

“G”

## Water Availability Analysis



**CMP Civil Engineering & Land Surveying**  
1607 Capell Valley Road  
Napa, CA 94558  
(707) 815-0988  
Cameron@CMPengineering.com  
CMPengineering.com



Preliminary Water System Technical  
Report pertaining to Section 116527 of  
the Health and Safety Code  
for the  
Benessere Vineyard Winery

1010 Big Tree Road

Saint Helena, CA 94574

APN: 022-032-011

Prepared By:

CMP Civil Engineering & Land Surveying

1607 Capell Valley Road

Napa, CA 94558

(707) 815-0988

Date: 2/6/2018



  
Feb 06, 2018

## Table of Contents

<u>Description</u>	<u>Page</u>
• Title Page	1
• Table of Contents	2
• Water System Feasibility Report	3 – 4
• Attachment “A” Denial of Service Documentation	5 – 6
• Attachment “B” Well Location Map	7 – 8
• Attachment “C” Well Yield Reports	9 – 11
• Attachment “D” Water Availability Calcs and Supporting Docs	12 – 20
• Attachment “E” LAFCO Documentation	21 – 22

### **Proposed Water System General Descriptions**

The proposed water system, officially called the Benessere Vineyard Winery Water System, will supply potable water solely to the existing Benessere Winery. The water source for the winery will be a newly installed onsite well and the water storage facilities will be the existing 13500 gallon water tank located on the property.

### **Type of Water System and Reason it is required**

The type of public water system proposed is a Transient Non-Community water system. The proposed public water system is required because the proposed winery visitation is expected to be above 25 people per day for more than 60 days per year.

### **Required Technical Sections per 116527 of the Health and Safety Code**

1. List of Public Water Systems within 3 mile of Project along public right of ways.
  - 1.1. City of Saint Helena
2. Feasibility of connecting to above listed public water systems
  - 2.1. Connecting to the agency listed in 1.1 is not feasible because the said agency has denied our request for connection. Please see the denial of service letter located in Attachment "A".
3. Actions taken to secure water from a public water system
  - 3.1. Applicant contacted the agency listed in 1.1 and requested a water service connection at applicants expense. Said agency formally denied the request which is documented in Attachment "A".
4. Source(s) of domestic water for new public water system
  - 4.1. Well #1 is a 23 gallons per minute well located on the northern portion of the subject property. Please see the well location map included in Attachment "B" and the well yield test in Attachment "C".
5. Construction and operation costs of water system
  - 5.1. The water system is existing so no new construction costs are expected however it is estimated that the water system would cost \$80,000 to replace today if it was necessary. It is expected that the system will have a usable lifespan of 30 years. It is expected to cost \$1000 annually to operate, maintain and properly sample and test the water. It is expected that the system will cost roughly \$134,000 to replace 30 years from now. To have this money available 30 years from now, \$4467 must be set aside in a 0% annual interest rate account for the next 30 years. Thus it will cost an estimated \$5467 per year to own, operate, maintain and eventually replace the subject water system. The Benessere Vineyard Winery has more than adequate funds to meet the financial demands of this water system.

6. Cost comparison, connecting to existing public system vs. create new
  - 6.1. A cost comparison is not applicable because the requests for connection to the agency(s) listed in section 1 have all been denied.
7. Actions taken to secure managerial and operational oversight
  - 7.1. Request for managerial and operational oversight was included in the request for service to the agency(s) listed in section 1. All such requests were denied by said agency(s). Please see the denial of service letter(s) located in Attachment "A" for further details.
8. Twenty year water use analysis
  - 8.1. It is expected that this system will use a maximum of 17.81 acre feet of water per year for the next 20 years which comes to maximum of 352.6 acre feet of water required over the entire 20 years. To verify the proposed water system can provide this it must be compared to two different scenarios, the available flow of the well listed in 1.1 and the ground water recharge rate for the property(s) the well serves.
  - 8.2. First, the source well listed in 1.1 is rated at 23 gallons per minute which equates to 37.1 acre feet per year, which then equates to a 20 year total available water of 742.0 acre feet. Comparing this to the above required 20 year total of 352.6 acre feet it can be seen that the well itself can provide more than enough water.
  - 8.3. Secondly the worst case scenario ground water recharge rate for the subject property is 42.61 acre feet per year, please see the water availability calculations located in Attachment "D" for further details. The above recharge rate equates to a 20 year total available water of 852.2 acre feet. Comparing this to the above required 20 year total of 352.6 acre feet it can be seen that the ground water recharge rate will provide more than enough water.
  - 8.4. The conclusion of this section is that the water supply to the proposed system is more than enough for the proposed use.
9. Local Agency Formation Commission (LAFCO) documentation
  - 9.1. LAFCO denied the request for water service, please see LAFCO correspondence included in Attachment "E".

