ONSITE WASTEWATER DISPOSAL FEASIBILITY STUDY

FOR THE

CASTELLUCCI ESTATE WINERY

LOCATED AT:
7900 Money Road
Oakville, CA 94562
Napa County APN 031-030-024

PREPARED FOR:
Antonio Castellucci
14 Pelican Point Road
Belvedere, CA 94920

PREPARED BY:

APPLIED CIVIL ENGINEERING INCORPORATED

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Job Number: 22-147

Michael R. Muelrath 2-27-2026
Michael R. Muelrath R.C.E. 67435 Date

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INTRODUCTION

Antonio Castellucci is applying for a Use Permit to construct and operate a new winery at the property located at 7900 Money Road in Napa County, California. The subject property, known as Napa County Assessor's Parcel Number 031-030-024, is located along the east side of Money Road approximately 0.6 miles northwest of the intersection of Money Road and Oakville Cross Road.

Figure 1: Location Map

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

- Wine Production:
    - 20,000 gallons of wine per year
    - Crushing, fermenting, aging and bottling

- Employees:
    - 2 full time employees
    - 3 part time employees
    - 4 seasonal employees

- Marketing Plan:
    - Daily Tours and Tastings with Food & Wine Pairings by Appointment
        - 30 visitors per day maximum
    - Marketing Event Type A
        - 12 per year
        - 25 guests maximum
        - Food prepared offsite by catering company
    - Marketing Event Type B
        - 5 per year
        - 50 guests maximum
        - Food prepared offsite by catering company
        - Portable toilets brought in for guest use
    - Marketing Event Type C
        - 2 per year
        - 125 guests maximum
        - Food prepared offsite by catering company
        - Portable toilets brought in for guest use

Existing development on the property includes two dwellings, vineyards, orchards, two groundwater wells, drainage improvements and the access and utility infrastructure typical of these existing residential and agricultural uses. The two existing dwellings on the winery parcel are served by conventional septic systems according to public permit records on file with Napa County and an inspection report by McCollum dated June 8, 2021. There is also a conventional septic leach field on the winery parcel that serves a dwelling on the parcel to the south under the same ownership. This septic field is in the process of being abandoned as a new septic system is being built as part of the parcel to the south's redevelopment. Please see the Castellucci Estate Winery Conceptual Site Improvement Plans for approximate locations of existing and proposed features.

Antonio Castellucci has requested that Applied Civil Engineering Incorporated (ACE) evaluate the feasibility of disposing of the winery process wastewater as well as the domestic sanitary wastewater that will be generated by the proposed winery via new onsite wastewater disposal

systems. The remainder of this report describes the onsite soil conditions, the predicted winery process and sanitary wastewater flows and outlines the conceptual design of the onsite wastewater disposal systems.

SOILS INFORMATION

The United States Department of Agriculture Soil Conservation Service Soils Map for Napa County shows the entire site mapped as Yolo loam, drained, 0 to 10 percent slopes.

A site specific soils analysis was conducted during a site evaluation performed by ACE on August 5, 2024. The site evaluation consisted of the excavation and observation of eleven test pits throughout the property. The test pits generally revealed variable depths of acceptable soil with a texture of sandy clay loam. The primary limiting condition that was observed was the presence of mottling in the lower soil horizons.

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

WASTEWATER SYSTEM DESIGN

The onsite wastewater disposal system will be designed for the peak winery process wastewater flow and the peak sanitary wastewater flow from the proposed winery as described in this report. The systems will be designed in accordance with requirements found in the Napa County Code as well as the State Water Resources Control Board General Waste Discharge Requirements for Winery Process Water, Order WQ 2021-0002-DWQ (Winery General Order).

Winery Process Wastewater Flows

We have used the generally accepted standard that six gallons of winery process wastewater are generated for each gallon of wine that is produced each year and that 1.5 gallons of wastewater are generated during the crush period for each gallon of wine that is produced. Based on the size of the winery we have assumed a 30-day crush period. Based on these assumptions, the average and peak winery process wastewater flows are calculated as follows:

$$\text{Annual Winery Process Wastewater Flow} = \frac{20{,}000 \text{ gallons wine}}{\text{year}} \times \frac{6 \text{ gallons wastewater}}{1 \text{ gallon wine}}$$

Annual Winery Process Wastewater Flow = 120,000 gallons per year

$$\text{Average Daily Winery Process Wastewater Flow} = \frac{120{,}000 \text{ gallons}}{\text{year}} \times \frac{1 \text{ year}}{365 \text{ days}}$$

Average Daily Winery Process Wastewater Flow = 329 gallons per day (gpd)

$$\text{Peak Winery Process Wastewater Flow} = \frac{20{,}000 \text{ gallons wine}}{\text{year}} \times \frac{1.5 \text{ gallons wastewater}}{1 \text{ gallon wine}} \times \frac{1 \text{ year}}{30 \text{ crush days}}$$

Peak Winery Process Wastewater Flow = 1,000 gpd

The wastewater treatment facility is anticipated to treat 120,000 gallons of process wastewater per year which qualifies this facility as a Tier 2 Facility (30,001 – 300,000 gal/yr) per the General Waste Discharge Requirements for Winery Process Wastewater.

Winery Sanitary Wastewater Flows

The peak sanitary wastewater flow from the winery is calculated based on the number of winery employees, the number of daily visitors for tours and tastings, and the number of guests attending private marketing events. In accordance with Table 4 of Napa County's Regulations for Design, Construction, and Installation of Alternative Sewage Treatment Systems we have used a design flow rate of 15 gallons per day per employee and 3 gallons per day per visitor for tours and tastings corresponding to the "Wine tasting facility (no meals served)" category in Table 4. The food service associated with daily tours and tastings proposed consists of light, winery-appropriate pairings such as, but not limited to, artisanal cheeses, breads, and chocolates. Daily tours and tastings visitors will not have a meal served. Table 4 does not specifically address design wastewater flows for guests at marketing events. For marketing events that will have catered meals that are prepared offsite we have conservatively estimated 5 gallons of wastewater per guest. This design wastewater flow accounts for the visitors' use of the restrooms as well as a caterer's limited use of the kitchen during events. Based on these assumptions, the peak winery sanitary wastewater flows are calculated as follows:

Employees

Peak Sanitary Wastewater Flow = 9 employees X 15 gpd per employee
Peak Sanitary Wastewater Flow = 135 gpd

Daily Tours and Tastings

Peak Sanitary Wastewater Flow = 30 visitors per day X 3 gallons per visitor
Peak Sanitary Wastewater Flow = 90 gpd

Marketing Event Type A with Catered Meals Prepared Offsite:

Peak Sanitary Wastewater Flow = 25 guests X 5 gallons per guest
Peak Sanitary Wastewater Flow = 125 gpd

Marketing Event Type B with Catered Meals Prepared Offsite:

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

Marketing Event Type C with Catered Meals Prepared Offsite:

Peak Sanitary Wastewater Flow = 125 guests X 5 gallons per guest
Peak Sanitary Wastewater Flow = 625 gpd (not included in total since portables will be used)

Total Peak Winery Sanitary Wastewater Flow

All events with more than 50 guests in attendance will utilize portable sanitary facilities to minimize the load on the septic system. Therefore, assuming that daily tours and tastings and a

maximum of one marketing event may occur on the same day the total peak winery sanitary wastewater flow is based on employees, daily tours and tastings and a marketing event for 50 people and is calculated as follows:

Total Peak Winery Sanitary Wastewater Flow = 135 gpd + 90 gpd + 250 gpd

Total Peak Winery Sanitary Wastewater Flow = 475 gpd

RECOMMENDATIONS

We recommend that the process and sanitary wastewater generated at the proposed winery be kept separate for treatment and disposal. Based on the anticipated wastewater flows, the proposed site layout and the observation of relatively shallow acceptable soil depths both the process and sanitary wastewater should be pretreated and disposed of onsite in separate subsurface drip type septic systems.

