“I”

# Wastewater Feasibility Report Parable Winery Use Permit Minor Modification P23-00230-MM

# WINERY WASTEWATER FEASIBILITY REPORT

## PARABLE WINERY
## 4300 SILVERADO TRAIL
## CALISTOGA, CALIFORNIA

## APN 020-120-028

**PROPERTY OWNER:**

FTM Investments, LP
3215 Steck Avenue, Ste. 101
Austin, TX 78757


October 11, 2024
Project #4122063.0

1515 Fourth Street, Napa, CA 94559 www.rsacivil.com 707.252.3301.v 707.252.4966.f

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## APPENDICES

## INTRODUCTION

Parable Winery (APN 020-120-028) is applying for a Use Permit Modification to add visitation and to construct a new winery building and separate tasting room building to replace the burned winery building. 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 1 additional marketing event per year with 50 guests.

The topography on the parcel ranges from gentle slopes near the existing development with slopes of 2-15% to steep slopes beyond the development to the northeast with slopes between 30-50%. The parcel is sized at 10.29 ± acres and is currently used for an existing homesite, vineyards, and winery which includes a wine cave, and the burned winery structure pad.

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. Appendix 1 contains a Site Location Map and a USGS Site Map showing the parcel topography, features, and boundary.

## EXISTING CONDITIONS

There are two existing standard septic systems on the site that serve the residential and winery uses for the site. There is a dedicated domestic septic system for the existing 3-bedroom residence which also received the winery domestic flows from the burned structure. This existing residential system is to remain to continue to serve the residential flows.

The second wastewater system at the site served the winery flows and received process wastewater from the burned structure and the wine cave. This system was recently removed in anticipation of an updated process wastewater system as part of the new winery construction.

## SITE EVALUATION

A site evaluation was conducted on December 22, 2022 and conditions were too wet to fully evaluate the feasibility of an onsite wastewater system at that time. An additional site evaluation was conducted on August 3, 2023. This site evaluation found suitable area for a subsurface drip system in the area southeast of the proposed production building. Appendix 2 contains a copy of the Site Evaluation Report.

The site evaluation was conducted by Donal O'Briain of RSA$^+$ and observed by Avi Soma of Napa County Environmental Management.

## EXISTING DOMESTIC WASTEWATER SYSTEMS – WINERY & RESIDENTIAL

County of Napa files show separate domestic and process wastewater systems constructed in May of 1984. The domestic system appears to have served a restroom in the burned winery building. The domestic system also served the residence. The existing domestic standard septic system consisted of a 1,200-gallon septic tank with 320 feet of leach line.

Information from County of Napa Environmental Health Department files and a recent septic inspection completed by Sakai General Engineering show the current tank layout for the domestic system is consistent with the as-built information provided in 1985.

Based on the recent septic inspection of existing septic conditions completed by Sakai General Engineering on February 12, 2021, the domestic system was installed with 304 linear feet of leach line. Information on these systems from Napa County are contained in Appendix 3, and Sakai General Engineering's inspection report can also be found in Appendix 3.

The septic system inspection completed on February 10, 2021 by Sakai General Engineering found that the septic system is in "good condition". This system will continue to be used for the residence.

## DOMESTIC WASTEWATER CHARACTERISTICS

The domestic wastewater system for the winery will need to accommodate the unit values in Table 2 below. The proposed number of visitors and employees for both phases are shown in Table 1 and Table 2 below. The projected flow is based on County of Napa Environmental Management guidelines. The following is a summary of the estimated maximum daily flows from the winery.

**TABLE 1 – Phase I**

| Use | Source | Number | Projected Flow (gpd) | Total Flow (gpd) |
|---|---|---|---|---|
| Winery | Full-Time Employees | 3 | 15 | 45 |
| | Part-Time Employees | 1 | 15 | 15 |
| | Visitors | 20 | 3 | 60 |
| | Marketing Events Guests | 30 | 10 | 300 |
| **Winery Total** | | | | **420** |

**TABLE 2 – Phase II**

| Use | Source | Number | Projected Flow (gpd) | Total Flow (gpd) |
|---|---|---|---|---|
| Winery | Full-Time Employees | 4 | 15 | 60 |
| | Part-Time Employees | 2 | 15 | 30 |
| | Visitors | 30 | 3 | 90 |
| | Marketing Events Guests | 50 | 10 | 500 |
| **Winery Total** | | | | **680** |

The domestic wastewater system for the existing residence will continue to be used with no changes to residence or system proposed.

## PROPOSED DOMESTIC WASTEWATER SYSTEM IMPROVEMENTS – WINERY

A new engineered septic system is proposed for winery domestic wastewater treatment and dispersal. The proposed wastewater system will consist of a 1,200-gallon pump tank, a 1,000-gallon recirculation tank with two AdvanTex AX20 treatment pods, a 2,000-gallon septic tank and a Geoflow dispersal field. System sizing, tank sizing, and treatment system settings are based on Orenco's specifications, to meet Napa County discharge of pre-treated effluent to a Drip Dispersal system of 30 mg/l $BOD_5$ and 30 mg/l TSS.

A site evaluation has been conducted to prove the required dispersal area and 200% reserve area. Suitable area was located to the east of the proposed new winery building. The proposed dispersal area and 200% reserve area have been shown on The Use Permit Modification Plans. A new septic system will be designed in accordance with the latest Napa County Environmental Management guidelines. The new septic system will be designed to handle the future potential flows associated with the Phase II program.

The most restricting soil horizon is sandy clay loam with strong structure. According to Table 2 in the current Geoflow Design Guidelines, a hydraulic loading rate of 0.6 gallons/square-foot/day is appropriate for this soil type. The existing slope at the primary field averages 8%. The Geoflow lines will have standard spacing of 2 feet on center. For a total daily flow of 680 gpd this equates to a primary dispersal field area of 1,134 square feet. An area of 2,268 square feet will be preserved as a 200% reserve area for this system.

$$Drip\ Dispersal\ Field\ Area = \left(\frac{680\ gpd}{0.6\ gpd/SF}\right) = 1{,}134\ square\ feet$$

## EXISTING PROCESS WASTEWATER SYSTEMS

The wastewater system at the site that served the winery process wastewater flows from the burned structure and the wine cave was recently removed in anticipation of an updated process wastewater system that would meet the new statewide regulations. The previous system had been a conventional system that received process wastewater from the cave and the winery facility to a 1,200-gallon septic tank before going to a dispersal field in the vineyard.

## WINERY PROCESS WASTEWATER CHARACTERISTICS

According to the latest State Water Resources Control Board regulations – General Waste Discharge Requirements, winery process wastewater must be treated prior to surface discharge.

Based on our experience, winery wastewater characteristics are as follows:

| Characteristics | Units | Average |
|---|---|---|
| pH | | 3.5 |
| BOD5 | mg/l | 6000 |
| TSS | mg/l | 500 |
| Nitrogen | mg/l | 20 |
| Phosphorus | mg/l | 10 |

## WINERY PROCESS WASTEWATER GENERATION (PHASE II)

***Wine Production:***

30,000 gallons of wine per year
2.38 gallons of wine per case
= 30,000 gal/year/2.38 cases/year
= 12,605 cases/year

***Wastewater Production:***

6 gallons of wastewater/gallon of wine
= 30,000 gal/year x 6-gal wastewater/gal
= 180,000 gal/year wastewater

***Peak Daily Wastewater Flow:***

Crush Period = 45 days
30,000 gallons x 2 / 45 days
= 1,334 gallons/day

***Average Daily Flow:***

30,000 gal/year x 6 gallons of wastewater/gallon of wine
= 180,000 gallons/year/365
= 494 gallons/day

***Monthly Wastewater Flows:***

**TABLE 4**

| | % By Month | Waste/Month | |
|---|---|---|---|
| Sept | 15% | 27,000 | Gal/Month |
| Oct | 13% | 23,400 | Gal/Month |
| Nov | 11% | 19,800 | Gal/Month |
| Dec | 8% | 14,400 | Gal/Month |
| Jan | 4% | 7,200 | Gal/Month |
| Feb | 6% | 10,800 | Gal/Month |
| Mar | 6% | 10,800 | Gal/Month |
| Apr | 5% | 9,000 | Gal/Month |
| May | 6% | 10,800 | Gal/Month |
| Jun | 7% | 12,600 | Gal/Month |
| Jul | 9% | 16,200 | Gal/Month |
| Aug | 10% | 18,000 | Gal/Month |
| Totals | 100% | 180,000 | Gal/Year |

## PROPOSED PROCESS WASTEWATER TREATMENT AND DISPOSAL SYSTEM IMPROVEMENTS

Parable Winery proposes to separately treat and disperse winery process wastewater onsite with a Biofiltro system or equivalent. Treatment will meet the requirements of the State Water Resources Control Board General Waste Discharge Requirements for Winery Process Water with particular focus on Biological Oxygen Demand (BOD), Total Suspended Solids (TSS) and Total Nitrogen (TN).

