“F”

Water Availability Analysis & Regulated Water System Feasibility Study

Ellman Family Winery P18-00249-UP
Planning Commission Hearing Date October 2, 2019

June 2018 - Revised
Job No. 15-12

BARTELT ENGINEERING

WATER AVAILABILITY ANALYSIS FOR THE ELLMAN FAMILY WINERY 3286 SILVERADO TRAIL, NAPA COUNTY, CA APN 039-610-001

As required by Napa County Planning, Building and Environmental Services (PBES), this study outlines the availability of groundwater for a potential winery located at 3286 Silverado Trail, Napa County, CA 94558.

PROJECT DESCRIPTION

The 13.52± acre parcel is currently experiencing residential improvements and a Track I Vineyard Replant was approved; both of these projects are under separate permits. There are existing vineyard blocks not associated with the Track I project and one (1) existing well on the parcel that will be the source for all the existing and proposed parcel improvements (residence, vineyard irrigation, and winery).

The total parcel post-Track I Vineyard Replant vineyard area is estimated to be 9.08 acres, which will decrease to 6.22± acres as a result of this project's proposed winery improvements. Refer to the attached Use Permit drawings for the existing and proposed development.

It is our understanding that the project proposes to construct a full crush winery on the above referenced parcel with the intent of the facility having the capability of producing 30,000 gallons of wine per year. Along with the proposed wine production at the site, the project proposes a modest staffing and marketing plan. The project proposes eight (8) full-time employees, one (1) part-time employee and one (1) seasonal (harvest) employee. The project also proposes to offer Private Tours and Tastings with Food for an average of 10 guests (maximum number of 15 guests) per day or 70 per week and two (2) Food and Wine Pairings (Lunch) per month for 10 guests. Additionally, the Applicant intends to host one (1) Wine Club Event per year for groups of up to 200 persons, one (1) Release Event per year for groups of up to 100 persons, and one (1) other 125 person Large Event per year at the winery with up to 15, 8, and 10 additional event staff, respectively.

EXHIBITS

The associated USGS "Topographic Site Location Information" included in the Use Permit application package shows the project site and approximate property line locations. Information regarding the location of the existing well and structures are shown on the associated Use Permit Drawings and the attached "Well Location Exhibit". All exhibits and drawings mentioned above were prepared by Bartelt Engineering.

WATER USE CRITERIA

TABLE 1: SCREENING CRITERIA	
Parcel Zoning	Agricultural Watershed (AW)
Project Parcel Location	Napa Valley Floor[1]
Parcel Size	13.52± acres
Water Use Criteria	1.0 acre-feet per acre per year or No Net Gain
Well and Spring Interference	Yes
Groundwater/Surface Water Interaction	No
Screening Tier	Tier 1

As summarized in Table 1 above, the subject parcel is located in the Agricultural Watershed (AW) Zoning District. Per the PBES Water Availability Analysis (WAA)-Guidance Document dated May 12, 2015 the water use criteria for a parcel located in the Napa Valley Floor and/or All Other Areas that are not designated as a groundwater deficient area without any well or spring interference must follow Tier 1 requirements.

SOURCE WATER INFORMATION

The source of water for the project parcel is an existing onsite well (project well) located near the ongoing residential improvements and is shown on the Well Location Exhibit prepared by Bartelt Engineering. This Use Permit project proposes to use the project well, not only for the residential improvements currently underway and vineyard irrigation, but also as the water source for the winery and hospitality building; therefore, it must be capable of meeting the water demand shown in Table 2A below.

Two (2) 10,500 gallon storage tanks are proposed for the project; one (1) 10,500 gallon tank for the vineyard irrigation and one (1) 10,500 tank for the winery and hospitality building's domestic water. Fire protection water is proposed to be stored in two (2) 50,000 gallon storage tanks (for a total of 100,000 gallons).

Water for residential use will be stored in one (1) 10,000 gallon domestic storage tank and one (1) 10,000 gallon fire storage tank. Water for vineyard irrigation is currently supplied directly from the project well.

Well Description

Per the Well Completion Report, the project well was constructed in 2006 by Huckfeldt Well Drilling, Inc. The project well is reported to be constructed of 8 inch diameter PVC F480 casing to a completed depth of 500 feet with a 56 foot cement annular seal. Refer to the Well Completion Report number e033971 under permit E05-1055 for more information.