The conceptual designs of the two wastewater disposal systems are outlined in the following sections of this report.

Sanitary Wastewater

Required Disposal Field Area

The disposal field area is calculated based upon the design hydraulic loading rate for the soil conditions and the proposed design flow. In accordance with Table 9 of Napa County's Regulations for Design, Construction, and Installation of Alternative Sewage Treatment Systems we have used a hydraulic loading rate of 0.6 gpd per square foot based on the findings of sandy clay loam soils in the planned disposal field area. Since the slope of the natural ground surface in the area of the proposed disposal field is less than 20% no adjustment is required for slope. Based on these design parameters, the required disposal field area is calculated as follows:

$$\text{Required Disposal Field Area} = \frac{\text{Peak Flow}}{\text{Soil Application Rate}}$$

$$\text{Require Disposal Field Area} = \frac{475 \text{ gpd}}{0.6 \text{ gpd per square foot}}$$

Required Disposal Field Area =792 square feet

Length of Drip Tubing

We recommend using Geoflow Wasteflow PC (WFPC 16-4-24) or equivalent dripline in the disposal field. The drip lines should be placed approximately 6 to 9 inches below grade in the native soil. This will provide adequate cover and a minimum of 24 inches of separation to the limiting soil condition.

We recommend that the drip tubing be installed in parallel segments spaced two feet apart (2 foot standard spacing for ground slope under 20%) and that the drip emitters be spaced every

two feet on center along the drip tubing. Based on these criteria, the number of drip emitters is calculated as follows:

$$\text{Number of Emitters} = \frac{\text{Required Disposal Field Area}}{\text{Emitter Spacing}}$$

$$\text{Number of Emitters} = \frac{792 \text{ square feet}}{2 \text{ feet} \times 2 \text{ feet}}$$

Number of Emitters = 198

The length of drip tubing required in the disposal field is then calculated based on the number of emitters and the spacing of the emitters as shown below:

$$\text{Length of Drip Tubing} = \frac{\text{Number of Emitters}}{\text{Emitter Spacing Along Drip Tubing}}$$

$$\text{Length of Drip Tubing} = 198 \text{ Emitters} \times \frac{2 \text{ feet}}{1 \text{ Emitter}}$$

Length of Drip Tubing = 396 feet

Available Disposal Field Area

Based on the proposed site layout and topographic map prepared by Albion Surveys, we have determined that there is enough area to install approximately 400 feet of subsurface drip lines in the vicinity of Test Pits #4 & #5 outside of all required setbacks. The drip lines will be placed between existing vineyard rows and protected from vineyard equipment with bollards and/or signage. The conceptual layout of the disposal field is shown on the Castellucci Estate Winery Conceptual Site Improvement Plans in Appendix 2.

Pretreatment and Septic Tank Capacity

Pretreatment must be provided to treat the winery sanitary wastewater to meet Napa County pretreated effluent standards (BOD <30 mg/l, TSS <30 mg/l). There are several options for pretreatment systems that are available to meet this requirement. The Applicant and Engineer will review options and select a suitable pretreatment system designed to meet this requirement prior to application for a sewage permit for the winery sanitary wastewater disposal system. Septic tanks will be sized in accordance with the requirements of the selected pretreatment system.

Process Wastewater

Required Disposal Field Area

The disposal field area is calculated based upon the design hydraulic loading rate for the soil conditions and the proposed design flow. In accordance with Table 9 of Napa County's Regulations for Design, Construction, and Installation of Alternative Sewage Treatment Systems we have used a hydraulic loading rate of 0.6 gpd per square foot based on the observation of

sandy clay loam soils in the planned disposal field area. Since the slope of the natural ground surface in the area of the proposed disposal field is less than 20% no adjustment is required for slope. Based on these design parameters, the required disposal field area is calculated as follows:

$$\text{Required Disposal Field Area} = \frac{\text{Peak Flow}}{\text{Soil Application Rate}}$$

$$\text{Require Disposal Field Area} = \frac{\text{1,000 gpd}}{\text{0.6 gpd per square foot}}$$

Required Disposal Field Area = 1,667 square feet

Length of Drip Tubing

We recommend using Geoflow Wasteflow PC (WFPC 16-4-24) or equivalent dripline in the disposal field. The drip lines should be placed approximately 6 to 9 inches below grade in the native soil. This will provide adequate cover and a minimum of 24 inches of separation to the limiting soil condition.

We recommend that the drip tubing be installed in parallel segments spaced two feet apart (2 foot standard spacing for ground slope under 20%) and that the drip emitters be spaced every two feet on center along the drip tubing. Based on these criteria, the number of drip emitters is calculated as follows:

$$\text{Number of Emitters} = \frac{\text{Required Disposal Field Area}}{\text{Emitter Spacing}}$$

$$\text{Number of Emitters} = \frac{\text{1,667 square feet}}{\text{2 feet} \times \text{2 feet}}$$

Number of Emitters = 417

The length of drip tubing required in the disposal field is then calculated based on the number of emitters and the spacing of the emitters as shown below:

$$\text{Length of Drip Tubing} = \frac{\text{Number of Emitters}}{\text{Emitter Spacing Along Drip Tubing}}$$

$$\text{Length of Drip Tubing} = \text{417 Emitters} \times \frac{\text{2 feet}}{\text{1 Emitter}}$$

Length of Drip Tubing = 834 feet

Available Disposal Field Area

Based on the proposed site layout and topographic map prepared by Albion Surveys, we have determined that there is enough area to install approximately 900 feet of subsurface drip lines in the vicinity of Test Pits #4 & #5 outside of all required setbacks. The drip lines will be placed

between existing vineyard rows and protected from vineyard equipment with bollards and/or signage. The conceptual layout of the disposal field is shown on the Castellucci Estate Winery Conceptual Site Improvement Plans in Appendix 2.

Pretreatment and Tank Capacity

Pretreatment must be provided to treat the winery process wastewater to meet the effluent standards listed below. Based on the winery's planned production level and waste flows we recommend that treatment of winery process wastewater be achieved through the use of a packaged plant type system or other treatment system designed to accept winery process wastewater. To allow operational flexibility for handling peak day surges and to provide a factor of safety we recommend that the process wastewater treatment system be designed for a daily peak flow of 2,000 gpd.

Winery Process Wastewater Constituents

The primary components of winery process wastewater that are to be treated by the proposed system are pH, biochemical oxygen demand (BOD_5), total suspended solids (TSS) and settleable solids (SS). The concentration of each of these parameters varies significantly throughout the year based on the winemaking activities taking place in the winery. Typical winery activities associated with high strength waste are the annual crush, washing of tanks after fermentation, and barrel and tank washing associated with racking and bottling activities.