### **Overall Conclusions**

The only viable option for the Beneserre Vineyard Winery is to develop its own Transient Non-Community Water System.

# Attachment “A”

Denial of Service Documentation



*City of St. Helena*  
"We will conduct city affairs on behalf of our citizens  
using an open and creative process."

1480 Main Street  
St. Helena, CA 94574  
Phone: (707) 968-2658  
Fax: (707) 963-7748

[www.cityofsthelema.org](http://www.cityofsthelema.org)

OFFICE OF THE DIRECTOR OF PUBLIC WORKS AND CITY ENGINEER

December 27, 2017

Mark Phillips  
Dickenson, Peatman & Fogarty  
1145 First St., Suite 301  
Napa, CA 94559

RE: WATER SERVICE "WILL-SERVE" DENIAL LETTER  
Benessere Vineyards 1010 Big Tree Road St. Helena, CA 94574

Dear Mr. Phillips,

The City of St. Helena has received your request for a "will serve" letter for water service to the subject property located at 1010 Big Tree Road St. Helena, CA 94574 (APN 022-032-011). Per the City of St. Helena Municipal Code 13.04.050, Section H:

**Service Outside City Limits. No water service connection or water main extension shall be made or given to premises located outside the city limits except (1) to provide private fire service in accordance with Section 13.04.200 and (2) to provide reclaimed water in accordance with city policies and procedures.(Ord. 03-5 § 1; prior code § 18.)**

Given the above policy, the City of St. Helena does not have the ability to provide potable water service for Benessere Vineyards at 1010 Big Tree Road St. Helena, CA 94574. If you have any questions or need further clarification, please feel free to contact me at 707-968-2629 or [esmithies@cityofsthelema.org](mailto:esmithies@cityofsthelema.org).

