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**Water Availability Analysis and  
Groundwater Recharge Calculations**

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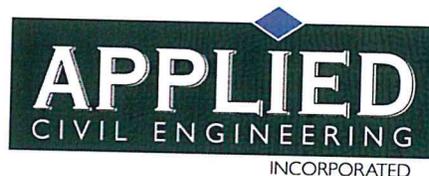
Napa County Planning, Building  
& Environmental Services

TIER I WATER AVAILABILITY ANALYSIS  
FOR THE  
MATERRA WINERY USE PERMIT MODIFICATION

LOCATED AT:  
4326 Big Ranch Road  
Napa, CA 94558  
NAPA COUNTY APN 036-160-003

PREPARED FOR:  
Materra Winery  
Care of: Brian Cunat  
4326 Big Ranch Road  
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4/8/2017  
Date



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## INTRODUCTION

Materra Winery is applying for a Use Permit Modification for their existing winery located at 4326 Big Ranch Road in Napa County, California. The subject property, known as Napa County Assessor's Parcel Number 036-160-003, is located along the southeast corner of the intersection of Big Ranch Road and Oak Knoll Avenue.

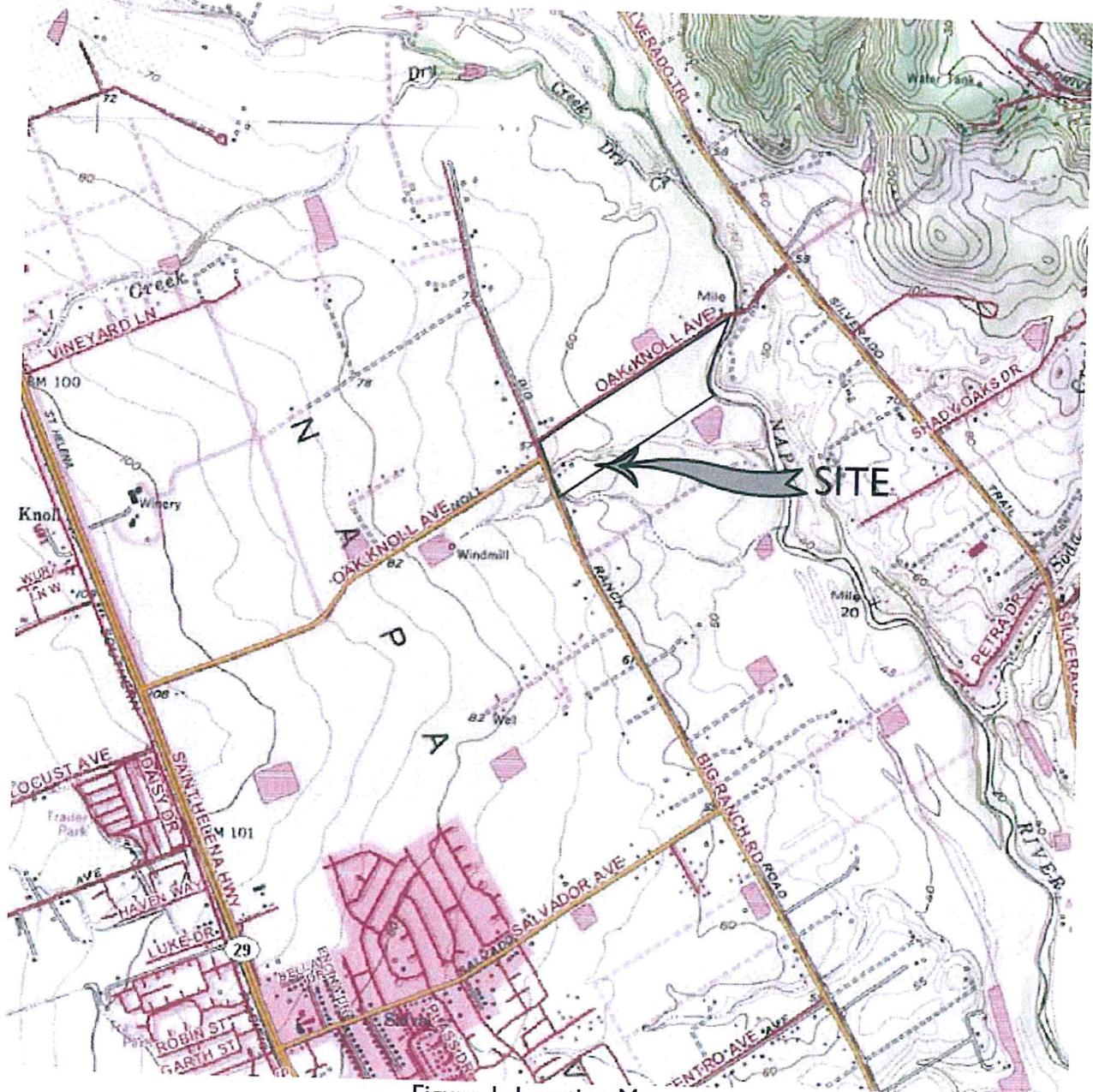


Figure 1: Location Map

The Use Permit (P08-00428) issued by Napa County for this winery facility allows the construction and operation of a winery with the following characteristics:

- Wine Production:
  - 50,000 gallons of wine per year (subsequently increased to 85,000 gallons of wine per year by P15-00071)
  - Crushing, fermenting, aging and bottling
  
- Employees:
  - Three (3) full-time employees
  - Three (3) part-time employees
  
- Marketing Plan:
  - Daily Tours and Tastings by Appointment
    - 18 visitors per day maximum
  - Private Food and Wine Events for Trade
    - 12 per year
    - 25 guests maximum
  - Private Food and Wine Events
    - 12 per year
    - 50 guest maximum
  - Harvest Events
    - 2 per year
    - 100 guests maximum
    - Portable toilets will be utilized

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

The Use Permit Modification being reviewed proposes the following:

- Wine Production:
  - Increase to 110,000 gallons of wine per year

The number of employees, visitors and marketing events will not change from the currently approved numbers shown above.