It is likely that treatment will meet previously required County of Napa requirements of 160 mg/L for BOD and 80 mg/L for TSS. A conservative approach for calculating BOD loading was adopted by using the peak monthly generation (27,000 gallons from Table 4) of process wastewater. Based on calculations in Appendix 5, this treatment level will meet BOD loading limits given in Clause 35D of the State Water Resources Control Board General Waste Discharge Requirements for Winery Process Water.

According to Napa County Environmental Management Sewage Treatment System Design Guidelines, winery process wastewater must be treated prior to surface discharge. A treatment train including primary/pump tank, Biofiltro Control Module, and Biofiltro wiggle room are proposed. This treatment train may be modified for more desirable treatment processes prior to submitting construction plans. The following sections describe this process in more detail.

### *Pump Tank*

The initial flows from the winery will drain to a new 4,500-gallon tank which will provide 3 days peak storage. This pump tank will serve to buffer peak flows and strengths from overwhelming the system and impairing treatment, as well as house the pump to convey flow to the Biofiltro treatment system.

Process wastewater flows from the existing cave will continue to drain to the existing process wastewater tank located in the vineyard. A pump will be installed in this existing tank to direct flows to the proposed 4,500-gallon pump tank located adjacent to the winery production building.

### *Control Unit*

The control unit will consist of a solid separator, an equalization tank, and a pH adjustment system. The influent into the control unit, will first flow through a solid separator before flowing into an equalization tank that will serve to buffer peak flows, monitor, and adjust pH to prevent surges from overwhelming the system and impairing treatment. Control unit design will be provided by Biofiltro.

### *Treatment System*

The treatment system will be composed of one (1) Biofiltro Wiggle Room or equivalent. Each Wiggle Room contains media shavings, worms and a starter pack of microbes. The flow will be conveyed to the Wiggle Room via the initial pump/holding tank. After the first pass, the partially treated water will flow to sump to be pumped to the irrigation storage tanks. Biofiltro Information Can be found in Appendix 6.

### *Holding Tank and Dispersal Field*

To provide a preliminary estimate of the amount of storage tanks required, an irrigation water balance has been prepared, as shown in Appendix 4. Monthly wastewater production is based on a percentage of the total annual wastewater production. The amount of water allowed to be applied is estimated by the typical vine water demand. The irrigation will be applied to areas of vineyards outside of well setback requirements. An area of 0.93 acres of vineyard has been used to calculate the storage capacity required. In addition to vineyard irrigation, the project is proposing to irrigate 0.17 acres of cover crop with treated process wastewater. Based on the monthly analysis, twenty-six thousand seven hundred and forty-one (26,741) gallons of storage are required. To buffer peak flows and allow for rainy periods of no irrigation, one 30,000-gallon tank will be installed to store treated process wastewater prior to it being used for irrigation.

During the summer months all of the treated wastewater will be used for irrigation. During the wet winter months, a limited discharge will be consistent with vineyard water demand, no discharge will occur within 24-hours of a forecasted rain event with a greater than 50% chance of precipitation and no discharge will occur when the ground is saturated. These irrigation scheduling constraints necessitate installing a tank to store excess water that cannot be discharged during the periods of rain. All stored water will then be used for irrigation during dry periods.

## CONCLUSION

This report describes the existing wastewater systems at the site and details the proposed improvements. By installing a new wastewater system for winery domestic flows, and a new process wastewater treatment system, the proposed winery can treat all proposed wastewater flows onsite. The existing residential domestic system can continue to handle the existing residential flows.

The proposed improvements associated with the winery wastewater will be to construct a new process wastewater system and utilize this treated process wastewater for vineyard and cover crop irrigation. These proposed improvements will meet Napa County guidelines and State Water Resources Control Board Requirements, and will have sufficient capacity for the proposed winery.

# Appendix 1

## Vicinity Map
## USGS Quad Map

# PARABLE WINERY
# VICINITY MAP

NAPA COUNTY CALIFORNIA


## VICINITY MAP

SCALE: 1" = 3000'

RSA+

1515 FOURTH STREET
NAPA, CALIF. 94559
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+ www.RSAcivil.com +

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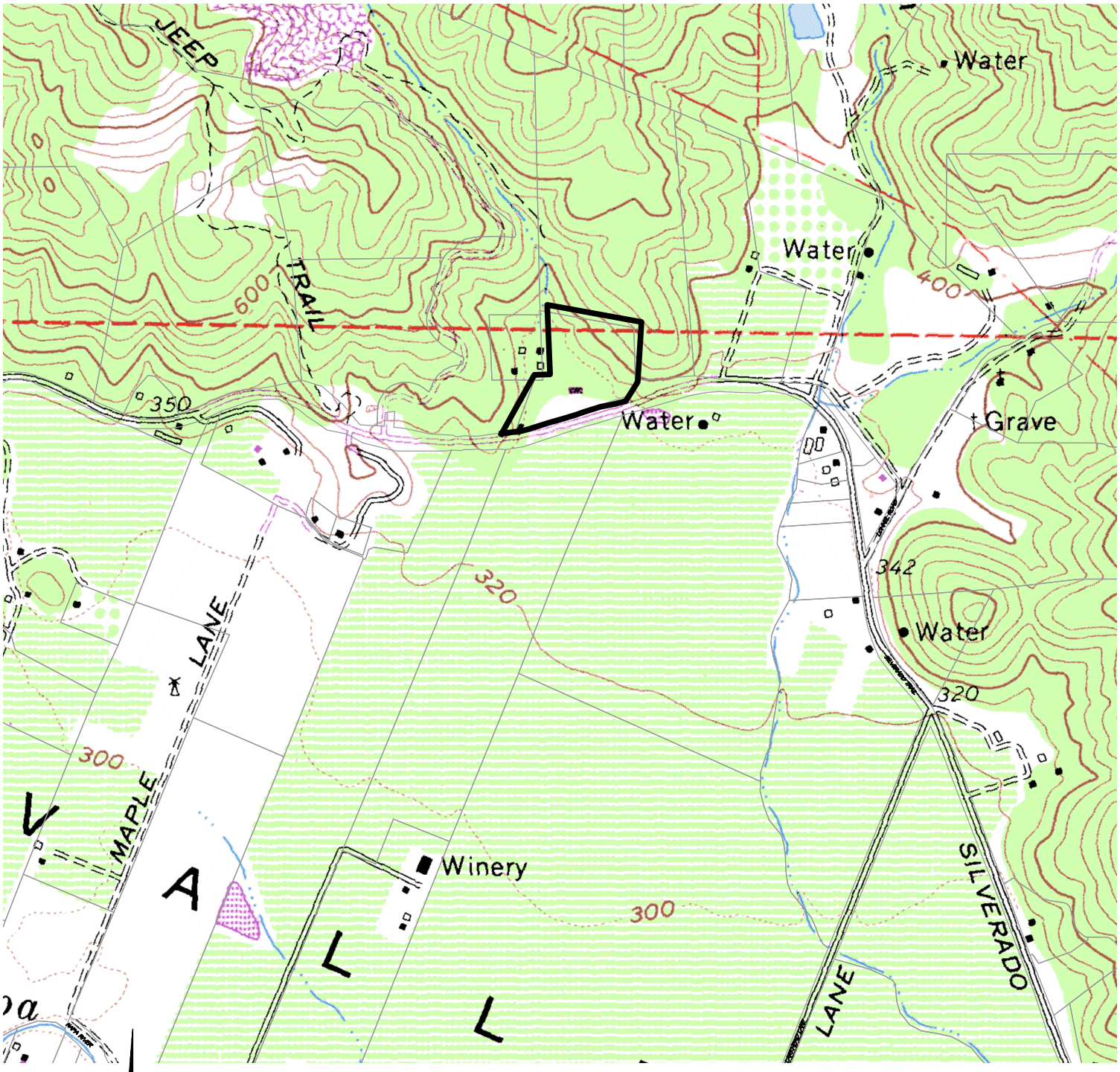
JULY 12, 2023 4122063.0