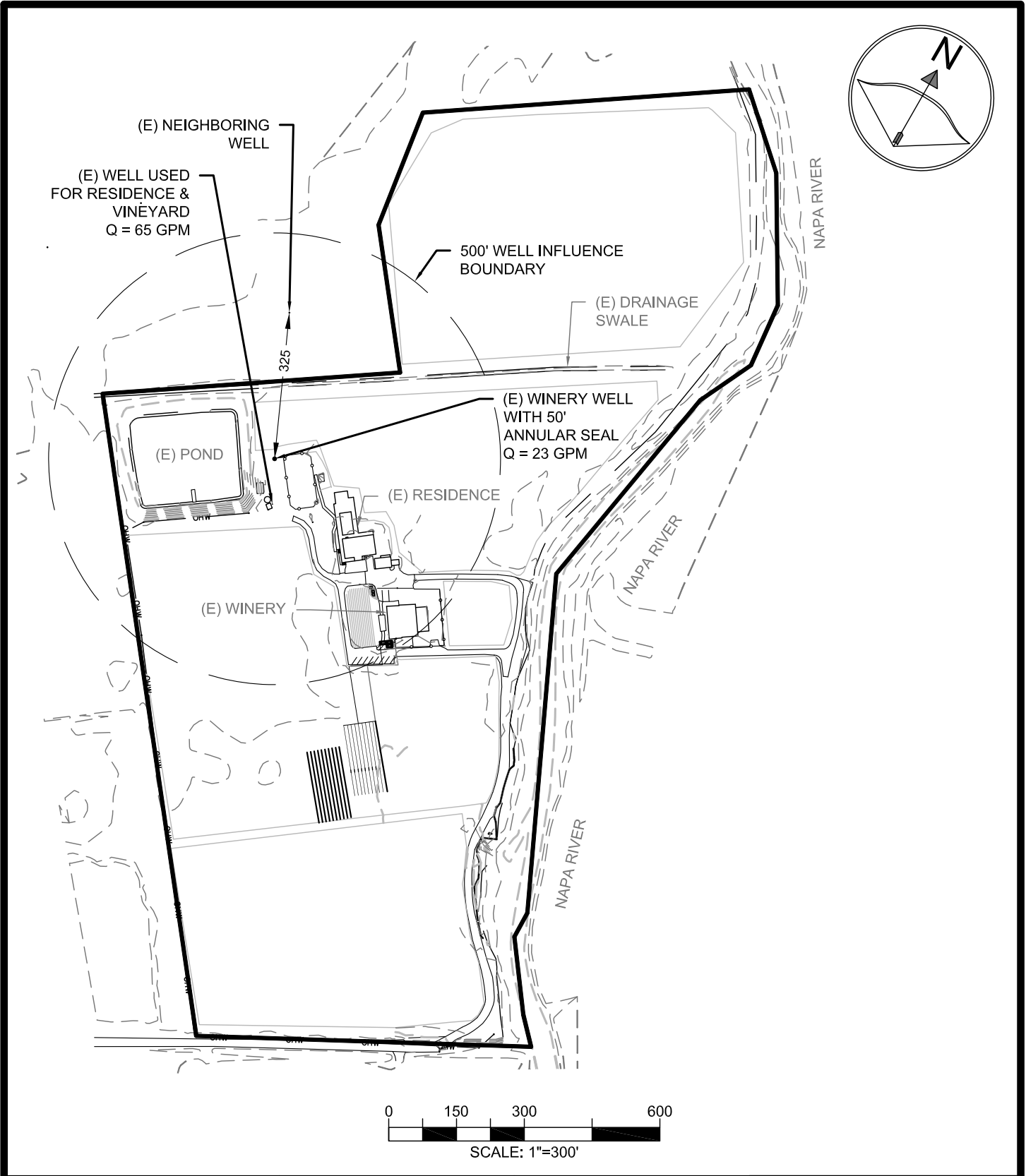
Regards,  
City of St. Helena

Erica Ahmann Smithies, P.E.  
Director of Public Works/City Engineer

# Attachment “B”

Well Location Map





**WELL LOCATION EXHIBIT**

SHEET: 1 OF 1

PROJECT INFO:

BENESSERE WINERY  
1010 BIG TREE LAND  
SAINT HELENA, CA 94574  
APN: 022-032-011

PREPARED BY:

CAMERON PRIDMORE PE, PLS  
1607 CAPELL VALLEY ROAD  
NAPA, CA 94558  
(707) 815-0988

P #: 00197      DATE: 10/19/2016



# Attachment “C”

Well Yield Reports



**Phone:** 707 823 3191 **Fax:** 707 317 0057 **Email:** rayswelltesting@gmail.com **Lic#:**903708

**Address:** 4853 Vine Hill Rd, Sebastopol Ca 95472

**Date:** 01/13/16  
**Report #:** 7865  
**Report By:** Cody Monday

**Subject Property Address:** 1010 Big Tree Rd, Saint Helena Ca 94574  
**Customer Name:** Benessere Vineyards

**WELL DATA:**

<b>Location/Description of well:</b>	Near pump house
<b>Type of Well:</b>	Drilled
<b>Depth of Well:</b>	Probe stopped in the casing at 188 feet
<b>Diameter of Well Casing:</b>	10 -3/8" O.D. Steel
<b>Sanitary Seal (plate seal at top of well):</b>	Yes
<b>Annular Well Seal (in ground seal of bore hole):</b>	Unknown – please refer to well log