Materra Winery has requested that Applied Civil Engineering Incorporated (ACE) prepare a Tier I Water Availability Analysis in accordance with the Water Availability Analysis (WAA) – Guidance Document adopted by the Napa County Board of Supervisors on May 12, 2015 to accompany the Use Permit Modification application. The remainder of this report describes the estimated groundwater demand on the subject property for existing and proposed conditions, compares the estimated demand to the prescribed water use screening criteria and demonstrates compliance with the WAA – Guidance Document requirements.

## ESTIMATED GROUNDWATER DEMAND

Groundwater is currently used for irrigation and winery purposes located on the subject parcel. The estimated groundwater demand is summarized in the table below and details of the calculations supporting these estimates are included in the Water Use Estimate Supporting Calculations in Appendix I.

Table I: Estimated Groundwater Demand

	Existing (ac-ft/yr)	Proposed (ac-ft/yr)
Residential	0.75	0.75
Winery	2.00	2.54
Vineyard Irrigation	36.8	36.3
Landscape Irrigation	1.0	1.0
Total	40.6	40.6

It should be noted that the irrigation estimate used in previous applications was reviewed with the Applicant and compared to recent irrigation data. The review suggests that the original estimate was conservative and thus the vineyard can easily be irrigated with less water to offset the additional water that will be used in the winery and result in a net zero change in water demand as is desired by the Applicant.

## WATER USE SCREENING CRITERIA

According to the WAA - Guidance Document properties located in the Napa Valley Floor area are subject to a Water Use Screening Criteria of 1.0 acre-feet of water per acre of land per year. A project complies with the requirements of the Tier 1 WAA if the total water use on the property is less than 1.0 acre-feet per acre per year. If the Tier 1 Water Use Screening Criteria is met and the property is located in the Napa Valley Floor area Tier 2 and Tier 3 Analyses are not required unless substantial evidence exists in the record that indicates a potential significant impact from the project.

The subject property is located in the Napa Valley Floor area and the geology is mapped as Qha and Qhy (alluvium) on the USGS geology maps as shown in Figure 2.