The estimated pre-treatment wastewater strength and the post treatment criteria are as follows:

Parameter	Pre-treatment*	Post Treatment*
pH	3.8 to 9.3	6 to 9
Nitrogen	5 to 430 mg/l	<10 mg/l
FDS (salinity)	350 to 1,000 mg/l	source water FDS + 320 mg/l
BOD	190 to 9,100 mg/l	<30 mg/l**
TSS	40 to 2,300 mg/l	<30 mg/l**

* Reference: Winery General Order for winery process wastewater characteristics & effluent limits for subsurface disposal

** Reference: Napa County Technical Standards for subsurface drip dispersal (more stringent than the Winery General Order limits)

RESERVE AREAS

Required Reserve Area

The Napa County Code and the Winery General Order require that an area be set aside to accommodate a future onsite wastewater disposal system in the event that the primary system fails or the soil in the primary area is otherwise rendered unsuitable for wastewater disposal. For

subsurface drip type septic systems the reserve area must be 200% of the size of the disposal field area. Reserve area for the existing 4-bedroom main house and 3-bedroom "bunkhouse" residential septic systems must also be identified in addition to the winery sanitary and process wastewater systems.

Based on these design parameters, the required reserve areas are calculated as follows:

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

$$\text{Required Winery Sanitary Reserve Field Area} = 200\% \times \frac{475 \text{ gpd}}{0.6 \text{ gpd per square foot}}$$

Required Winery Sanitary Reserve Area = 1,584 square feet, use 1,600 square feet

$$\text{Require Residential Sanitary Reserve Field Area} = 200\% \times \frac{7 \text{ bedrooms x } 120 \text{ gpd}}{0.6 \text{ gpd per square foot}}$$

Required Residential Sanitary Reserve Area = 2,800 square feet

Combined Sanitary Reserve Area = 1,600 + 2,800 = 4,400 square feet

$$\text{Required Winery Process Reserve Field Area} = 200\% \times \frac{1{,}000 \text{ gpd}}{0.6 \text{ gpd per square foot}}$$

Required Winery Process Reserve Area = 3,334 square feet

Available Reserve Area

Based on the proposed site plan and topographic map prepared by Albion Surveys, we have determined that there is enough area to set aside for sanitary and process wastewater reserve areas. There is 4,400 square feet in the vicinity of Test Pits #9 & #11 that can accommodate the combined sanitary and residential reserve areas, and 3,334 square feet in the vicinity of Test Pit #7 that can accommodate the process wastewater reserve area as shown on the Castellucci Estate Winery Conceptual Site Improvement Plans in Appendix 2.

CONCLUSION

It is our opinion that the proposed winery sanitary wastewater disposal needs can be served by an engineered subsurface drip type onsite wastewater disposal system and the winery process wastewater can be pretreated and disposed of via an engineered subsurface drip type onsite wastewater disposal system. Full design calculations and construction plans should be prepared in accordance with Napa County standards at the time of building permit application.

APPENDIX 1: Castellucci Estate Winery Conceptual Site Improvement Plans

Reduced to 8.5" x 11"

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CASTELLUCCI ESTATE WINERY

USE PERMIT CONCEPTUAL PLANS

OVERALL SITE PLAN
SCALE: 1" = 60'

LOCATION MAP
SCALE: 1" = 2,000'

PROJECT INFORMATION:

PROPERTY OWNER & APPLICANT:
ANTONIO & RITA CASTELLUCCI TRUST
14 PELICAN POINT ROAD
BELVEDERE, CA 94920

SITE ADDRESS:
7900 MONEY ROAD
OAKVILLE, CA 94562

ASSESSOR'S PARCEL NUMBER:
031-030-024

PARCEL SIZE:
14.96 ± ACRES

PROJECT SIZE:
2.6 ± ACRES

ZONING:
AGRICULTURE PRESERVE (AP)

DOMESTIC WATER SOURCE:
PRIVATE WATER WELL

FIRE PROTECTION WATER SOURCE:
STORAGE TANK

WASTEWATER DISPOSAL:
ONSITE TREATMENT AND DISPERSAL

SHEET INDEX:

C1	OVERALL SITE PLAN
C2	DRIVEWAY PLAN & PROFILE STA 10+00 TO STA 21+00
C3	CONCEPTUAL SITE PLAN
C4	STORMWATER CONTROL PLAN
C5	IMPERVIOUS SURFACE EXHIBIT
C6	LANDSCAPE EXHIBIT

PURPOSE STATEMENT:

THESE PLANS WERE PREPARED TO DEMONSTRATE THE FEASIBILITY OF THE CONSTRUCTION OF A NEW WINERY BUILDING ON THE PROPERTY AND ASSOCIATED ACCESS AND UTILITY INFRASTRUCTURE. REFER TO THE USE PERMIT PROJECT DESCRIPTION FOR MORE INFORMATION.

FLOOD HAZARD NOTE:

1. ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP NUMBER 06055C0385E, EFFECTIVE SEPTEMBER 26, 2008, ALL OR A PORTION OF THE PROJECT SITE IS LOCATED IN A SPECIAL FLOOD HAZARD AREA SUBJECT TO INUNDATION BY THE 1% CHANCE ANNUAL FLOOD (100 YEAR FLOOD). THE APPROXIMATE FLOOD HAZARD BOUNDARY LINE IS SHOWN ON THIS PLAN. SEE FIRM FOR ADDITIONAL INFORMATION.
2. BASE FLOOD ELEVATION (BFE) = 135' NAVD88
3. DESIGN FLOOD ELEVATION (DFE) = 136' NAVD88

NOTES:

1. FADED BACKGROUND REPRESENTS EXISTING TOPOGRAPHIC FEATURES. TOPOGRAPHIC INFORMATION WAS TAKEN FROM ELEVATION DATA DERIVED FROM BARE-EARTH SURFACE DIGITAL ELEVATION MODELS (DEMS) CREATED FROM LIDAR DATA FLOWN IN 2018 IN RESPONSE TO THE WIDESPREAD 2017 FIRES IN NORTHERN CALIFORNIA AS PART OF ONGOING NATIONWIDE 3DEP (U.S. GEOLOGICAL SURVEY 3D ELEVATION PROGRAM) EFFORTS. APPLIED CIVIL ENGINEERING INCORPORATED ASSUMES NO LIABILITY REGARDING THE ACCURACY OR COMPLETENESS OF THE TOPOGRAPHIC INFORMATION.
2. AERIAL PHOTOGRAPHS ARE NADIR IMAGES CAPTURED BY PICTOMETRY INTERNATIONAL DATED JULY 15, 2021 AND MAY NOT REPRESENT CURRENT CONDITIONS.
3. CONTOUR INTERVAL: TWO (2) FEET, HIGHLIGHTED EVERY TEN (10) FEET.
4. VERTICAL DATUM: NAVD 88
5. THE PROPERTY LINES SHOWN ON THESE PLANS DO NOT REPRESENT A BOUNDARY SURVEY. THEY ARE APPROXIMATE AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.
6. TEST PITS ONE THROUGH ELEVEN (TP #1 - TP #11) WERE EXCAVATED BY LALO ROBLEDO AND WERE WITNESSED BY MIKE MUELRATH OF APPLIED CIVIL ENGINEERING INCORPORATED AND ARMEDA SIMPSON - VAN DAM OF THE NAPA COUNTY PLANNING, BUILDING AND ENVIRONMENTAL SERVICES DEPARTMENT - ENVIRONMENTAL HEALTH DIVISION ON AUGUST 5, 2024.