# PARABLE WINERY
# USGS MAP

NAPA COUNTY CALIFORNIA




GRAPHIC SCALE

1000 0 1000 2000

( IN FEET )
1 inch = 1000 FT

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# Appendix 2

# Site Evaluation Report

**Napa County Department of Environmental Management**

# SITE EVALUATION REPORT

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

| |
|---|
| Permit #: E23-00348 |
| APN: 020-120-028 |
| (County Use Only)<br>Reviewed by: Date: |

***PLEASE PRINT OR TYPE ALL INFORMATION***

| | |
|---|---|
| Property Owner<br>FTM Investments | ☒ New Construction ☐ Addition ☐ Remodel ☐ Relocation<br>☐ Other: |
| Property Owner Mailing Address<br>Trey@captexdev.com | ☐ Residential - # of Bedrooms: Design Flow : gpd. |
| City State Zip<br>3215 Steck Ave Ste 101, Austin TX 78757 | ☒ Commercial – Type:<br>Sanitary Waste: gpd Process Waste: 605 gpd |
| Site Address/Location<br>4300 Silverado Trail N<br>Calistoga, CA 94558 | ☐ Other:<br>Sanitary Waste: gpd Process Waste: gpd |

## Evaluation Conducted By:

| | | |
|---|---|---|
| Company Name<br>RSA+ | Evaluator's Name<br>Donal O'Briain & Alexis Martinez | Signature (Civil Engineer, R.E.H.S., Geologist, Soil Scientist) |
| Mailing Address:<br>1515 Fourth Street | | Telephone Number<br>707-252-3301 |
| City State Zip<br>Napa CA 94559 | | Date Evaluation Conducted<br>08/03/2023 |

| **Primary Area** | **Expansion Area** |
|---|---|
| Acceptable Soil Depth: Test pit #'s: 1, 2, 3, 4, 5, 6 | Acceptable Soil Depth: Test pit #'s: 6, 7 |
| Soil Application Rate (gal. /sq. ft. /day): 0.6 gpd/sf | Soil Application Rate (gal. /sq. ft. /day): 0.6 gpd/sf |
| System Type(s) Recommended: Subsurface Drip | System Type(s) Recommended: Subsurface Drip |
| Slope: 5-30 % Distance to nearest water source: 100 ft | Slope: <2 % Distance to nearest water source: 100 ft |
| Hydrometer test performed? No ☐ Yes ☒ (attach results) | Hydrometer test performed? No ☐ Yes ☒ (attach results) |
| Bulk Density test performed? No ☒ Yes ☐ (attach results) | Bulk Density test performed? No ☒ Yes ☐ (attach results) |
| Percolation test performed? No ☒ Yes ☐ (attach results) | Percolation test performed? No ☒ Yes ☐ (attach results) |
| Groundwater Monitoring Performed? No ☒ Yes ☐ (attach results) | Groundwater Monitoring Performed? No ☒ Yes ☐ (attach results) |

**Site constraints/Recommendations:**

6 test pits suitable to 36" or more. 1 further pit suitable to 27".

Test Pit # 1

| X = Limiting Horizon | Horizon Depth (Inches) | Boundary | %Rock | Texture | Structure (Grade / Shape) | Consistence | | | Pores (QTY / Size) | Roots (QTY / Size) | Mottling (QTY / Size/ Contrast) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Side Wall | Ped | Wet | | | |
| | 0-24 | | 45 | SCL | MSB | H | FRB | SP | CM | CC | - |
| | 24-42 | G | 45 | SCL | MSB | H | FRB | SP | CM | FF | - |
| X | | | >50 | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**Notes: Refusal at 42" was limiting condition.**

Test Pit # 2

| X = Limiting Horizon | Horizon Depth (Inches) | Boundary | %Rock | Texture | Structure (Grade / Shape) | Consistence | | | Pores (QTY / Size) | Roots (QTY / Size) | Mottling (QTY / Size/ Contrast) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Side Wall | Ped | Wet | | | |
| | 0-42 | - | 45 | SCL | MSB | H | FRB | P | CM | CM | - |
| X | | | >50 | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**Notes: Refusal at 42" was limiting condition.**

Test Pit # 3

| X = Limiting Horizon | Horizon Depth (Inches) | Boundary | %Rock | Texture | Structure (Grade / Shape) | Consistence | | | Pores (QTY / Size) | Roots (QTY / Size) | Mottling (QTY / Size/ Contrast) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Side Wall | Ped | Wet | | | |
| | 0-27 | | 45 | SCL | MSB | H | FRB | P | CF | CM | - |
| | 27-46 | G | >50 | | | | | | | | X |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**Notes: Excessive brittle rock below 27" was limiting conditions.**

Test Pit # 4

| X = Limiting Horizon | Horizon Depth (Inches) | Boundary | %Rock | Texture | Structure (Grade / Shape) | Consistence | | | Pores (QTY / Size) | Roots (QTY / Size) | Mottling (QTY / Size/ Contrast) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Side Wall | Ped | Wet | | | |
| | 0-60 | - | 45 | SCL | MSB | H | FRB | P | CF | FM | - |
| X | | | >50 | | | | | | | | |
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| | | | | | | | | | | | |
| | | | | | | | | | | | |

**Notes: Refusal at 60" was limiting conditions.**

Test Pit # 5

| X = Limiting Horizon | Horizon Depth (Inches) | Boundary | %Rock | Texture | Structure (Grade / Shape) | Consistence | | | Pores (QTY / Size) | Roots (QTY / Size) | Mottling (QTY / Size/ Contrast) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Side Wall | Ped | Wet | | | |
| | 0-52 | - | 40 | SCL | MSB | H | FRB | P | CF | CM | - |
| X | | | >50 | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**Notes: Refusal at 52" was limiting conditions.**

Test Pit # 6

| X = Limiting Horizon | Horizon Depth (Inches) | Boundary | %Rock | Texture | Structure (Grade / Shape) | Consistence | | | Pores (QTY / Size) | Roots (QTY / Size) | Mottling (QTY / Size/ Contrast) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Side Wall | Ped | Wet | | | |
| | 0-44 | - | 45 | SCL | MSB | H | FRB | P | FF | - | - |
| X | | | >50 | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

**Notes: Refusal at 44" was limiting conditions.**

Test Pit # 7

| **X =** Limiting Horizon | **Horizon Depth** (Inches) | **Boundary** | **%Rock** | **Texture** | **Structure** (Grade / Shape) | **Consistence** | | | **Pores** (QTY / Size) | **Roots** (QTY / Size) | **Mottling** (QTY / Size/ Contrast) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Side Wall | Ped | Wet | | | |
| | 0-36 | - | 45 | SCL | MSB | H | FRB | P | FF | - | - |
| X | | | >50 | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| **Notes: Uncovered abandoned 1.25" PVC pipes at 36" and stopped excavation. Test pit suitable to 36".** | | | | | | | | | | | |

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**Santa Rosa Office**
1305 North Dutton Ave.
Santa Rosa, CA 95401
P: 707-544-1072
F: 707-544-1082