Yield Test

A recent yield test was performed on the project well constructed by Huckfeldt Well Drilling, Inc. by Ray's Well Testing Service, Inc on April 16, 2015. Prior to the start of the

[1] As displayed on the Napa County Watershed Information & Conservation Council (WICC) website, November 2014 Updates, Interactive Map.

yield test, static water level was recorded at 111.9 feet below ground surface. A sustained yield of 70+ gallons per minute (gpm) was recorded after two (2) hours of continuous pumping. For the purposes of this Water Availability Analysis, the project well is defined as a moderate to high pumping capacity[2] well.

Neighboring Water Source(s)

Based on a review of neighboring property records at Napa County PBES and discussions with PBES staff, there are neighboring wells located within 500 feet of the project well; however, since the project's proposed water use is expected to decrease from existing water use, the Water Use Evaluation (Tier 1) criteria is expected to be met. The rational for limiting the need of this project to meet requirement above the Tier 1 criteria is based on the recent Planning, Building & Environmental Services Department's determination that contributed to the Planning Commission's approval of the Grassi Wine Company Use Permit (P15-00339-UP) application.

Water Quality

Water quality tests were performed and results provided by Analytical Sciences in April 2015 for the "project well" and showed Total Coliform and E. Coli at levels below the Reporting Detection Limit (RDL). The results also provided information for other constituents that will be reviewed and addressed during the water system design so that it complies with County and/or State regulations.

Groundwater Subarea

According to the Napa County Watershed Information & Conservation Council (WICC), the subject parcel is located within the Napa Valley Floor – Napa groundwater subarea, which resides within the Napa River Basin Watershed. The Napa River Basin Watershed consists of approximately 234,194± acres.

Watershed Information

The subject parcel is located within two (2) different watersheds, Hardman Creek and Soda Creek, which are sub basins of the Napa River Basin Watershed. The Hardman Creek and Soda Creek watersheds are not located within a municipal watershed.

Geological Features

According to the Soil and Geology Map located on the WICC website, the subject parcel and surrounding areas appear to be underlain with Sonoma Volcanics (Pliocene-Miocene).

Water Demand

Current and Estimated Proposed Water Use

The total water demand for the existing and proposed uses for the project is calculated below and based on the Guidelines for Estimating Residential and Non-residential Water Use from the WAA Guidance Document (Napa County).

[2] Under the Water Availability Analysis – Guidance Document (adopted on May 5, 2015), moderate to high pumping capacity wells are defined as wells with a casing diameter greater than six (6) inches and an installed pump capable of producing more than 30 gpm.

TABLE 2: SCREENING CRITERIA DETAILED WATER AVAILABILITY ANALYSIS SUMMARY [3]	
Current Water Use	(acre-feet/year)
Residence (Primary residence based on 4 bedrooms; under separate permit)	0.75
Residence (Secondary residence based on 1 bedroom; under separate permit)	0.30
Vineyard (9.08± acres of irrigation, Track I Vineyard Replant under separate permit)	4.54
Vineyard (9.08± acres of heat protection at 0.25 acre-feet per acre per year)	2.27
Total Current Water Use	7.86
Proposed Water Use	
Residence (Primary residence based on 4 bedrooms)	0.75
Residence (Secondary residence based on 1 bedroom)	0.30
Winery (Includes Process, Domestic, Landscape[4], employees, and guests)	1.07
Vineyard (6.22± acres of irrigation)	3.11
Vineyard (6.22± acres of heat protection at 0.25 acre-feet per acre per year)	1.56
Total Proposed Water Use	6.79

As shown in Table 2 above, the water demand for the uses [3,4] on the entire parcel is estimated to decrease from 7.86 to 6.79 acre feet per year as part of the proposed improvements under this Use Permit application. The Current Water Use values in Table 2 above represent all uses from the permitted structures associated with the residential improvements currently underway and the proposed Track I Vineyard Replant (under separate permits). The Proposed Water Use values are additions and adjustments to the Current Water Use values as a result of the project.

WATER SYSTEM CLASSIFICATION

Per PBES guidelines, this project may be required to install a Transient Non-Community Water System (TNCWS) serving all buildings on the parcel in conjunction with the proposed Use Permit Application. The water system requires regulation because of the proposed commercial kitchen in the winery and hospitality building, peak staffing, maximum number of guests and the number of yearlong residents being served. A transient non-community water system is identified as a system that has less than five (5) connections, serves 25 or more yearlong residents[5], and serves 25 people per day at least 60 days per year but does not serve more than 25 of the same people at least six (6) months out of the year. Bartelt

[3] Usage based on the Napa County Water Availability Analysis Attachment A: Estimated Water Use Guidelines method.
[4] Proposed landscape irrigation value provided by WELO.
[5] The one (1) seasonal (harvest) employee is not considered a yearlong resident because the person is employed less than 183 days per year.