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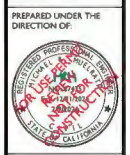
CASTELLUCCI ESTATE WINERY
USE PERMIT CONCEPTUAL PLANS
OVERALL SITE PLAN

PREPARED UNDER THE DIRECTION OF:



DRAWN BY:	BT DRAFTING
CHECKED BY:	EDW
DATE:	JULY 18, 2025

REVISIONS:	BY:
11/7/2025 USE PERMIT PLAN CHECK #2	BT
02/09/2026 USE PERMIT REVIEW	BT

JOB NUMBER: 22-147
FILE: 22-147CONC_OSP.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER: C1
OF 6

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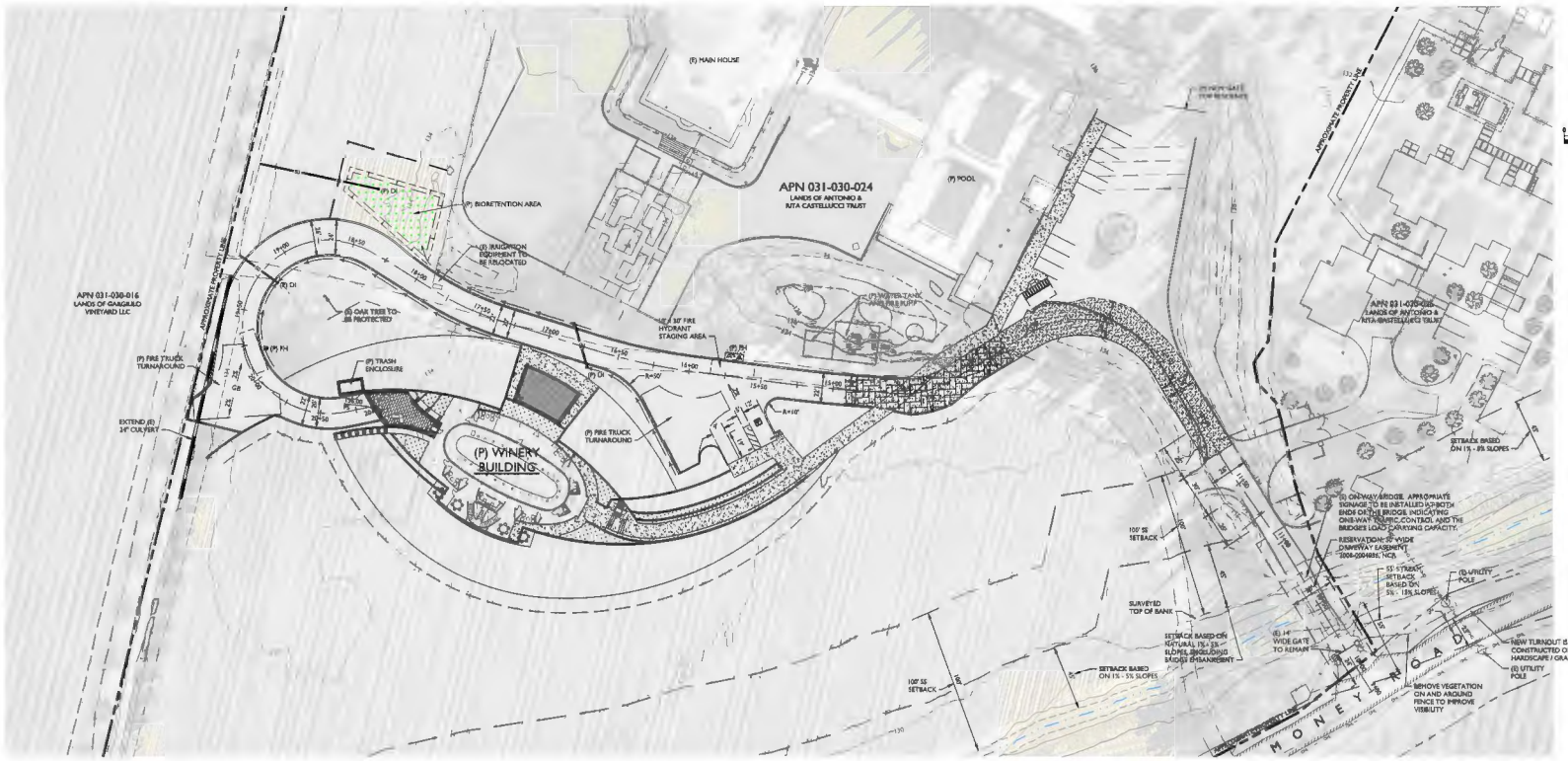
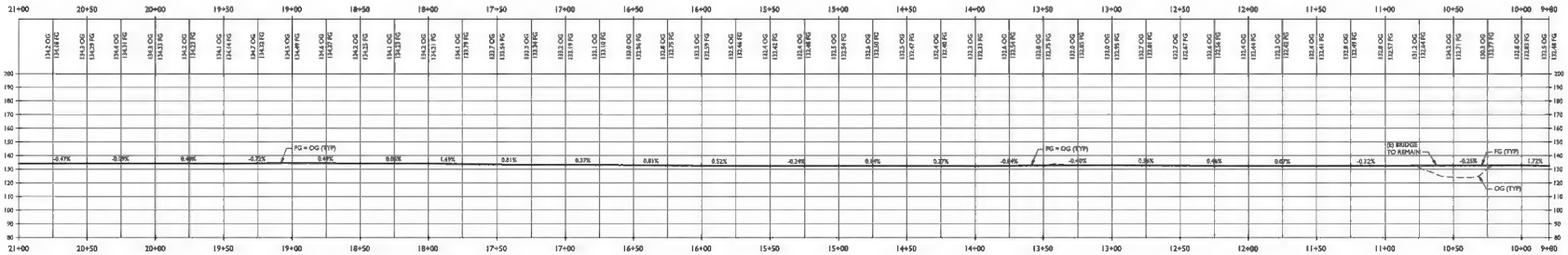


DRIVEWAY PLAN
STA 10+00 TO STA 21+00
SCALE: 1" = 40'



DRIVEWAY PROFILE
STA 10+00 TO STA 21+00
SCALE: 1" = 40'

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CASTELLUCCI ESTATE WINERY
USE PERMIT CONCEPTUAL PLANS
DRIVEWAY PLAN & PROFILE STA 10+00 TO STA 21+00

PREPARED UNDER THE DIRECTION OF:

REGISTERED PROFESSIONAL ENGINEER — EDWARD D. WILLIAMS — No. 82011 — CIVIL — STATE OF CALIFORNIA
FOR USE PERMIT REVISION NOT FOR CONSTRUCTION
12/9/2025

DRAWN BY:	BT DRAFTING
CHECKED BY:	EDW
DATE:	JULY 18, 2025

REVISIONS	BY
11/7/2025 USE PERMIT PLAN CHECK #2	BT
02/09/2026 USE PERMIT REVIEW	BT

JOB NUMBER: 22-147
FILE: 22-147CONC_DWY.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER: C2
OF 6