**Napa Office**
1041 Jefferson St.
Napa, CA 94559
P: 707-252-8105
F: 707-544-1082

**Middletown Office**
P.O. Box 652
Middletown, CA 95461
P: 707-987-4602
F: 707-987-4603

# Bouyoucos Hydrometer

| | | | |
|---|---|---|---|
| **Client:** | **RSA+** | **Sampled:** | **Not Stated** |
| **Project:** | **Parable Winery** | **Received:** | **8/4/2023** |
| **Project #:** | **9187.26** | **Reported:** | **8/15/2023** |
| **Client Project #:** | **4122063.0** | | |

| **Sample Number** | **TP #5** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Depth** | **52"** | | | | | | | |
| **A. Oven Dry Wt.** | 50.0 | | | | | | | |
| **B. Starting Time (hr:min)** | 2:17 | | | | | | | |
| **C. Temp. @ 40 sec. (F)** | 74.4 | | | | | | | |
| **D. Hydro Reading @ 40 sec.** | 30.5 | | | | | | | |
| **E. Composite Correction** | -3.6 | | | | | | | |
| **F. True Density @ 40 sec. (D-E)** | 26.9 | | | | | | | |
| **G. Temp. @ 2 hrs. (F)** | 76.2 | | | | | | | |
| **H. Hydro Reading @ 2 hrs.** | 14.5 | | | | | | | |
| **I. Composite Correction** | -3.4 | | | | | | | |
| **J. True Density @ 2 hrs. (H-I)** | 11.1 | | | | | | | |
| **K. % Sand=100-((F/A) x 100)** | **46.2** | | | | | | | |
| **L. % Clay= ((J/A) x 100)** | **22.2** | | | | | | | |
| **M. % Silt= 100-(K+L)** | **31.6** | | | | | | | |
| **N. % Retained #10=** | **20.7** | | | | | | | |
| **Dry Wt. Before Wash + Tare** | 338.5 | | | | | | | |
| **Dry Wt. After Wash + Tare** | 134.7 | | | | | | | |
| **Dry Wt. Passing #10** | 203.8 | | | | | | | |
| **Tare Weight** | 81.4 | | | | | | | |
| **Dry Wt. Before Wash** | 257.1 | | | | | | | |
| **% Passing #10** | 79.3 | | | | | | | |
| **% Retained #10** | 20.7 | | | | | | | |

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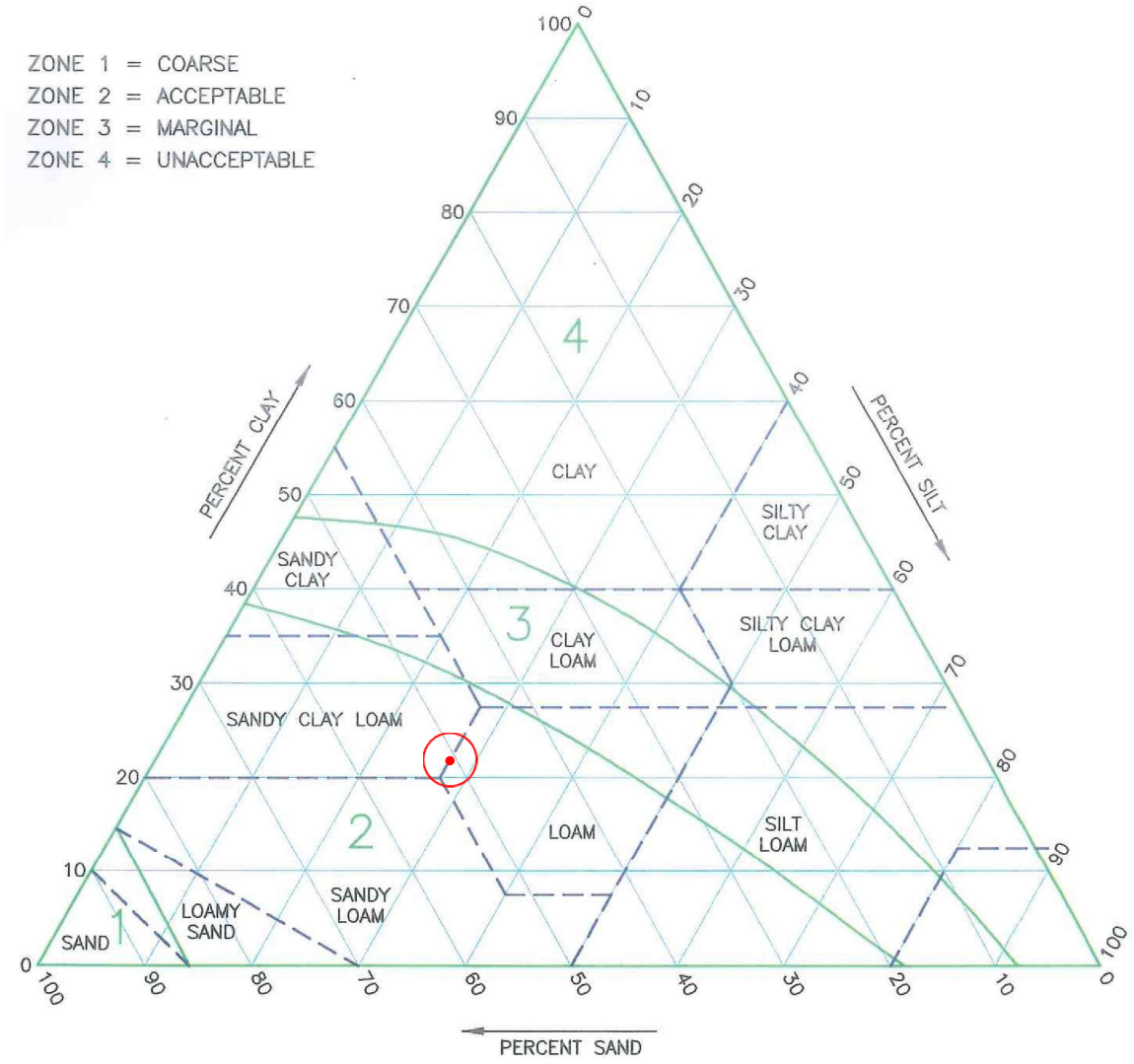
**Santa Rosa Office**
1305 North Dutton Ave.
Santa Rosa, CA 95401
P: 707-544-1072
F: 707-544-1082

**Napa Office**
1041 Jefferson St.
Napa, CA 94559
P: 707-252-8105
F: 707-544-1082

**Middletown Office**
P.O. Box 652
Middletown, CA 95461
P: 707-987-4602
F: 707-987-4603

# Bouyoucos Hydrometer

| | | | |
|---|---|---|---|
| **Client:** | **RSA+** | **Sampled:** | **Not Stated** |
| **Project:** | **Parable Winery** | **Received:** | **8/4/2023** |
| **Project #:** | **9187.26** | **Reported:** | **8/15/2023** |
| **Client Project #:** | **4122063.0** | | |




**Legend**

| | |
|---|---|
| TP #5 @ 52" | |
| | |
| | |
| | |

# PARABLE WINERY
## VICINITY MAP
NAPA COUNTY CALIFORNIA


**VICINITY MAP**

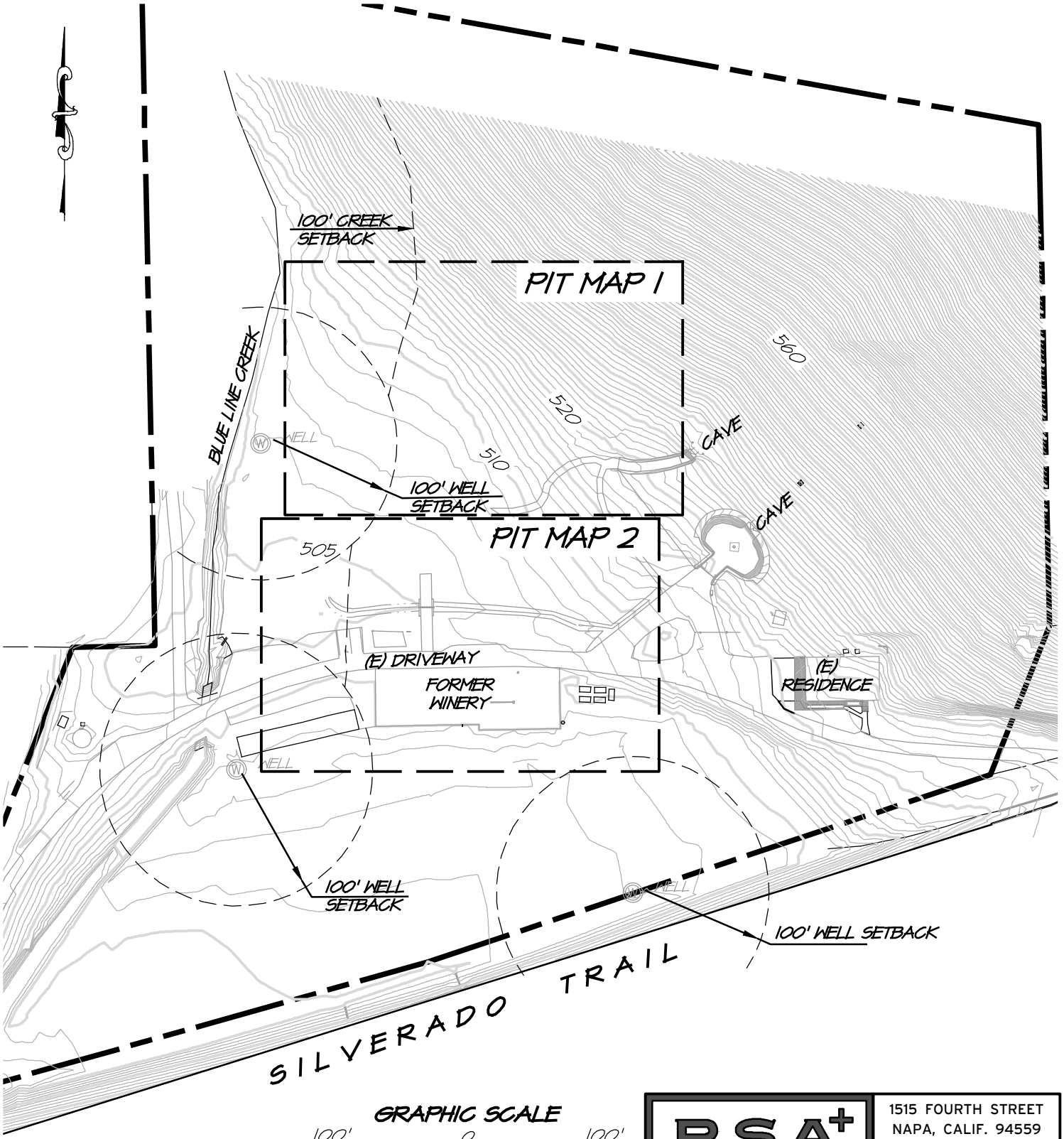
SCALE: 1" = 3000'

