+ www.RSAcivil.com +

RSA⁺ | CONSULTING CIVIL ENGINEERS + SURVEYORS +

EST.
1980

Reclaimed Process Wastewater Water Balance for Irrigation and Storage (Phase I)



Project Description		Annual Process Waste Flow Volume	
Project Number:	4122063.0	Wine Production:	20,000 gal/year
Project Name:	Parable Winery		
Prepared By:	BTF	Annual Process Waste per Gallon Wine:	6 gal/year
Date:	October 10, 2024	Total Annual Process Waste Generated:	120,000 gal/year

Vineyard Irrigation Parameters		Landscape Irrigation Parameters	
Acres of irrigated vineyard:	0.93 acres	Crop type / name:	Cover Crop
Row spacing:	10.0 feet	Total irrigated acres of crop:	0.17 acres
Vine spacing:	4.0 feet		
Total number of vines:	1,013 vines		
Water use per vine per month (peak):	26 gal		
Total peak monthly irrigation demand:	26,332 gal		

Monthly Process Wastewater Generation												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monthly process wastewater generated as % of annual total:	4%	6%	6%	5%	6%	7%	9%	10%	14%	14%	11%	8%
Monthly process wastewater generated [gallons]:	4,800	7,200	7,200	6,000	7,200	8,400	10,800	12,000	16,800	16,800	13,200	9,600

Monthly Vineyard Irrigation Water Use												
(Based on per-vine water use)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Beginning of month reclaimed water in storage [gallons] (This number brought forward from end of previous month)	9,142	8,706	9,341	4,713	0	0	0	0	0	0	0	5,748
Vineyard irrigation as % of peak month irrigation demand:	6%	6%	10%	100%	100%	100%	100%	100%	100%	100%	10%	10%
Irrigation per month per vine (gallons):	1.6	1.6	2.6	26.0	26.0	26.0	26.0	26.0	26.0	26.0	2.6	2.6
Total vineyard irrigation demand [gallons]:	1,580	1,580	2,633	26,332	26,332	26,332	26,332	26,332	26,332	26,332	2,633	2,633
Will vineyard be irrigated with reclaimed water this month?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Process wastewater generated this month, reclaimed for vineyard irrigation [gallons]	1,580	1,580	2,633	6,000	7,200	8,400	10,800	12,000	16,800	16,800	2,633	2,633
Remaining vineyard irrigation demand after using this month's process water [gallons]	0	0	0	20,332	19,132	17,932	15,532	14,332	9,532	9,532	0	0
Drawdown from storage for remaining vineyard irrigation [gallons]	0	0	0	4,713	0	0	0	0	0	0	0	0
Well water required to satisfy remaining vineyard irrigation demand	0	0	0	15,619	19,132	17,932	15,532	14,332	9,532	9,532	0	0
Net storage after vineyard irrigation drawdown [gallons]	9,142	8,706	9,341	0	0	0	0	0	0	0	0	5,748
This month's process wastewater, remaining after vineyard irrigation, available for landscape irrigation [gallons]	3,220	5,620	4,567	0	0	0	0	0	0	0	10,567	6,967
Water balance continues on next page for cover crop irrigation.												