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(P) WINERY BUILDING
FF LOWER = 116.00
FF UPPER = 147.50
(SEE ARCHITECT'S DRAWINGS)
WINERY PROCESS WASTEWATER SUBSURFACE DRIP DISPERSAL FIELD
9 LINES AT 100 LF EACH
WINERY SANITARY WASTEWATER SUBSURFACE DRIP DISPERSAL FIELD
4 LINES AT 150 LF EACH
100% WINERY PROCESS RESERVE AREA
1,314 SF
100% WINERY SANITARY RESERVE AREA
1,314 SF
APN 031-030-024
LANDS OF ANTONIO & RITA CASTELLUCCI TRUST
(P) FIRE TRUCK TURNAROUND
(P) TRASH ENCLOSURE
(P) STORM DRAIN UNDER ROAD
(E) SEPTIC FIELD
(E) VINEYARD IRRIGATION TO BE RELOCATED
SETBACK FROM SEPTIC FIELD TO SWALE
SETBACK FROM SEPTIC FIELD TO ROAD
SOIL BERM
FIRE HYDRANT STAGING AREA
(P) FH
(P) FDC
(P) 10,000 GALLON AG PROTECTION WATER TANK
(P) 10,000 GALLON DOMESTIC WATER TANK
ANTHONY'S MARINE BUILT-IN CHECK BACKFLOW PREVENTION ASSEMBLY
(P) 6" DOMESTIC WATER LINE
(P) 8" FIRE WATER LINE
(P) 4" SEWER LINE
(P) 6" SEWER LINE
(P) 8" SEWER LINE
(P) 12" SEWER LINE
(P) 4" STORM DRAIN
(P) 6" STORM DRAIN
(P) 8" STORM DRAIN
(P) 12" STORM DRAIN
(P) 18" STORM DRAIN
(P) 24" STORM DRAIN
(P) 30" STORM DRAIN
(P) 36" STORM DRAIN
(P) 42" STORM DRAIN
(P) 48" STORM DRAIN
(P) 54" STORM DRAIN
(P) 60" STORM DRAIN
(P) 66" STORM DRAIN
(P)

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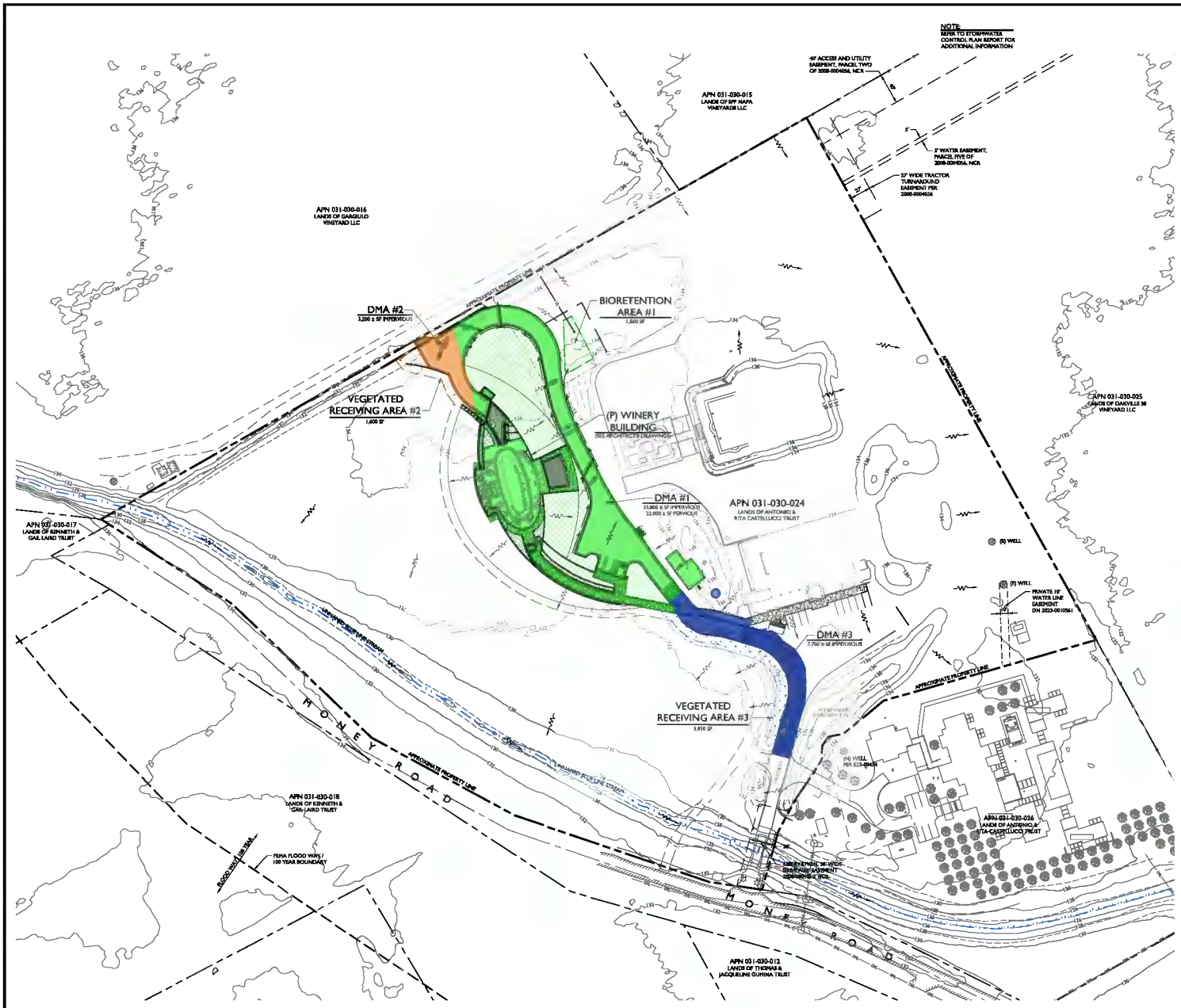

STORMWATER CONTROL PLAN

SCALE: 1" = 60'

	DRAINAGE MANAGEMENT AREAS (SQ FT)		
	#1	#2	#3
DMA AREA	55,800 ±	3,200 ±	7,700 ±
PERVIOUS AREA	22,000 ±	0	0
IMPERVIOUS AREA	33,800 ±	3,200 ±	7,700 ±
TOTAL	55,800 ±	3,200 ±	7,700 ±

DMA LEGEND:

- SHEET FLOW DIRECTION
- IMPERVIOUS AREA (COLOR VARIES BY DMA)
- PERVIOUS AREA (COLOR VARIES BY DMA)
- VEGETATED RECEIVING AREA (COLOR VARIES BY DMA)
- BIORETENTION AREA (COLOR VARIES BY DMA)

PROPOSED SURFACE LEGEND:

- LIGHT DUTY PCC
- ASPHALT PAVING
- GRAVEL SURFACE
- LANDSCAPE WALL

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CASTELLUCCI ESTATE WINERY

USE PERMIT CONCEPTUAL PLANS
STORMWATER CONTROL PLAN

PREPARED UNDER THE DIRECTION OF:

REGISTERED PROFESSIONAL ENGINEER — ERIC D. WILLIAMS — No. 83174 — STATE OF CALIFORNIA — CIVIL — FOR USE PERMIT REVISION NOT FOR CONSTRUCTION — 2/9/2026

DRAWN BY:	BT DRAFTING
CHECKED BY:	EDW
DATE:	JULY 18, 2025

REVISIONS:	BY:
11/7/2025 USE PERMIT PLAN CHECK #2	BT
02/09/2026 USE PERMIT REVIEW	BT

JOB NUMBER: 22-147
FILE: 22-147CONC_SWCP.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER: C4
OF 6

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IMPERVIOUS SURFACE SUMMARY

	PRE-PROJECT AREA (SF)	NEW AREA (SF)	*RECONSTRUCTED AREA (SF) A	*RECONSTRUCTED AREA (SF) B	TOTAL NEW AND RECONSTRUCTED AREA (SF)
TOTAL IMPERVIOUS AREAS	80,300 ±	43,100 ±	3,700 ±	0	46,800 ±

*RECONSTRUCTED AREAS (A) ARE EXISTING IMPERVIOUS SURFACES THAT ARE BEING REPLACED WITH NEW IMPERVIOUS SURFACES.
RECONSTRUCTED AREAS (B) ARE EXISTING IMPERVIOUS SURFACES THAT ARE BEING REPLACED WITH PERVIOUS SURFACES.