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

RSA+| CONSULTING CIVIL ENGINEERS + SURVEYORS + est. 1980

Aug 10, 2023 4122063.0 Exh-Vicinity Map.dwg

# PARABLE WINERY
## SITE MAP
NAPA COUNTY CALIFORNIA




GRAPHIC SCALE
100' 0 100'
( IN FEET )
1 INCH = 100 FT

RSA+
1515 FOURTH STREET
NAPA, CALIF. 94559
OFFICE|707|252.3301
+ www.RSAcivil.com +
RSA+| CONSULTING CIVIL ENGINEERS + SURVEYORS + est. 1980

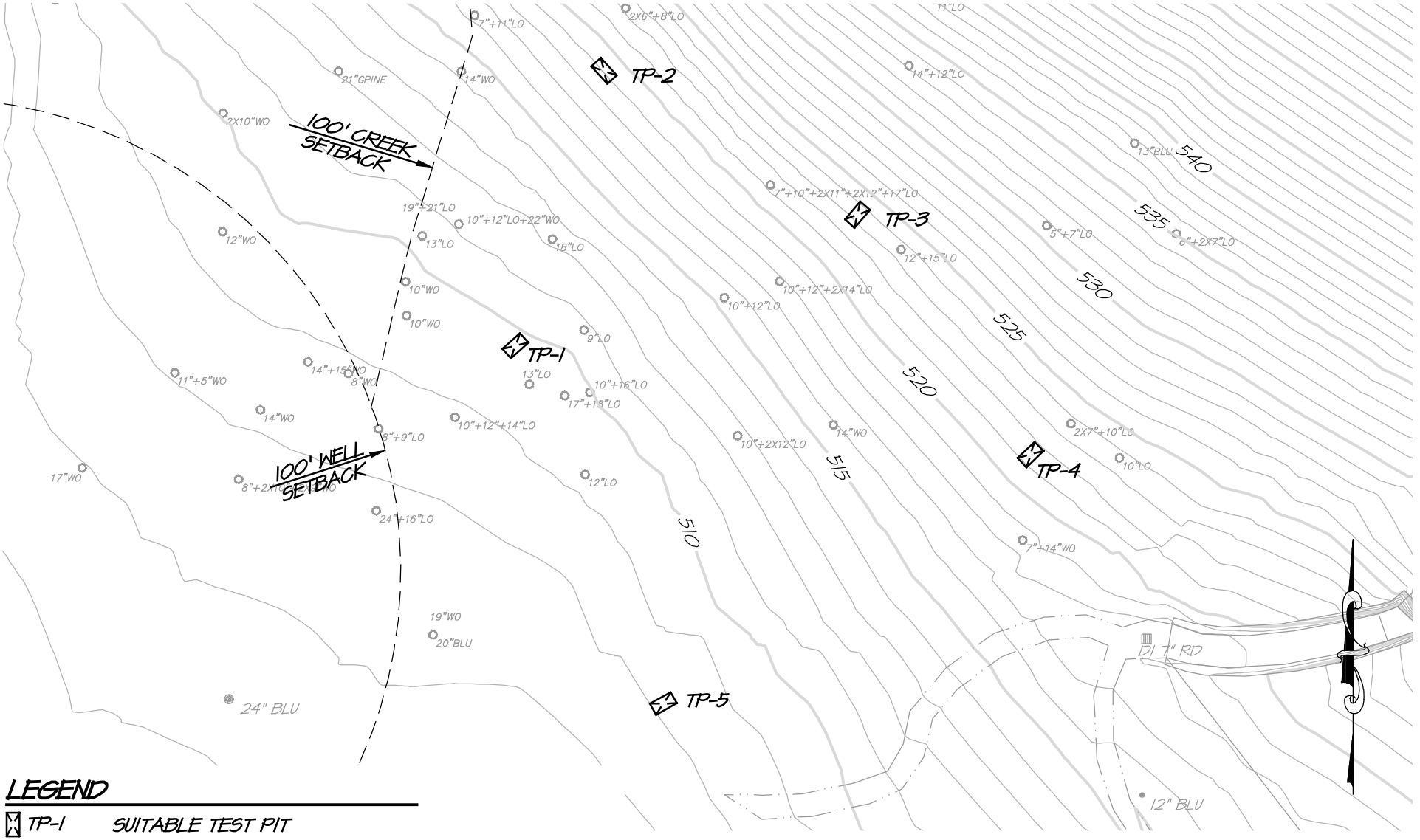
AUG 7, 2023 3122063.0 Exh-Site Map.dwg

R:\2022\122063.0_Dutch_Henry_Winery_Use_Permit_Modification\DESIGN\EXHIBITS\Exh-Site Map.dwg 08/15/2023

# PARABLE WINERY

## PIT MAP 1

NAPA COUNTY CALIFORNIA




**LEGEND**

TP-1 SUITABLE TEST PIT

TP-4 NON-SUITABLE TEST PIT

ADDRESS: 4300 SILVERADO TRAIL
CALISTOGA, CA 94515

SITE EVALUATION DATE: AUGUST 3, 2023
APN 020-120-028
ENVIRONMENTAL HEALTH INSPECTOR: AVI SOMA

**GRAPHIC SCALE**

30' 0 30'