**PUMP DATA:**

<b>Pump HP and Type:</b>	5 HP 230V 3 Phase
<b>Depth of Pump Suction:</b>	Probe stopped in the drop pipe at check valve at 126 feet
<b>Size of Tee at Well Head:</b>	2 Inch Tee
<b>Submersible Cable Size:</b>	#10-4
<b>Water Level Control:</b>	No
<b>Backpressure Test:</b>	11.9 GPM @ 60 PSI @ 14' @ 11.9 amps

**WELL PRODUCTION SUMMARY (see next page for pumping log):**

<b>Length of Test:</b>	4 Hours		
<b>Type of Test:</b>	Draw down and constant level		
<b>Static Water Level:</b>	14 Feet	<b>Starting Flow</b>	11.9 GPM
<b>Water Level Drawdown:</b>	38.4 Feet		
<b>Final Pumping Level:</b>	52.4 Feet	<b>Final Flow</b>	23 GPM

**WELL PRODUCTION DATA & PUMPING LOG:**

Date	Time	Interval	Water Level	Appearance	Sulfur Odor	Sand	GPM
01/13/16	10:15 AM	15 Minutes	14	Slt Yellow Tint	Metallic	No	11.9
01/13/16	10:30 AM	15 Minutes	26.1	Slt Yellow Tint	Metallic	No	28.7
01/13/16	10:45 AM	15 Minutes	49.1	Slt Yellow Tint	Metallic	No	24.5
01/13/16	11:00 AM	15 Minutes	49.9	Slt Yellow Tint	Metallic	No	24
01/13/16	11:15 AM	15 Minutes	50.9	Slt Yellow Tint	Metallic	No	23.8
01/13/16	11:30 AM	15 Minutes	51.8	Slt Yellow Tint	Metallic	No	23.7
01/13/16	11:45 AM	15 Minutes	52.4	Slt Yellow Tint	Metallic	No	23
01/13/16	12:00 PM	15 Minutes	52.4	Slt Yellow Tint	Metallic	No	23
01/13/16	12:15 PM	15 Minutes	52.4	Clear	Metallic	No	23
01/13/16	12:45 PM	30 Minutes	52.4	Clear	Metallic	No	23
01/13/16	01:15 PM	30 Minutes	52.4	Clear	Metallic	No	23
01/13/16	01:45 PM	30 Minutes	52.4	Clear	Metallic	No	23
01/13/16	02:15 PM	30 Minutes	52.4	Clear	Metallic	No	23

**Final Pumping Level:** 52.4 Feet  
**Final Flow Rate:** 23 GPM

Water levels and well depth are measured as feet below top of well casing unless otherwise noted.

**DISCLAIMER:**

Results of well production are accurate only at time of test. We cannot predict future production or water yield.

**WATER QUALITY: (The following samples are being analyzed, please refer to follow up report)**

<b>Analysis Choice:</b>	Residential/Irrigation Package	<b>Turnaround:</b>	Standard
	1 <sup>st</sup> Draw Lead		Standard
	GC MS – Pesticide		Standard
	Volatile Organic Compounds		Standard

# Attachment “D”

Water Availability Calculations  
and Supporting Documents



**CMP Civil Engineering & Land Surveying**  
**1607 Capell Valley Road**  
**Napa, CA 94558**  
**(707) 815-0988**  
**Cameron@CMPEngineering.com**  
**CMPEngineering.com**



**Water Availability Calculations**  
 for the  
**Benessere Vineyard Winery**

Located at:  
 1010 Big Tree Road  
 Saint Helena, CA 94574

Date: 10/13/2016  
 Rev: 8/31/2017

Project # 00197

<u>Legend</u>
Requires Input
Automatically Calculates
Important Value Automatically Calculates
Important Value Requires Input