REMAINDER OF CONTIGUOUS IMPERVIOUS AREA = 53,000 ± SF

1.32 ± ACRES (57,400 ± SF) — (P) WINERY COVERAGE AREA

0.22 ± ACRES (9,500 ± SF) — (P) WINERY DEVELOPMENT AREA

IMPERVIOUS SURFACE EXHIBIT

SCALE: 1" = 60'

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

CASTELLUCCI ESTATE WINERY

USE PERMIT CONCEPTUAL PLANS
IMPERVIOUS SURFACE EXHIBIT

PREPARED UNDER THE DIRECTION OF:

REGISTERED PROFESSIONAL ENGINEER — EDWARD D. WHITE — CIVIL — STATE OF CALIFORNIA
FOR USE PERMIT REVISION NOT CONSTRUCTION
7/28/2025

DRAWN BY: BT DRAFTING
CHECKED BY: EDW
DATE: JULY 18, 2025

REVISIONS	BY
11/7/2025 USE PERMIT PLAN CHECK #2	BT
02/09/2026 USE PERMIT REVIEW	BT

JOB NUMBER: 22-147
FILE: 22-147CONC_ISE.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER: C5
OF 6

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SCALE: 1" = 60'

0 60' 120'

LANDSCAPE EXHIBIT

SCALE: 1" = 60'

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CASTELLUCCI ESTATE WINERY

USE PERMIT CONCEPTUAL PLANS
LANDSCAPE EXHIBIT

PREPARED UNDER THE DIRECTION OF:

REGISTERED PROFESSIONAL ENGINEER EDWARD D. WOOD No. 71100 CIVIL STATE OF CALIFORNIA
NOT FOR CONSTRUCTION
FOR USE FOR REVIEW ONLY

DRAWN BY: BT DRAFTING
CHECKED BY: EDW
DATE: JULY 18, 2025

REVISIONS	BY
11/7/2025 USE PERMIT PLAN CHECK #2	BT
02/09/2026 USE PERMIT REVIEW	BT

JOB NUMBER: 22-147
FILE: 22-147CONC_LAND.DWG
ORIGINAL SIZE: 24" X 36"
SHEET NUMBER: C6
OF 6

APPENDIX 2: Site Evaluation Report

Napa County
Environmental Health Division

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 #: E24-00312

APN: 031-030-024

(County Use Only)
Reviewed by: Date:

PLEASE PRINT OR TYPE ALL INFORMATION

Property Owner Antonio and Rita Castellucci	X New Construction ☐ Addition ☐ Remodel ☐ Relocation ☐ Other:
Property Owner Mailing Address Post Office Box 472499	☐ Residential
City State Zip San Francisco CA 94147	X Commercial – Winery Sanitary Waste: 200 gpd +/- Process Waste: 1,000 gpd +/-
Site Address/Location 7900 Money Road Napa, CA 94558	☐ Other

Evaluation Conducted By:

Company Name Applied Civil Engineering Incorporated	Evaluator's Name Michael R. Muelrath, R.C.E. 67435	Signature (Civil Engineer, R.E.H.S., Geologist, Soil Scientist) Michael R. Muelrath
Mailing Address: 2160 Jefferson Street, Suite 230		Telephone Number (707) 320-4968
City State Zip Napa CA 94559		Date Evaluation Conducted August 5, 2024

REGISTERED PROFESSIONAL ENGINEER
MICHAEL R. MUELRATH
NO. 67435
Exp. 12/31/2024
CIVIL
STATE OF CALIFORNIA

Primary Area	Expansion Area
Acceptable Soil Depth: 24 - 27 inches Test pit #'s: 3, 4, 5, 7	Acceptable Soil Depth: 24 - 26 inches Test pit #'s: 9, 11
Soil Application Rate (gal. /sq. ft. /day): 0.6 (Drip)	Soil Application Rate (gal. /sq. ft. /day): 0.6 (Drip)
System Type(s) Recommended: Pretreatment & Subsurface Drip	System Type(s) Recommended: Pretreatment & Subsurface Drip
Slope: <5% Distance to nearest water source: 100' +	Slope: <5% Distance to nearest water source: 100' +
Hydrometer test performed? No X Yes ☐ (attach results)	Hydrometer test performed? No X Yes ☐ (attach results)
Bulk Density test performed? No X Yes ☐ (attach results)	Bulk Density test performed? No X Yes ☐ (attach results)
Percolation test performed? No X Yes ☐ (attach results)	Percolation test performed? No X Yes ☐ (attach results)
Groundwater Monitoring Performed? No X Yes ☐ (attach results)	Groundwater Monitoring Performed? No X Yes ☐ (attach results)

Site constraints/Recommendations:

This site evaluation was performed to determine the feasibility of installing a new septic system to serve a new winery and to identify reserve areas for the new winery and existing residential septic system(s).

The primary constraints are acceptable soil depths, well setbacks, a stream setback, and the parcel layout.

The Subsurface Drip soil application rate for test pits with Sandy Clay Loam was conservatively selected for Clay Loam in accordance with Table 9 of the Napa County Technical Standards for Alternative Sewage Treatment Systems, consistent with the Geoflow Design and Installation Manual suggested application rate for this soil type. Table 9 does not have a category for Sandy Clay Loam.

Test Pit #1 ***PLEASE PRINT OR TYPE ALL INFORMATION***

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-12	G	0-15	CL	SSB	H	F	SS	FF	FF	NONE
12-36	G	0-15	CL	SSB	H	F	SS	CF	FF	FFFt
36-60		0-15	CL	SSB	H	F	SS	CF	FF	FFD

Acceptable soil depth = 12”

Test Pit #2

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-12	G	0-15	SCL	SSB	SH	F	SS	FF/FM	FF	NONE
12-48		0-15	SCL	SSB	SH	F	SS	FF/FM	FF	FFFt

Acceptable soil depth = 12”
Note: gravel subdrain encountered around 24” deep

Test Pit #3

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-24	G	0-15	SCL	SSB	SH	F	SS	FF/FM	CF	NONE
24-48		0-15	SCL	SSB	SH	F	SS	FF/FM	FF	FFFt

Acceptable soil depth = 24”

Test Pit #4

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-26	G	0-15	SCL	SSB	SH	F	SS	FF/FM	FM	NONE
26-48		0-15	SCL	SSB	SH	F	SS	FM	FF	FFFt

Acceptable soil depth = 26”

Test Pit #5

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-27	G	0-15	SCL	SSB	SH	F	SS	FF/FM	FF	NONE
27-48		0-15	SCL	SSB	SH	F	SS	FF/FM	FF	FFFt

Acceptable soil depth = 27”

Test Pit #6

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-18	G	0-15	SCL	SSB	SH	F	SS	CF/CM	FF	NONE
18-54		0-15	SCL	SSB	SH	F	SS	CF/CM	FF	FFFt