( IN FEET )
1 INCH = 30 FT

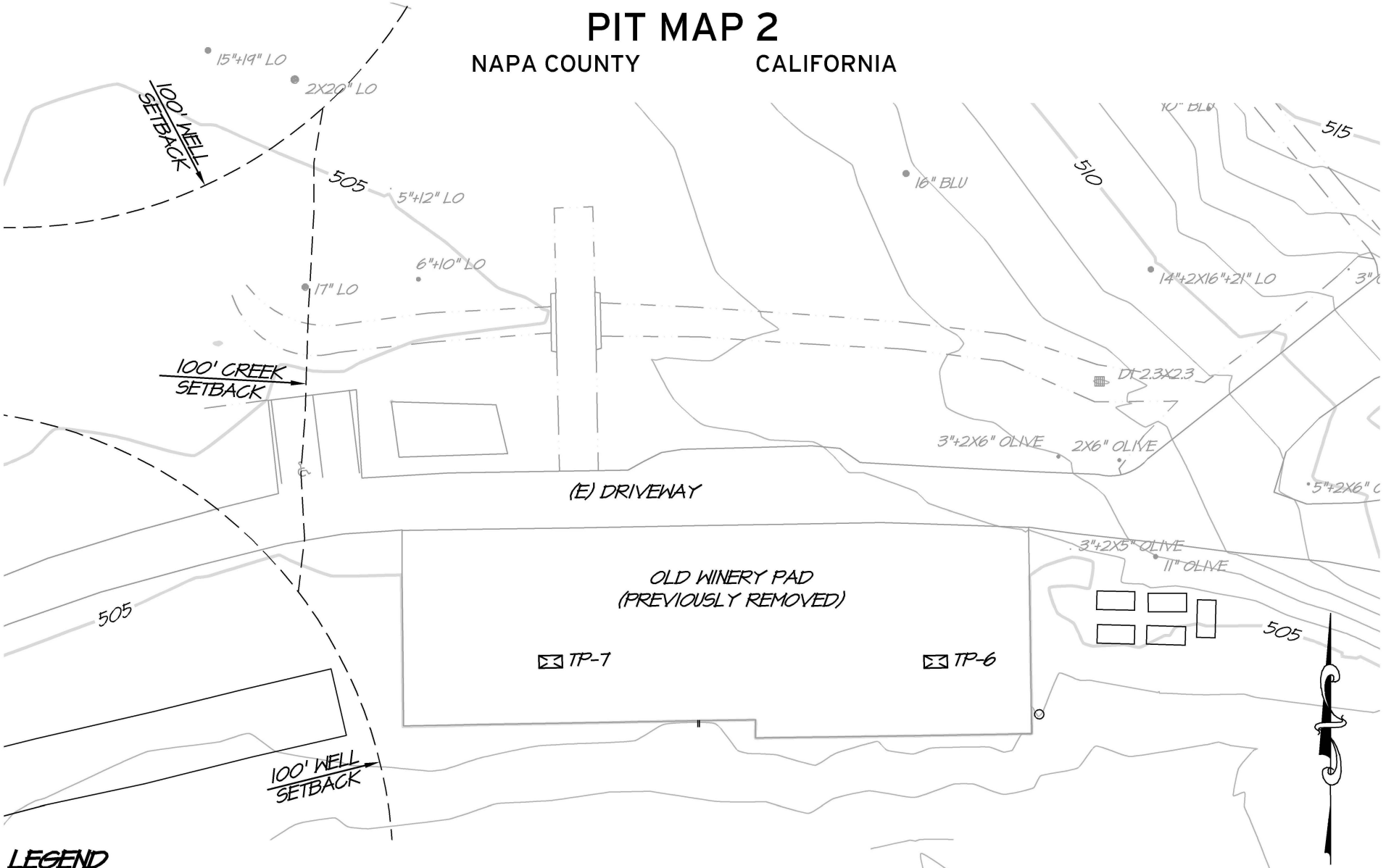

RSA+
1515 FOURTH STREET
NAPA, CALIF. 94559
OFFICE|707|252.3301
+ www.RSAcivil.com +

RSA+| CONSULTING CIVIL ENGINEERS + SURVEYORS + est. 1980


Aug 10, 2023 4122063.0 Exh-Pit Map-3.dwg

R:\2022\4122063.0_Dutch_Henry_Winery_Use_Permit_Modification\DESIGN\EXHIBITS\Exh-Pit Map-3.dwg 08/10/2023

# PARABLE WINERY
## PIT MAP 2
NAPA COUNTY CALIFORNIA




**LEGEND**

TP-1 SUITABLE TEST PIT

TP-4 NON-SUITABLE TEST PIT

ADDRESS: 4300 SILVERADO TRAIL
CALISTOGA, CA 94515

SITE EVALUATION DATE: AUGUST 3, 2023
APN 020-120-028
ENVIRONMENTAL HEALTH INSPECTOR: AVI SOMA

**GRAPHIC SCALE**

30' 0 30'

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\\Client\R$\2022\4122063.0_Dutch_Henry_Winery_Use_Permit_Modification\DESIGN\EXHIBITS\Exh-Pit Map-4.dwg 08/16/2023

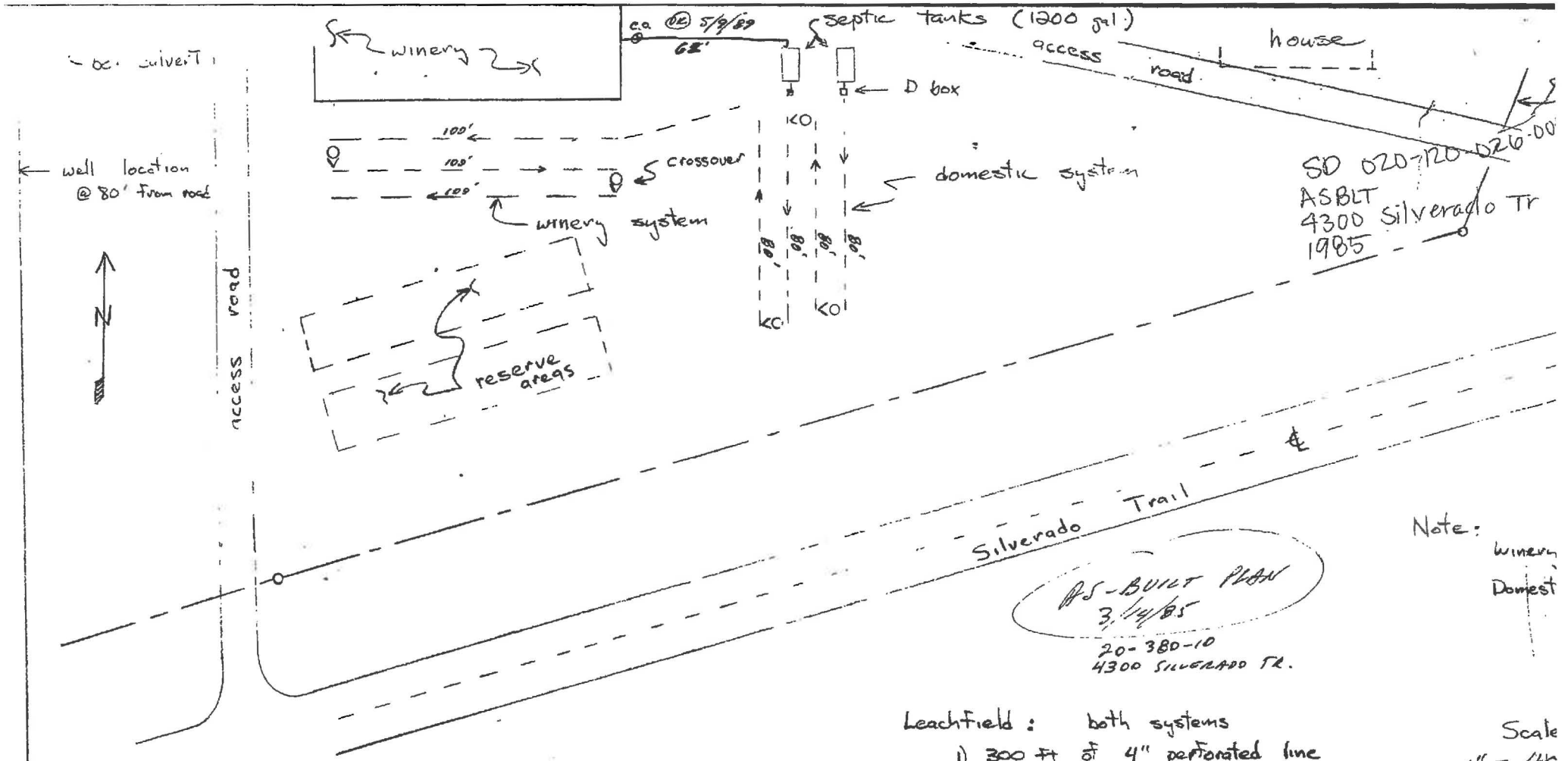
# Appendix 3

## Existing Process and Wastewater System Design Documentation
## Sakai General Engineering Septic Inspection Report

# Environmental

Cover Sheet

| | |
|---|---|
| APN | 020 - 120 - 026 - 000 |
| Permit # | |
| Program | SD |
| DocType | ASBLT |
| Street # | 4300 |
| Street Name | Silverado Trail |
| Year | 1985 |




Crossover:

1) After every 100' of leachline
2) 4" solid pipe – 2% slope (minimum)
3) no gravel envelope – on undisturbed earth
4) drop box or ell connected
5) invert is 2" above preceding pipe