Engineering has included a Technical, Managerial and Financial (TMF) Capacity Worksheet document in the project's Use Permit Application package.

SUMMARY

The project parcel lies completely in a location identified as "Napa Valley Floor" therefore the available water use for the parcel is 13.52± acre-feet per year, which is significantly greater than the proposed project demand of 6.79 acre-feet per year.

Groundwater sourced from the project well will be treated and stored in dedicated tanks for the domestic use of either the residence or the winery (exclusive of each other). Vineyard irrigation will be applied directly from the well without storage or treatment.

CONCLUSION

The above analysis shows that the groundwater demand for the proposed project can feasibly be satisfied by the project well. Furthermore, the estimated available water for the subject parcels satisfies the Tier 1 Water Use Criterion of the Napa County Water Availability Analysis.

ATTACHMENTS

Well Location Exhibit

Table I – Existing Water Demand

Table II – Proposed Water Demand

Well Yield Test Results

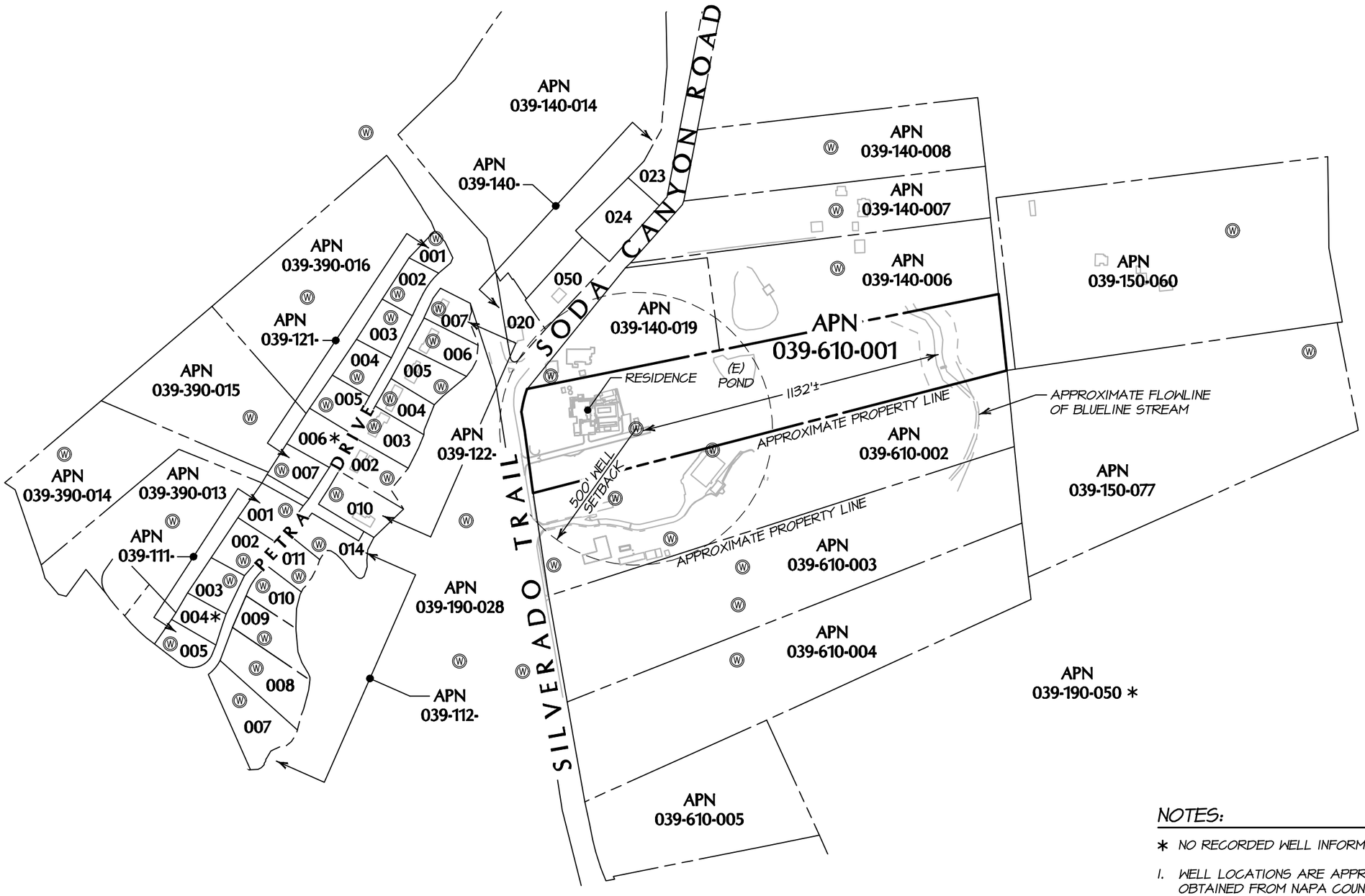
Well Completion Report

REFERENCES

Bartelt Engineering. *Onsite Wastewater Dispersal Feasibility Study*. Napa, 2017.