89,059 gal = 0.273 af

+

4,713 gal = 0.014 af

**TOTAL TREATED
PROCESS
WASTEWATER USED
FOR IRRIGATION**
93,772 gal = 0.287 af

Monthly Landscape Irrigation Water Use												
(Based on evapotranspiration crop demand and irrigated area)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
This month's process wastewater, remaining after vineyard irrigation, available for landscape irrigation [gallons] (From sheet 1)	3,220	5,620	4,567	0	0	0	0	0	0	0	10,567	6,967
Reference ET (ET _o) (in/month) (see note 1)	1.32	1.8	3.32	4.78	6.11	6.84	7.07	6.3	4.9	3.45	1.74	1.29
Crop Coefficient (k _c) (see note 2)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Crop water demand per acre [inches]	0.79	1.08	1.99	2.87	3.67	4.10	4.24	3.78	2.94	2.07	1.04	0.77
Crop water demand per acre [gallons]	21,505	29,325	54,088	77,873	99,541	111,433	115,180	102,636	79,828	56,205	28,347	21,016
Total crop water demand for irrigated area [gallons]	3,656	4,985	9,195	13,238	16,922	18,944	19,581	17,448	13,571	9,555	4,819	3,573
Will landscape be irrigated with reclaimed water this month?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Process wastewater remaining after vineyard irrigation, reclaimed for landscape irrigation [gallons]	3,220	4,985	4,567	0	0	0	0	0	0	0	4,819	3,573
Landscape irrigation water required from storage or other source [gallons]	436	0	4,628	13,238	16,922	18,944	19,581	17,448	13,571	9,555	0	0
Drawdown from storage for landscape irrigation [gallons]	436	0	4,628	0	0	0	0	0	0	0	0	0
Process wastewater generated this month, unused for irrigation, to be reclaimed and stored [gallons]	0	635	0	0	0	0	0	0	0	0	5,748	3,394
Net end-of-month reclaimed water storage after all irrigation [gallons]	8,706	9,341	4,713	0	0	0	0	0	0	0	5,748	9,142
End of Water Balance												

Peak Monthly Storage = 9,341 gallons

Notes:

- Reference ET_o from California Irrigation Management Information System
- Crop Coefficient from Table 1 of "Estimating Irrigation Water Needs of Landscape Plantings in California", University of California Cooperative Extension, August 2000.

Reclaimed Process Wastewater Water Balance for Irrigation and Storage (Phase II)



Project Description		Annual Process Waste Flow Volume	
Project Number:	4122063.0	Wine Production:	30,000 gal/year
Project Name:	Parable Winery		
Prepared By:	BTF	Annual Process Waste per Gallon Wine:	6 gal/year
Date:	October 10, 2024	Total Annual Process Waste Generated:	180,000 gal/year

Vineyard Irrigation Parameters		Landscape Irrigation Parameters	
Acres of irrigated vineyard:	0.93 acres	Crop type / name:	Cover Crop
Row spacing:	10.0 feet	Total irrigated acres of crop:	0.17 acres
Vine spacing:	4.0 feet		
Total number of vines:	1,013 vines		
Water use per vine per month (peak):	26 gal		
Total peak monthly irrigation demand:	26,332 gal		

Monthly Process Wastewater Generation												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Monthly process wastewater generated as % of annual total:	4%	6%	6%	5%	6%	7%	9%	10%	14%	14%	11%	8%
Monthly process wastewater generated [gallons]:	7,200	10,800	10,800	9,000	10,800	12,600	16,200	18,000	25,200	25,200	19,800	14,400

Monthly Vineyard Irrigation Water Use												
(Based on per-vine water use)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Beginning of month reclaimed water in storage [gallons] (This number brought forward from end of previous month)	20,542	22,506	26,741	25,713	0	0	0	0	0	0	0	12,348
Vineyard irrigation as % of peak month irrigation demand:	6%	6%	10%	100%	100%	100%	100%	100%	100%	100%	10%	10%
Irrigation per month per vine (gallons):	1.6	1.6	2.6	26.0	26.0	26.0	26.0	26.0	26.0	26.0	2.6	2.6
Total vineyard irrigation demand [gallons]:	1,580	1,580	2,633	26,332	26,332	26,332	26,332	26,332	26,332	26,332	2,633	2,633
Will vineyard be irrigated with reclaimed water this month?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Process wastewater generated this month, reclaimed for vineyard irrigation [gallons]	1,580	1,580	2,633	9,000	10,800	12,600	16,200	18,000	25,200	25,200	2,633	2,633
Remaining vineyard irrigation demand after using this month's process water [gallons]	0	0	0	17,332	15,532	13,732	10,132	8,332	1,132	1,132	0	0
Drawdown from storage for remaining vineyard irrigation [gallons]	0	0	0	17,332	0	0	0	0	0	0	0	0
Well water required to satisfy remaining vineyard irrigation demand	0	0	0	0	15,532	13,732	10,132	8,332	1,132	1,132	0	0
Net storage after vineyard irrigation drawdown [gallons]	20,542	22,506	26,741	8,381	0	0	0	0	0	0	0	12,348
This month's process wastewater, remaining after vineyard irrigation, available for landscape irrigation [gallons]	5,620	9,220	8,167	0	0	0	0	0	0	0	17,167	11,767
Water balance continues on next page for cover crop irrigation.												