Leachfield: both systems

1) 300 ft of 4" perforated line
2) 42 in trench depth
3) gravel envelope
   18" under
   2" over
4) 18 in earth cover
5) 8 ft spacing between lines (minimum)
6) trench and pipe are level
7) filter material between gravel + backfill

Scale
1" = 4

H2O E

MAT

J. Franch

Domestic Waste

# NAPA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH – LAND USE
## EXISTING INDIVIDUAL SEPTIC SYSTEM INSPECTION REPORT FORM

**PROPERTY OWNER** Dutch Henry Canyon Winery **DATE** 2/10/21

**SITE ADDRESS** 4300 Silverado Trail Calistoga CA

**PARCEL NUMBER** _____ **SEWAGE CONTRACTOR** SAKAI Gen Eng

**SEWAGE CONTRACTOR LICENSE NUMBER** 724709

**PRIMARY TREATMENT-SEPTIC TANK**

Distance to closest well: This parcel 100`+ Adjacent parcel 100`+ Date tank was last pumped 01/21

Distance from foundation 20`+ Pumped by Dependable

Distance from property line 100`+ Pre-fab tank or poured in place (describe) pre fab

Material-Tank Concrete Lid ✓ Number of compartments 2

Inside Dimensions-Length 90" Width 48" Depth 60" Total Capacity 1200

**SECONDARY TREATMENT-DISPOSAL FIELD (if other than leach field describe below)**

Distance to closest well: This parcel 46' Adjacent Parcel 100+ Distance to property line 80`+

Distance from foundation 15'

Total length of leach line 304' Total effective sidewall 1570 SQ Ft

Type of filter material 1.5" Rock Amount of filter material: 19"

Type of pipe 4" Styrene Number of lines 4

Depth of cover over rock: Above pipe 7" Below pipe 12"

Trench Width 24" Depth 49" - 43"

**GENERAL INFORMATION**

Is the house/structure presently occupied? No How many bedrooms? N/A

If commercial use-how many employees (FT and PT) _____ How many units served by this system _____

Any other septic systems on the property? yes If yes, how many? 1 process

**CONDITION OF SYSTEM -** Make a statement on the condition of the septic tank and interior surfaces, including baffles and fittings. How was this determined? Note: If tank is over five years old, it **MUST** be inspected (pumping is required to allow inspection). The Septic tank is in Good Working Condition.

Make a statement on the condition of the sump/pump (if applicable), including size, alarm, structure, etc. N/A

Make a statement on the condition of the distribution box, leaching lines, etc. How was the length and location of the disposal field determined? the Leach field is in Good Working condition. Visual inspection via excavation and camera thru Lines.

**Note: Information on disposal field must be determined by physically locating each line by exposing the ends. All Distribution Boxes must be uncovered and inspected.**

**A PLOT PLAN OF THE SEPTIC SYSTEM AND ALL OTHER IMPROVEMENTS MUST BE ATTACHED TO THIS REPORT-DISTANCE TO PONDS/STREAMS, WELLS, BUILDINGS, ETC. MUST BE SHOWN**

Brandon Sakai _____

**Print Name (Licensed Contractor)** **Signature (Licensed Contractor)**

**Note: In order to secure clearance of an individual sewage disposal system from the Department of Environmental Management, the system must be inspected by a licensed sewage contractor and the completed form returned to our office for evaluation. It should be accompanied by a plot plan showing the septic system, wells, buildings and other improvements on the property and the 100% expansion area (if required).**

Process Waste

# NAPA COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH – LAND USE
# EXISTING INDIVIDUAL SEPTIC SYSTEM INSPECTION REPORT FORM

**PROPERTY OWNER** Dutch Henry Canyon Winery **DATE** 2/10/21

**SITE ADDRESS** 4300 Silverado trail Calistoga CA

**PARCEL NUMBER** _____ **SEWAGE CONTRACTOR** SAKAI Gen Eng

**SEWAGE CONTRACTOR LICENSE NUMBER** 724709

**PRIMARY TREATMENT-SEPTIC TANK**

Distance to closest well: This parcel 100`+ Adjacent parcel 100`+ Date tank was last pumped 01/21
Distance from foundation 20`+ Pumped by Dependable
Distance from property line 100`+ Pre-fab tank or poured in place (describe) pre fab
Material-Tank Concrete lid ✓ Number of compartments 2
Inside Dimensions-Length 90" Width 48" Depth 60" Total Capacity 1200

**SECONDARY TREATMENT-DISPOSAL FIELD (if other than leach field describe below)**

Distance to closest well: This parcel 100` Adjacent Parcel 100`+ Distance to property line 100`+
Distance from foundation 10`
Total length of leach line 555` Total effective sidewall 3885 Sq Ft
Type of filter material Bio chamber Amount of filter material: Bio chamber
Type of pipe Bio chambers Number of lines 6
Depth of cover over rock: Above pipe N/A Below pipe N/A
Trench Width 24" Depth 30"

**GENERAL INFORMATION**

Is the house/structure presently occupied? NO How many bedrooms? N/A
If commercial use-how many employees (FT and PT) _____ How many units served by this system _____
Any other septic systems on the property? yes If yes, how many? 1 Domestic

**CONDITION OF SYSTEM -** Make a statement on the condition of the septic tank and interior surfaces, including baffles and fittings. How was this determined? Note: If tank is over five years old, it **MUST** be inspected (pumping is required to allow inspection). Septic tank is in good condition ✓

Make a statement on the condition of the sump/pump (if applicable), including size, alarm, structure, etc. N/A

Make a statement on the condition of the distribution box, leaching lines, etc. How was the length and location of the disposal field determined? 4 D boxes all in excellent condition, all lines are in excellent condition visually inspected lines digging holes and camera the inside of the leach lines ✓

**Note: Information on disposal field must be determined by physically locating each line by exposing the ends. All Distribution Boxes must be uncovered and inspected.**

**A PLOT PLAN OF THE SEPTIC SYSTEM AND ALL OTHER IMPROVEMENTS MUST BE ATTACHED TO THIS REPORT-DISTANCE TO PONDS/STREAMS, WELLS, BUILDINGS, ETC. MUST BE SHOWN**

Brandon Sakai _____

**Print Name (Licensed Contractor)** **Signature (Licensed Contractor)**

**Note: In order to secure clearance of an individual sewage disposal system from the Department of Environmental Management, the system must be inspected by a licensed sewage contractor and the completed form returned to our office for evaluation. It should be accompanied by a plot plan showing the septic system, wells, buildings and other improvements on the property and the 100% expansion area (if required).**


1200 gal
1200 gal
Domestic
Waste
4 76' leach lines
Process waste
100'
45'
WELL
Silverado Trl

# Appendix 4

# Vineyard Area to Receive Treated Process Wastewater Irrigation and Irrigation Water Balance

**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.*

**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 (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 ($k_c$) (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*

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

**Peak Monthly Storage = 9,341 gallons**

Notes:

1. Reference ETo from California Irrigation Management Information System
2. 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
145,391,858 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 ($k_c$) (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] | 3,656 | 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*