Napa County. "Water Availability Analysis (WAA)." *Design, Construction and Guidance Document*. 12 May 2015. Document.

Napa County Watershed Information & Conservation Council (WICC). *Groundwater*. November 2014. Interactive Map. 10 2016. <www.napawatershed.org>.



SCALE: 1" = 400'

NOTES:

* NO RECORDED WELL INFORMATION WAS FOUND FOR THIS PARCEL.

1. WELL LOCATIONS ARE APPROXIMATE AND ARE BASED ON DATA OBTAINED FROM NAPA COUNTY ENVIRONMENTAL HEALTH DIVISION RECORDS. WELL LOCATION RECORDS VARY IN ACCURACY AND PRECISION. LOCATIONS SHOULD BE FIELD VERIFIED.

WELL LOCATION EXHIBIT

SCALE: 1" = 400'

BARTELT ENGINEERING
CIVIL ENGINEERING · LAND PLANNING
1303 Jefferson Street, 200 B, Napa, CA 94559
www.barteltengineering.com
· Telephone: 707-258-1301 ·

Ellman Family Winery
3286 Silverado Trail
Napa County, CA 94558
APN 039-610-001
Job No. 15-12
June 2018
Sheet 1 of 1

Ellman Family Estate
Existing Water Demand
Table I

BARTELT ENGINEERING

Vineyard Area: **9.08 acres**

EXISTING WATER DEMAND		
Description	**Water Usage Rate[1]**	**Water Demand (acre-feet/year)**
Residential		
Primary Residence	0.75 acre-feet/acre-year	0.75
Secondary Residence	0.2-0.3 acre-feet/acre-year	0.30
Farm Labor Dwelling		-
Agricultural		
Vineyards		
Irrigation Only	0.50 acre-feet/acre-year	4.54
Heat Protection	0.25 acre-feet/acre-year	2.27
Frost Protection	0.25 acre-feet/acre-year	-
Irrigated Pastures	4.0 acre-feet/acre-year	-
Orchards	4.0 acre-feet/acre-year	-
Livestock (sheep or cows)	0.01 acre-feet/acre-year	-
Winery		
Process Water	2.15 acre-feet/100,000 gallon of wine	-
Domestic & Landscaping	0.50 acre-feet/100,000 gallon of wine	-
Employees	15 gallons/per shift	-
Tasting Room Visitation	3 gallons per visitor	-
Events and Marketing, with on-site catering	15 gallons per visitor	-
Industrial		
Food Processing	31 acre-feet/employee-year	-
Printing/Publishing	0.60 acre-feet/employee-year	-
Commercial		
Office Space	0.01 acre-feet/employee-year	-
Warehouse	0.05 acre-feet/employee-year	-
Estimated Proposed Water Demand (acre-feet/year):		7.86
Estimated Proposed Water Demand (gallons/year):		2,561,189

1) Water usage rates referenced from *Appendix B: Estimated Water Use of Specified Land Use* from Napa County WAA-Guidance Document (2015) unless noted otherwise

June 2018 - Revised
Job No. 15-12

Ellman Family Estate
Proposed Water Demand
Table II

BARTELT ENGINEERING

Vineyard Area: **6.22 acres**

PROPOSED WATER DEMAND		
Description	**Water Usage Rate[1]**	**Water Demand (acre-feet/year)**
Residential		
Primary Residence	0.75 acre-feet/acre-year	0.75
Secondary Residence	0.2-0.3 acre-feet/acre-year	0.30
Farm Labor Dwelling		-
Agricultural		
Vineyards		
Irrigation Only	0.50 acre-feet/acre-year	3.11
Heat Protection	0.25 acre-feet/acre-year	1.56
Frost Protection	0.25 acre-feet/acre-year	-
Irrigated Pastures	4.0 acre-feet/acre-year	-
Orchards	4.0 acre-feet/acre-year	-
Livestock (sheep or cows)	0.01 acre-feet/acre-year	-
Winery		
Process Water	2.15 acre-feet/100,000 gallon of wine	0.65
Domestic & Landscaping	Refer to WELO	0.19
Employees	15 gallons/per shift	0.17
Tasting Room Visitation	3 gallons per visitor	0.04
Events and Marketing, with on-site catering	15 gallons per visitor	0.03
Industrial		
Food Processing	31 acre-feet/employee-year	-
Printing/Publishing	0.60 acre-feet/employee-year	-
Commercial		
Office Space	0.01 acre-feet/employee-year	-
Warehouse	0.05 acre-feet/employee-year	-
Estimated Proposed Water Demand (acre-feet/year):		6.79
Estimated Proposed Water Demand (gallons/year):		2,212,597