Hit ctrl+alt+shift+F9 when finished to recalc a

<b>WATER AVAILABILITY ANALYSIS- PHASE ONE STUDY</b>			
<b>WATER USE CALCULATIONS FOR EXISTING USE</b>			
<b>RESIDENTIAL</b>	<b>#</b>	<b>FACTOR</b>	<b>AF/YR</b>
PRIMARY RESIDENCES=	1	0.5	0.50
SECONDARY RESIDENCES=	1	0.2	0.20
FARM LBR DWELLING (# OF PPL) =	0	0.06	0.00
		SUB TOTAL=	0.70
<b>NON- RESIDENTIAL CALCULATIONS</b>			
<b>AGRICULTURAL</b>	<b># ACRE</b>	<b>FACTOR</b>	<b>AF/YR</b>
VINEYARD IRRIGATION ONLY=	29.5	0.3	8.85
VINEYARD HEAT PROTECTION=	29.5	0.25	7.38
VINEYARD FROST PROTECTION=	0	0.25	0.00
IRRIGATED PASTURE=	0	4	0.00
ORCHARDS=	0	4	0.00
LIVESTOCK (SHEEP/COWS)=	0	0.01	0.00
		SUB TOTAL=	16.23
<b>WINERY</b>	<b># GAL</b>	<b>FACTOR</b>	<b>AF/YR</b>
PROCESS WATER=	40000	SEE WW CALC	0.61
DOMESTIC AND LANDSCAPING=	40000	SEE WW CALC	0.11
		SUB TOTAL=	0.72
<b>INDUSTRIAL</b>	<b># EMPL</b>	<b>FACTOR</b>	<b>AF/YR</b>
FOOD PROCESSING=	0	31	0.00
PRINTING/ PUBLISHING=	0	0.6	0.00
		SUB TOTAL=	0.00
<b>COMMERCIAL</b>	<b># EMPL</b>	<b>FACTOR</b>	<b>AF/YR</b>
OFFICE SPACE=	0	0.01	0.00
WAREHOUSE=	0	0.05	0.00
		SUB TOTAL=	0.00
<b>EXISTING USE TOTALS</b>			
RESIDENTIAL=	0.70	AF/YR	
AGRICULTURAL=	16.23	AF/YR	
WINERY=	0.72	AF/YR	
INDUSTRIAL=	0.00	AF/YR	
COMMERCIAL=	0.00	AF/YR	
OTHER USAGE (LIST BELOW)			
RECYCLED WASTE WATER =		AF/YR	
		AF/YR	
		AF/YR	
		AF/YR	
		AF/YR	
<b>TOTAL EXISTING WATER USE=</b>	<b>5749249</b>	<b>G/YR</b>	
<b>TOTAL EXISTING WATER USE=</b>	<b>17.65</b>	<b>AF/YR</b>	

**WATER AVAILABILTY CALCULATIONS FOR EXISTING USE**

WELL NUMBER	Q - GPM	AF/YR	
1	23	37.102	
2	65	104.853	
3		0.000	
4		0.000	
5		0.000	
TOTAL=		88	141.954
SPRING NUMBER	Q - GPM	AF/YR	
1		0.000	
2		0.000	
3		0.000	
4		0.000	
5		0.000	
TOTAL=		0	0.000
TANK #	GAL	AF	
1	13500	0.041	
2		0.000	
3		0.000	
4		0.000	
5		0.000	
TOTAL=		13500	0.041
RESERVOIR #	GAL	AF	
1	3999874	12.276	
2	0		
3	0		
4	0		
5	0		
TOTAL=		3999874.349	12.276
GROUND WATER RECHARGE	AF/YR/ACRE	PARCEL AC	AF/YR
assumed worst case recharge rate =	1.00	42.61	42.61
<b>TOTAL AVAILABLE WATER =</b>	<b>13883565.17</b>	<b>G/YR</b>	
<b>TOTAL AVAILABLE WATER =</b>	<b>42.61</b>	<b>AF/YR</b>	
<b>TOTAL EXISTING WATER USE=</b>	<b>17.65</b>	<b>AF/YR</b>	
<b>REMAINING AVAILABLE WATER =</b>	<b>24.97</b>	<b>AF/YR</b>	