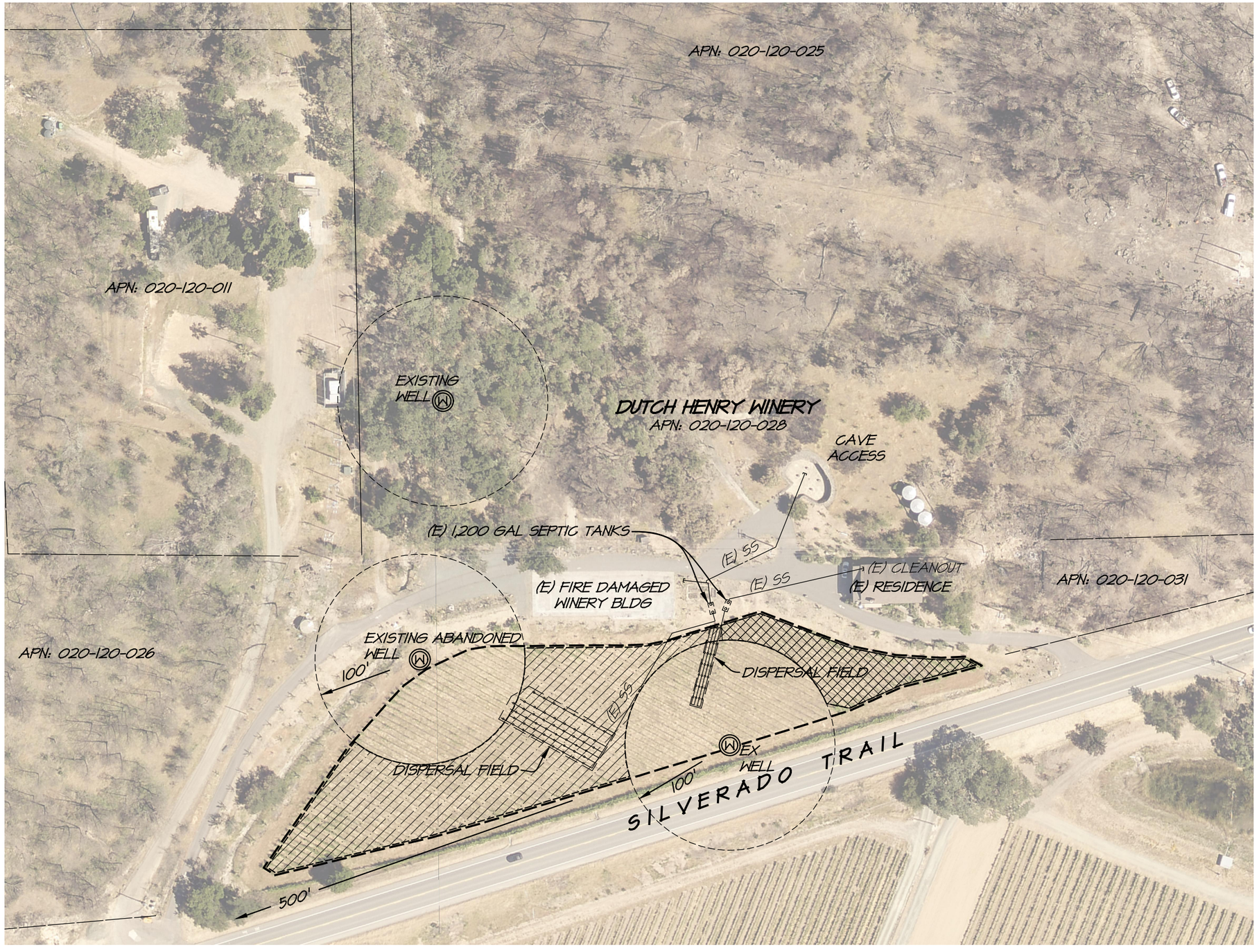
**Peak Monthly Storage = 26,741 gallons**

Notes:

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

# 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 |

GRAPHIC SCALE

100' 0 100'

( IN FEET )
1 INCH = 100 FT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1515 FOURTH STREET
NAPA, CALIF. 94559
OFFICE|707|252.3301
+ www.RSAcivil.com +

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OCT. 10, 2024 4122063.0 Exh-Vineyard Irr.dwg

# Appendix 5

# BOD Loading Limit Calculation

# Parable Winery - BOD Loading Calculation

| Input Criteria | | |
|---|---|---|
| Land Application Area | 0.93 | Acres |
| Post Treatment BOD (County of Napa) | 160 | mg/L |
| * Loading Limit (Target) | 100 | lbs/acre/day |
| Peak Process Wastewater month, Sept. | 27000 | Gallons/month |
| **Calculations** | | |
| Process Wastewater Generation per week (4 weeks / month) | 6750 | Gallons/week |
| Process Wastewater Generation per week (1 gallon / 3.78541 Liters) | 25552 | Liters/week |
| BOD Generation per week (160 mg/L Post Treatment Loading) | 4088243 | mg/week |
| BOD Generation per week (453,592 mg/lb) | 9 | lbs/week |
| BOD loading per acre | 9.7 | lbs/acre/day ** |
| **Conclusion** | | |
| BOD Loading per acre less than loading limit | 9.7 < 100 | lbs/acre/day ** |

* State Water Board General Waste Discharge Requirements For Winery Process Water, Section 35-D

** Assumes irrigation once per week with a 7-day irrigation cycle

# Appendix 6

# BioFiltro Information

BIOFILTRO
worm powered wastewater solutions

# Take Control of Your Wastewater


Our **Control Unit** is the brain and headworks of our modular systems. We pack all the components specific to your needs into this unit and deliver a system that is operable not only within hours of delivery, but also from your cellphone, tablet, or computer.

Housed in a 10'L x 8' W x 8' H shipping container, the standard unit includes an equalization tank, flow meter, sensors and probes, recirculation, pump station, and PLC. Optional features includes solid separator(s), pH adjustment system, and climate control equipment. One control unit can support up to 4,000 GPD, larger volumes may require additional/larger equalization tank(s). The unit can run off of generators and/or solar panels to service areas that are off of the grid. Exterior paint and branding can also be customized.

| INSTALLATION REQUIREMENTS | |
|---|---|
| Operating Weight | 6,000 lbs |
| Electrical Supply | 240V<br>Three Phase |
| Earthwork | 90% Compaction<br>4" Gravel Pad<br>0% Slope |
| Amp Draw | 50 |

# BIOFILTRO

worm powered wastewater solutions


| Part | STANDARD EQUIPMENT |
|---|---|
| A | ≤1,000 Gallon Equalization Tank |
| B | Two Pumps |
| C | Venturi Mazzei & Injectors |
| D | pH, ORP, and Temperature Probes |
| E | Programmable Logic Controller (PLC) |
| F | Camera |
| G | Overhead light and ventilation fan |
| I | Flow Meter |

| Part | OPTIONAL EQUIPMENT |
|---|---|
| J | Solid Separator |
| K | pH Adjustment System |
| | Climate Control Equipment |
| | Insulated Walls |
| | Power Generator |
| | Solar Panels |

1949 5th Street, Suite 101, Davis, CA 95616 **Tel**: 530 302 5692
www.biofiltro.com info@biofiltro.com

# BIOFILTRO

worm powered wastewater solutions

## A Whole New Can Of Worms

Ideal for sanitary, food & beverage, and livestock wastewater

Our **Can of Worms** is a compact stand alone wastewater package system housed in a 20' shipping container. With a maximum treatment capacity up to 1,000 gallons per day, this system is ideal for rural sanitary needs, boutique processors, and/or for research.

The Can of Worms comes with its own solid separator, equalization tank, lift station, PLC, monitoring camera. If necessary, the system can be upgraded to include a pH adjustment system, climate control equipment, and/or tertiary disinfection.

Our units are designed and built in California and take 4 - 6 weeks to deliver. They are available to purchase or can be financed through our Wastewater as a Service model.

| | |
|---|---|
| **Treatment Process** | Continuous Batch |
| **Treatment Time** | 4 Hours |
| **Operating Weight** | 12,000 lbs |
| **Operating Dimensions** | 20' L x 8' W x 8' H |
| **Sitework** | 90% Compaction, 4" Gravel Pad; 2-3% Slope |


# Take Control of Your Wastewater


- Energy Efficient
- Mobile & Scalable
- Turn Key Installation
- Remotely Monitored
- Beneficial Byproducts
- Self Contained

Our systems come equipped with Nightcrawler, our very own monitoring software. Accessible from tablets, cell phones, and desktops, Nightcrawler enables users to execute basic operational and troubleshooting functions while logging water usage and influent and effluent water quality data. Customers can also leverage this software to reduce their water usage and increase their sustainability metrics.

Should the customer's flow, water quality, or discharge permit change and thereby require additional treatment, additional Cans of Worms and or tertiary treatment systems can be snapped on to keep the system within compliance.

| Removal Efficiencies | |
|---|---|
| BOD5 | 85 - 99% |
| TSS | 85 - 99% |
| TKN | 60 - 95% |
| Ammonia | 65 - 85% |
| Phosphorus | 35 - 70% |

| TREATMENT CAPACITY | |
|---|---|
| Influent BOD5 mg/L | Gallons Per Day |
| 0 - ≤ 500 | ≤ 1,500 |
| 500 - ≤ 1,000 | ≤ 1,125 |
| 1,000 - ≤ 6,000 | ≤ 450 |
| 6,000 | ≤ 225 |

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