Acceptable soil depth = 18”

Test Pit #7

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-27	G	0-15	SCL	SSB	SH	F	SS	FF	FC	NONE
27-48		0-15	SCL	SSB	SH	F	SS	FF	FC	FFFt

Acceptable soil depth = 27”

Test Pit #8

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-12	G	0-15	SCL	SSB	SH	F	SS	CF/FM	CF/FM	NONE
12-60		0-15	SCL	SSB	SH	F	SS	CF/FM	FF	FFFt

Acceptable soil depth = 12”

Test Pit #9

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-24	G	0-15	SCL	SSB	SH	F	SS	CF/FM	CF/FM	NONE
24-48		0-15	SCL	SSB	SH	F	SS	FF/FM	FF	FFFt

Acceptable soil depth = 24”

Test Pit #10

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-18	G	0-15	SCL	SSB	SH	F	SS	FF	FF	NONE
18-54		0-15	SCL	SSB	SH	F	SS	FF	FF	FFFt

Acceptable soil depth = 18”

Test Pit #11

Horizon Depth (Inches)	Boundary	%Rock	Texture	Structure	Consistence			Pores	Roots	Mottling
					Side Wall	Ped	Wet			
0-26	G	0-15	SCL	SSB	SH	F	SS	FF	FF	NONE
26-48		0-15	SCL	SSB	SH	F	SS	FF	FF	FFFt

Acceptable soil depth = 26”

LEGEND

Boundary	Texture	Structure	Consistence			Pores	Roots	Mottling
			Side Wall	Ped	Wet			
A=Abrupt <1” **C**=Clear 1”-2.5” **G**=Gradual 2.5”-5” **D**=Diffuse >5”	**S**=Sand **LS**=Loamy Sand **SL**=Sandy Loam **SCL**=Sandy Clay Loam **SC**=Sandy Clay **CL**=Clay Loam **L**=Loam **C**=Clay **SiC**=Silty Clay **SiCL**=Silty Clay Loam **SiL**=Silt Loam **Si**=Silt	**W**=Weak **M**=Moderate **S**=Strong **G**=Granular **Pl**=Platy **Pr**=Prismatic **C**=Columnar **B**=Blocky **AB**=Angular Blocky **SB**=Subangular Blocky **M**=Massive **SG**=Single Grain **CEM**=Cemented	**L**=Loose **S**=Soft **SH**=Slightly Hard **H**=Hard **VH**=Very Hard **ExH**=Extremely Hard	**L**=Loose **VFRB**=Very Friable **FRB**=Friable **F**=Firm **VF**=Very Firm **ExF**=Extremely Firm	**NS**=NonSticky **SS**=Slightly Sticky **S**=Sticky **VS**=Very Sticky **NP**=NonPlastic **SP**=Slightly Plastic **P**=Plastic **VP**=Very Plastic	**Quantity:** **F**=Few **C**=Common **M**=Many **Size:** **VF**=Very Fine **F**=Fine **M**=Medium **C**=Coarse **VC**=Very Coarse	**Quantity:** **F**=Few **C**=Common **M**=Many **Size:** **F**=Fine **M**=Medium **C**=Coarse **VC**=Very Coarse **ExC**=Extremely Coarse	**Quantity:** **F**=Few **C**=Common **M**=Many **Size:** **F**=Fine **M**=Medium **C**=Coarse **Contrast:** **Ft**=Faint **D**=Distinct **P**=Prominent

Notes: Structure is recorded as Modifier then Structure, for example, Moderate (M) Subangular Blocky (SB) is recorded as MSB
Pores and Roots are recorded as Quantity then Size – for example Few (F) Coarse (C) is recorded as FC
Mottling is recorded as Quantity then Size then Contrast – for example Few (F) Coarse (C) Distinct (D) is recorded as FCD

LOCATION MAP

SCALE: 1" = 2,000'

NOTES:

1. TEST PITS ONE THROUGH ELEVEN (TP #1 - TP #11) WERE EXCAVATED BY LALO ROBLEDO AND WERE WITNESSED BY MIKE MUELRATH OF APPLIED CIVIL ENGINEERING INCORPORATED AND ARMEDA SIMPSON - VAN DAM OF THE NAPA COUNTY PLANNING, BUILDING AND ENVIRONMENTAL SERVICES DEPARTMENT - ENVIRONMENTAL HEALTH DIVISION ON AUGUST 5, 2024.
2. FADED BACKGROUND REPRESENTS EXISTING TOPOGRAPHIC FEATURES. TOPOGRAPHIC INFORMATION WAS TAKEN FROM ELEVATION DATA DERIVED FROM BARE-EARTH SURFACE DIGITAL ELEVATION MODELS (DEMS) CREATED FROM LIDAR DATA FLOWN IN 2018 IN RESPONSE TO THE WIDESPREAD 2017 FIRES IN NORTHERN CALIFORNIA AS PART OF ONGOING NATIONWIDE 3DEP (U.S. GEOLOGICAL SURVEY 3D ELEVATION PROGRAM) EFFORTS AND THE "MAP OF TOPOGRAPHY OF A PORTION OF THE LANDS OF CASTELLUCCI" PREPARED BY ALBION SURVEYS, INC., DATED JULY 4, 2024. APPLIED CIVIL ENGINEERING INCORPORATED ASSUMES NO LIABILITY REGARDING THE ACCURACY OR COMPLETENESS OF THE TOPOGRAPHIC INFORMATION.
3. AERIAL PHOTOGRAPHS ARE NADIR IMAGES CAPTURED BY PICTOMETRY INTERNATIONAL DATED JULY 15, 2021 AND MAY NOT REPRESENT CURRENT CONDITIONS.
4. CONTOUR INTERVAL: TWO (2) FEET, HIGHLIGHTED EVERY TEN (10) FEET.
5. VERTICAL DATUM: NAVD 88
6. THE PROPERTY LINES SHOWN ON THESE PLANS DO NOT REPRESENT A BOUNDARY SURVEY. THEY ARE APPROXIMATE AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.
7. ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) MAP NUMBER 06055C0385E, EFFECTIVE SEPTEMBER 26, 2008, ALL OR A PORTION OF THE PROJECT SITE IS LOCATED IN A SPECIAL FLOOD HAZARD AREA SUBJECT TO INUNDATION BY THE 1% CHANCE ANNUAL FLOOD (100 YEAR FLOOD). THE APPROXIMATE FLOOD HAZARD BOUNDARY LINE IS SHOWN ON THIS PLAN. SEE FIRM FOR ADDITIONAL INFORMATION.