<b>WATER USE CALCULATIONS FOR PROPOSED USE</b>			
<b>RESIDENTIAL</b>	<b>#</b>	<b>FACTOR</b>	<b>AF/YR</b>
PRIMARY RESIDENCES=	1	0.5	0.50
SECONDARY RESIDENCES=	1	0.2	0.20
FARM LBR DWELLING (# OF PPL) =	0	0.06	0.00
		SUB TOTAL=	0.70
<b>NON- RESIDENTIAL CALCULATIONS</b>			
<b>AGRICULTURAL</b>	<b># ACRE</b>	<b>FACTOR</b>	<b>AF/YR</b>
VINEYARD IRRIGATION ONLY=	29.4	0.3	8.82
VINEYARD HEAT PROTECTION=	29.4	0.25	7.35
VINEYARD FROST PROTECTION=	0	0.25	0.00
IRRIGATED PASTURE=	0	4	0.00
ORCHARDS=	0	4	0.00
LIVESTOCK (SHEEP/COWS)=	0	0.01	0.00
		SUB TOTAL=	16.17
<b>WINERY</b>	<b># GAL</b>	<b>FACTOR</b>	<b>AF/YR</b>
PROCESS WATER=	44000	SEE WW CALC	0.68
DOMESTIC AND LANDSCAPING=	44000	SEE WW CALC	0.26
		SUB TOTAL=	0.94
<b>INDUSTRIAL</b>	<b># EMPL</b>	<b>FACTOR</b>	<b>AF/YR</b>
FOOD PROCESSING=	0	31	0.00
PRINTING/ PUBLISHING=	0	0.6	0.00
		SUB TOTAL=	0.00
<b>COMMERCIAL</b>	<b># EMPL</b>	<b>FACTOR</b>	<b>AF/YR</b>
OFFICE SPACE=	0	0.01	0.00
WAREHOUSE=	0	0.05	0.00
		SUB TOTAL=	0.00
<b>PROPOSED USE TOTALS</b>			
RESIDENTIAL=	0.70	AF/YR	
AGRICULTURAL=	16.17	AF/YR	
WINERY=	0.94	AF/YR	
INDUSTRIAL=	0.00	AF/YR	
COMMERCIAL=	0.00	AF/YR	
OTHER USAGE (LIST BELOW)			
RECYCLED WASTE WATER =		AF/YR	
		AF/YR	
		AF/YR	
		AF/YR	
		AF/YR	
<b>TOTAL PROPOSED WATER USE=</b>	<b>5801382</b>	<b>G/YR</b>	
<b>TOTAL PROPOSED WATER USE=</b>	<b>17.81</b>	<b>AF/YR</b>	

**WATER AVAILABILITY CALCULATIONS FOR PROPOSED USE**

WELL NUMBER	Q - GPM	AF/YR	
1	23	37.102	
2	65	104.853	
3		0.000	
4		0.000	
5		0.000	
TOTAL=	88	141.954	
SPRING NUMBER	Q - GPM	AF/YR	
1		0.000	
2		0.000	
3		0.000	
4		0.000	
5		0.000	
TOTAL=	0	0.000	
TANK #	GAL	AF	
1	13500	0.041	
2		0.000	
3		0.000	
4		0.000	
5		0.000	
TOTAL=	13500	0.041	
RESERVOIR #	GAL	AF	
1	3999874.349	12.276	
2	0		
3	0		
4	0		
5	0		
TOTAL=	3999874.349	12.276	
GROUND WATER RECHARGE	AF/YR/ACRE	PARCEL AC	AF/YR
assumed worst case recharge rate =	1.00	42.61	42.61
<b>TOTAL WATER AVAILABLE =</b>	<b>13883565.17</b>	<b>G/YR</b>	
<b>TOTAL WATER AVAILABLE =</b>	<b>42.61</b>	<b>AF/YR</b>	
<b>TOTAL PROPOSED WATER USE=</b>	<b>17.81</b>	<b>AF/YR</b>	
<b>REMAINING AVAILABLE WATER =</b>	<b>24.81</b>	<b>AF/YR</b>	