128,059 gal = 0.393 af

+

17,332 gal = 0.053 af

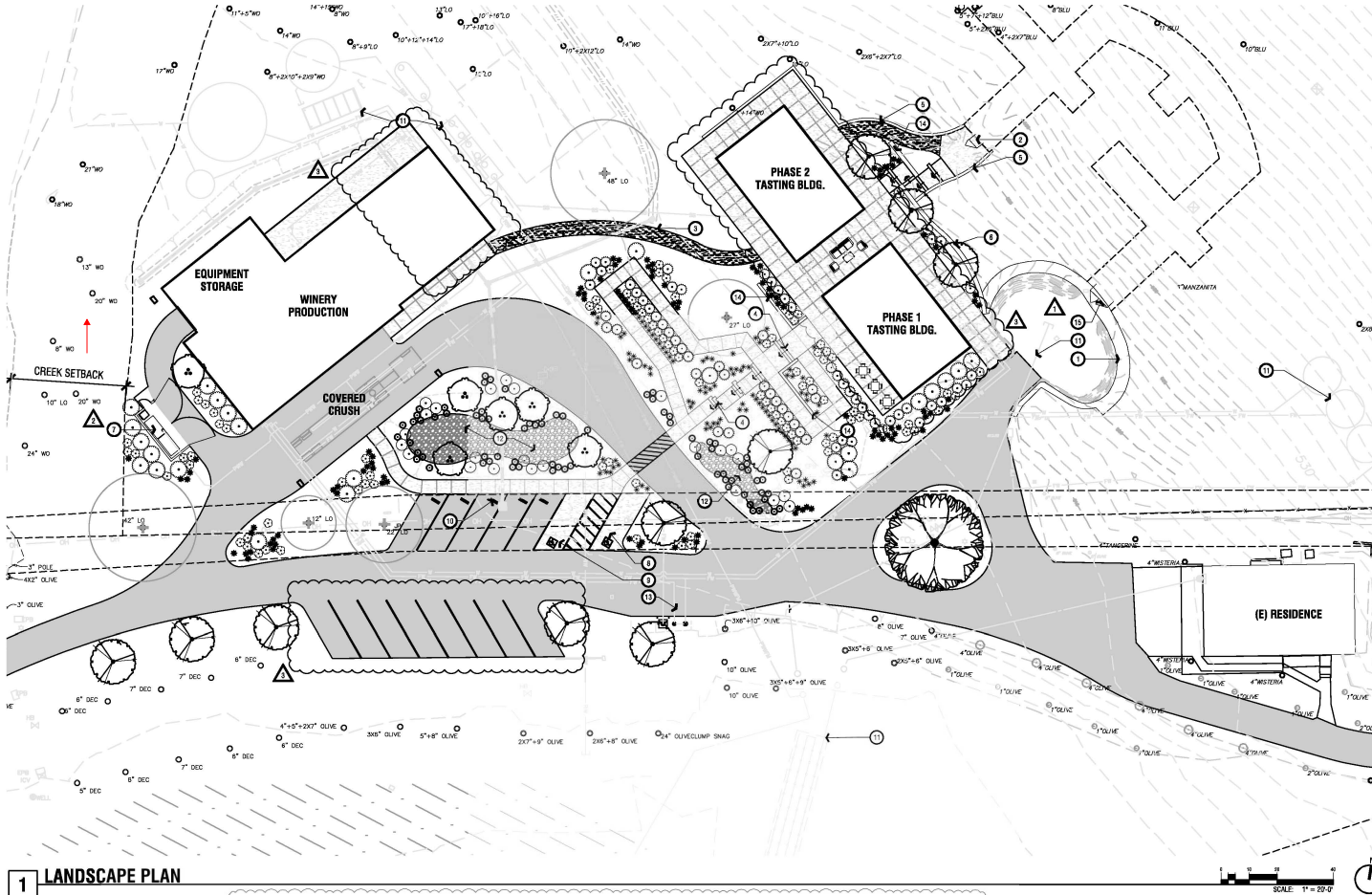
**TOTAL TREATED
PROCESS
WASTEWATER USED
FOR IRRIGATION**
145,391 gal = 0.446 af