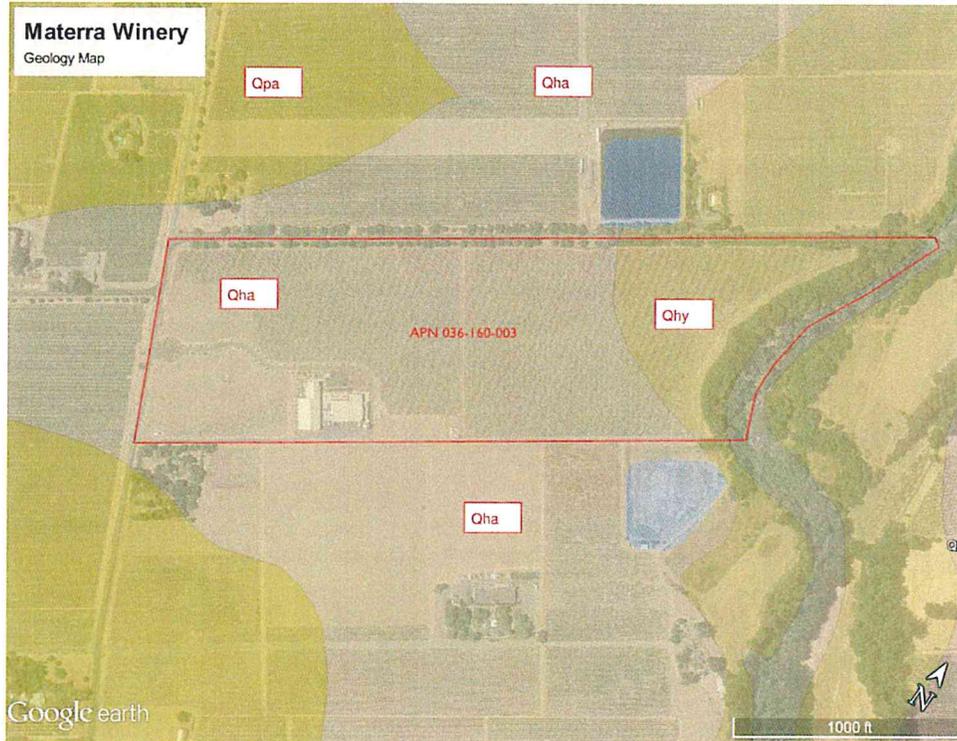


Figure 2: Geology Map Created with Google Earth Pro  
(Source USGS Scientific Investigations Map 2918)

Since all groundwater extraction is from the Napa Valley Floor area we have evaluated the screening criteria associated with the Napa Valley Floor.

The parcel size is approximately 50 acres and therefore the water use screening criteria is calculated as follows:

Water Use Screening Criteria = 50 acres x 1.0 acre-foot per acre per year

Water Use Screening Criteria = 50 acre-feet per year

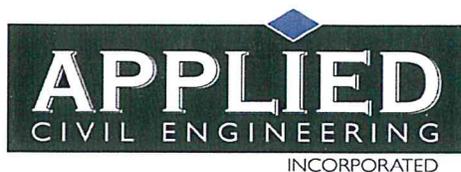
### **ANALYSIS**

The total Estimated Water Use for existing conditions (40.6 ac-ft/yr) and proposed conditions (40.6 ac-ft/yr) are both significantly less than the Water Use Screening Criteria (50 ac-ft/yr).

### **CONCLUSION**

Since the Water Use Screening Criteria is met the project is found to comply with the Napa County Water Availability Analysis requirements. Tier 2 and Tier 3 Analyses are not required according to the WAA – Guidance Document.

## APPENDIX I: Water Use Estimate Supporting Calculations



**Materra Winery**

**Groundwater Use Estimate**

	Estimated Water Use (Acre-Feet / Year)	
	Existing	Proposed
<b>Residential Water Use</b>		
Primary Residence <sup>(10)</sup>	0.750	0.750
Pool - Not Applicable	0.000	0.000
Second Dwelling Unit - Not Applicable	0.000	0.000
Guest Cottage - Not Applicable	0.000	0.000
Total Residential Domestic Water Use	0.750	0.750
<b>Winery Domestic &amp; Process Water Use</b>		
Winery - Daily Visitors <sup>(1)(2)</sup>	0.019	0.019
Winery - Events with Meals Prepared Onsite <sup>(1)(3)</sup>	0.051	0.051
Winery - Events with Meals Prepared Offsite <sup>(1)(4)</sup>	0.000	0.000
Winery - Employees <sup>(1)(5)</sup>	0.101	0.101
Winery - Event Staff <sup>(1)(5)</sup>	0.005	0.005
Winery - Process <sup>(6)</sup>	1.828	2.365
Total Winery Water Use	2.003	2.541
<b>Irrigation Water Use</b>		
Lawn <sup>(7)</sup>	0.000	0.000
Other Landscape <sup>(8)</sup>	1.000	1.000
Vineyard - Irrigation	36.800	36.300
Vineyard - Frost Protection	0	0
Vineyard - Heat Protection	0	0
Total Irrigation Water Use	37.800	37.300
<b>Total Combined Water Use</b>	<b>40.6</b>	<b>40.6</b>