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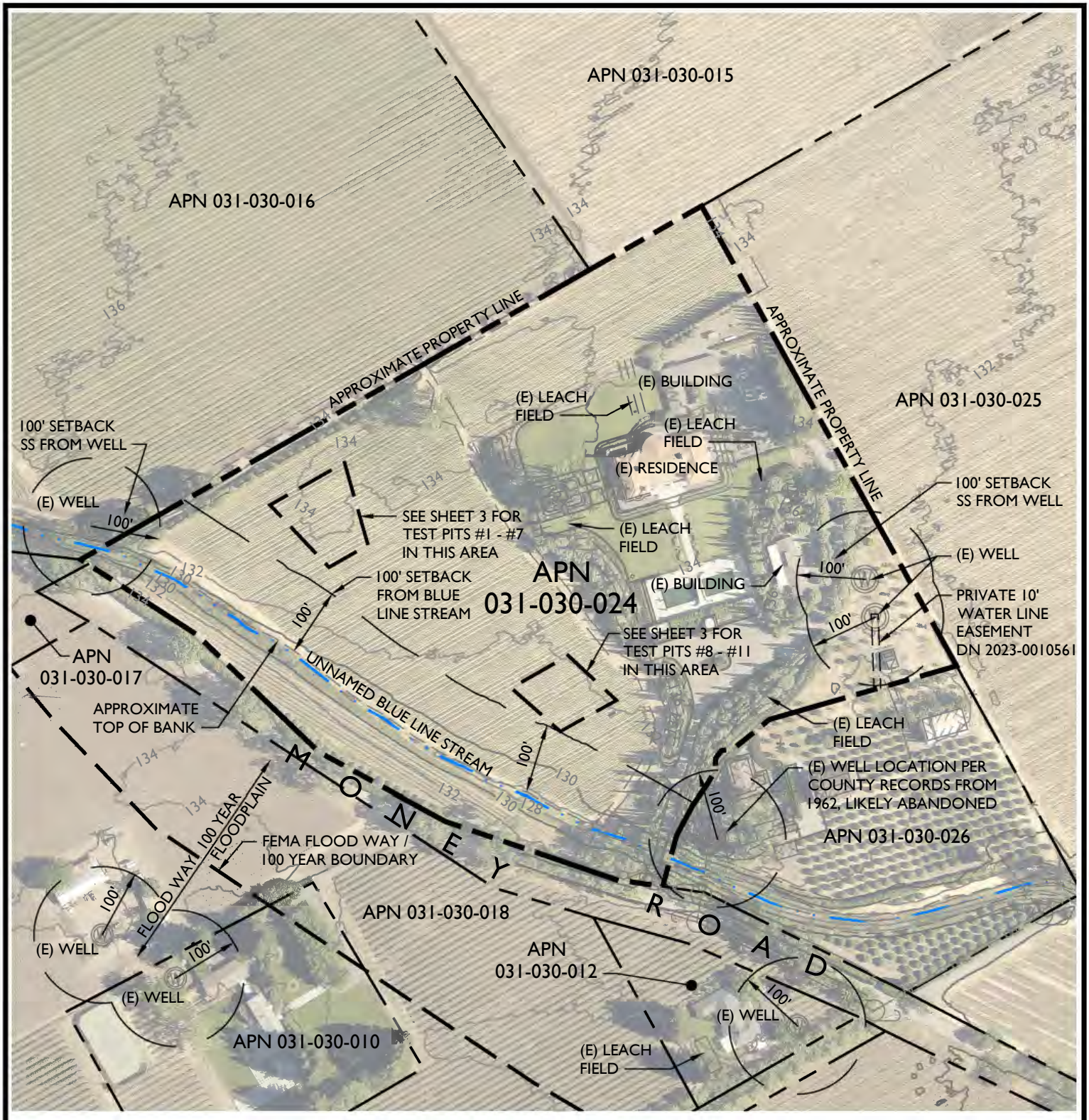
CASTELLUCCI – MONEY ROAD

7900 MONEY ROAD
NAPA, CA 94558
APN 031-030-024

SCALE: 1" = 2,000'



OVERALL SITE PLAN

SCALE: 1" = 200'

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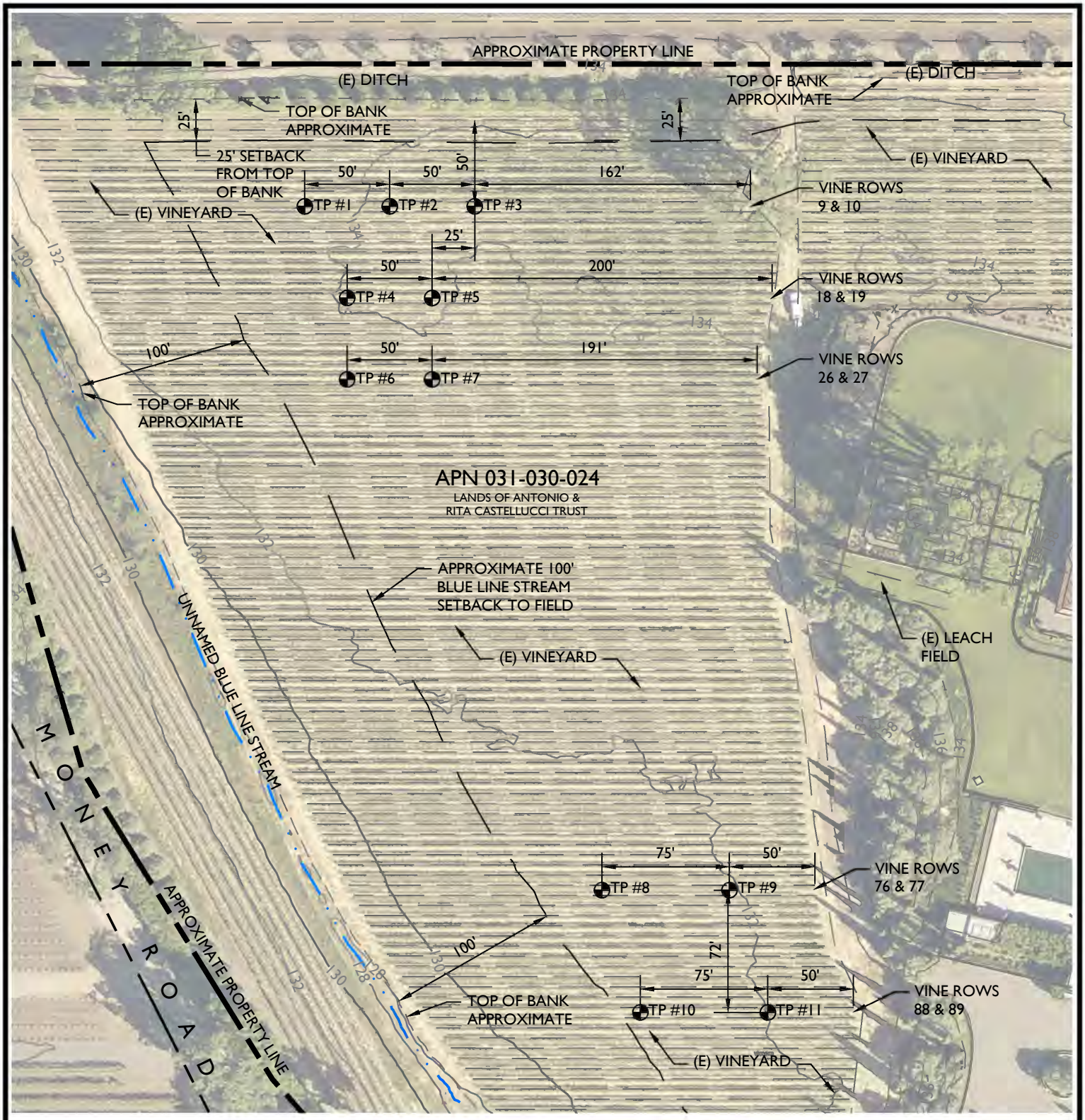
CASTELLUCCI – MONEY ROAD

7900 MONEY ROAD
NAPA, CA 94558
APN 031-030-024

SCALE: 1" = 200'



TEST PIT MAP

SCALE: 1" = 80'

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SCALE: 1" = 80'