Monthly Landscape Irrigation Water Use												
(Based on evapotranspiration crop demand and irrigated area)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
This month's process wastewater, remaining after vineyard irrigation, available for landscape irrigation [gallons] (From sheet 1)	5,620	9,220	8,167	0	0	0	0	0	0	0	17,167	11,767
Reference ET (ETo) (in/month) (see note 1)	1.32	1.8	3.32	4.78	6.11	6.84	7.07	6.3	4.9	3.45	1.74	1.29
Crop Coefficient (kc) (see note 2)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Crop water demand per acre [inches]	0.79	1.08	1.99	2.87	3.67	4.10	4.24	3.78	2.94	2.07	1.04	0.77
Crop water demand per acre [gallons]	21,505	29,325	54,088	77,873	99,541	111,433	115,180	102,636	79,828	56,205	28,347	21,016
Total crop water demand for irrigated area [gallons]	3,656	4,985	9,195	13,238	16,922	18,944	19,581	17,448	13,571	9,555	4,819	3,573
Will landscape be irrigated with reclaimed water this month?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Process wastewater remaining after vineyard irrigation, reclaimed for landscape irrigation [gallons]	3,656	4,985	8,167	0	0	0	0	0	0	0	4,819	3,573
Landscape irrigation water required from storage or other source [gallons]	0	0	1,028	13,238	16,922	18,944	19,581	17,448	13,571	9,555	0	0
Drawdown from storage for landscape irrigation [gallons]	0	0	1,028	8,381	0	0	0	0	0	0	0	0
Process wastewater generated this month, unused for irrigation, to be reclaimed and stored [gallons]	1,964	4,235	0	0	0	0	0	0	0	0	12,348	8,194
Net end-of-month reclaimed water storage after all irrigation [gallons]	22,506	26,741	25,713	0	0	0	0	0	0	0	12,348	20,542
End of Water Balance												

Peak Monthly Storage = 26,741 gallons

Notes:

- Reference ETo from California Irrigation Management Information System
- Crop Coefficient from Table 1 of "Estimating Irrigation Water Needs of Landscape Plantings in California", University of California Cooperative Extension, August 2000.



1 LANDSCAPE PLAN

MWEO CALCULATION

Maximum Assured Water Allowance Calculations for New and Rehabilitated Landscapes

Enter values in Pale Blue Cells	
Site Data Sheet Results	
Messages and Warnings	
Click on the blue cell on right to POC City Name	Marina Mesa
City of City from Appendix A	42.000 CF (inches/year)
Enter total landscape including SLA	7,110.000 A (ft²)
Enter Special Landscape Area	0.000 SLA (ft²)
MAWA = (ET _{max} × (0.42) × (0.55) × LA) ÷ (4.45 × SLA)	101,820.420 Gallons
MAWA = (ET _{max} × (0.42) × (0.55) × LA) ÷ (4.45 × SLA)	101,820.420 Gallons
MAWA calculation incorporating Effective Precipitation (Optional)	
City of City from Appendix A	42.000 CF (inches/year)
Landscape Area	7,110.000 A (ft²)
Special Landscape Area	0.000 SLA (ft²)
Enter Effective Precipitation	0.000 Total annual precipitation
MAWA = (ET _{max} × (0.42) × (0.55) × LA) ÷ (4.45 × SLA)	101,820.420 Gallons
MAWA = (ET _{max} × (0.42) × (0.55) × LA) ÷ (4.45 × SLA)	101,820.420 Gallons
MAWA = (ET _{max} × (0.42) × (0.55) × LA) ÷ (4.45 × SLA)	101,820.420 Gallons

Estimated Total Water Use

ET_{max} × (0.42) × (0.55) × LA ÷ (4.45 × SLA)

Enter values in Pale Blue Cells

Site Data Sheet Results

Messages and Warnings

Enter Irrigation Efficiency (equal to or greater than 0.75)

Irrigation Efficiency Default Value

0.81

0.71

Plant Water Use Type

Plant Factor

Low 0.2

Medium 0.4

High 0.6

SLA 1.00

Plant Water Use Type

Plant Factor

Low 0.2

Medium 0.4

High 0.6

SLA 1.00

Plant Water Use Type

Plant Factor

Low 0.2

Medium 0.4

High 0.6

SLA 1.00

Plant Water Use Type

Plant Factor

Low 0.2

Medium 0.4

High 0.6

SLA 1.00

Plant Water Use Type

Plant Factor

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Medium 0.4

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SLA 1.00