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

<sup>(1)</sup> See attached Winery Production, Guest, Employee and Event Staff Statistics

<sup>(2)</sup> 3 gallons of water per guest per Napa County WAA Guidance Document

<sup>(3)</sup> 15 gallons of water per guest per Napa County WAA - Guidance Document

<sup>(4)</sup> 5 gallons of water per guest used because all food preparation, dishwashing, etc. to occur offsite

<sup>(5)</sup> 15 gallons per shift per Napa County WAA - Guidance Document

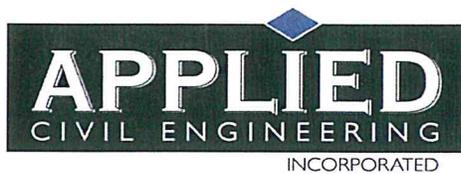
<sup>(6)</sup> 2.15 ac-ft per 100,000 gallons wine per Napa County WAA - Guidance Document

<sup>(7)</sup> 0.1 ac-ft/yr per 1,000 sf of lawn per Napa County WAA - Guidance Document - 0 ac lawn

<sup>(8)</sup> Landscape irrigation estimate per calculations prepared by others for winery building permit - 0.75 ac landscape

<sup>(9)</sup> 0.8 ac-ft/ac/yr per originally assumed per applicant's input. However, monitoring of irrigation volumes by applicant indicates this value was conservative and the vineyard irrigation can be reduced to offset the additional demand associated with the increase in winery production.

<sup>(10)</sup> 0.5 to 0.75 ac-ft/yr per Napa County WAA Guidance Document



**Materra Winery**

**Winery Production, Visitor, Employee & Event Staff Statistics - Existing Conditions**

**Winery Production<sup>(1)</sup>** 85,000 gallons per year

**Tours and Tastings by Appointment<sup>(1)</sup>**

Monday through Sunday 40 visitors per week average  
 Total Guests Per Year 2,080

**Events - Meals Prepared Offsite<sup>(1)</sup>**

0 per year	0 guests max	0
0 per year	0 guests max	0
0 per year	0 guests max	0
<b>Total Guests Per Year</b>		<b>0</b>

**Events - Meals Prepared Onsite<sup>(1)</sup>**

12 per year	25 guests max	300
12 per year	50 guests max	600
2 per year	100 guests max	200
<b>Total Guests Per Year</b>		<b>1,100</b>

**Winery Employees<sup>(2)</sup>**

6 employees	1 shift per day	
<b>Total Employee Shifts Per Year</b>		<b>2,190</b>

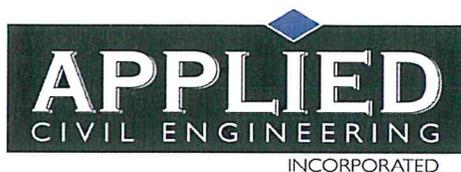
**Event Staff<sup>(3)</sup>**

12 per year, 25 guests	3 event staff	36
12 per year, 50 guests	5 event staff	60
2 per year, 100 guests	10 event staff	20
<b>Total Event Staff Per Year</b>		<b>116</b>

<sup>(1)</sup> Winery production, tours and tasting and event guest statistics per Winery Use Permit

<sup>(2)</sup> Employee counts per Winery Use Permit

<sup>(3)</sup> Assumes 1 event staff per 10 guests (in addition to regular winery employees)



**Materra Winery**

**Winery Production, Visitor, Employee & Event Staff Statistics - Proposed Conditions**

**Winery Production<sup>(1)</sup>** 110,000 gallons per year

**Tours and Tastings by Appointment<sup>(1)</sup>**

Monday through Sunday 40 visitors per week average  
 Total Guests Per Year 2,080

**Events - Meals Prepared Offsite<sup>(1)</sup>**

0 per year 0 guests max 0  
 0 per year 0 guests max 0  
 0 per year 0 guests max 0  
 Total Guests Per Year 0

**Events - Meals Prepared Onsite<sup>(1)</sup>**

12 per year 25 guests max 300  
 12 per year 50 guests max 600  
 2 per year 100 guests max 200  
 Total Guests Per Year 1,100

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6 employees 1 shift per day  
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