1) Water usage rates referenced from *Appendix B: Estimated Water Use of Specified Land Use* from Napa County WAA-Guidance Document (2015) unless noted otherwise

Ray's Well Testing Service Inc.
4853 Vine Hill Rd, Sebastopol Ca 95472
Phone 707 823 3191 **Fax** 707 317 0057 **Lic#** 903708

CUSTOMER INFORMATION

REPORT #: 7193-2 By: Cody Monday	DATE OF TEST: 4/16/2015
CUSTOMER NAME: Lance & Neil Ellman	CONTACT:
AGENT NAME: Jen Leigh - Terra Firma Global Partners	CONTACT: (707) 287 7077
PROPERTY ADDRESS: 3286 Silverado Trail, Napa CA 94558	SENT TO: jleigh@terrafirmaglobalpartners.com

WELL DATA

LOCATION OF WELL:	Irrigation well
TYPE OF WELL:	Drilled
DEPTH OF COMPLETED WELL:	500 Feet - according to drill log
DIAMETER OF WELL CASING:	8" PVC
SANITARY WELL SEAL (PLATE SEAL AT OPENING OF WELL CASING):	Yes
ANNULAR SEAL (IN-GROUND SEAL OF BOREHOLE):	56 Feet - Cement
PUMP HP AND TYPE:	15 HP 230V 3 Phase Goulds 90L15 Submersible
DEPTH OF PUMP SUCTION:	399 Feet - according to installer notes. 2 -1/2" Tee. #4-4 sub cable

WATER PRODUCTION RESULTS

WATER LEVEL AT START (STATIC LEVEL):	111.9 Feet	FLOW RATE AT START:	90.2 GPM
FINAL PUMPING LEVEL:	204.8 Feet	FINAL FLOW RATE:	**74.5 GPM**
.TER LEVEL DRAWDOWN:	92.9 Feet	TOTAL LENGTH OF TEST:	2 Hours

CONSTANT PUMPING LEVEL INFORMATION

STABILIZED PUMPING LEVEL:	204.8 Feet	STABILIZED FLOW RATE (YIELD):	**74.5 GPM**
DURATION OF CONSTANT PUMPING LEVEL:	1 Hour	TOTAL YIELD:	4,470 Gallons

WATER SYSTEM INSPECTION

WELL PUMP	Functional	TECHNICAL INFO: 90.2 GPM @ 40 PSI @ 111.9', 39.2 amps
ELECTRICAL	Functional	TECHNICAL INFO: 100 Amp 3-pole breaker, located in panel near controller
PRESSURE TANK	Functional	TECHNICAL INFO: 26 Gallon Air-E-Tainer AT88, tank date 2006, 28 PSI air charge
STORAGE TANK	None	TECHNICAL INFO:
BOOSTER PUMP	None	TECHNICAL INFO:

WATER QUALITY TESTING

THE FOLLOWING SAMPLES ARE BEING ANALYZED. PLEASE REFER TO FOLLOW-UP REPORT FOR RESULTS.		
Basic Residential/Irrigation Panel	DATED: 4/16/15	TURNAROUND: Standard
	DATED:	TURNAROUND:
	DATED:	TURNAROUND:
	DATED:	TURNAROUND:

SEE NEXT PAGE FOR FURTHER INFORMATION...

DATE: 4/16/2015

ADDRESS: 3286 Silverado Trail, Napa CA 94558

COMMENTS: 'Irrigation Well'
1.The recharge rate at the end of the test was 74.5 gallons per minute. This test may not represent the long term or seasonal yield.
2. The water was visibly clear for the duration of the test.
3. The 15 HP 230V 3 Phase Goulds 90L15 variable speed submersible well pump pressurizes a 26 gallon Air-E-Tainer AT88 pressure tank. The operating pressure is set for 40 PSI.The pump is controlled by a CPS Redi-Drive.
4. The irrigation lines are filtered by a 3" Amiad Scanaway filter and a 2" Amiad cartridge filter.
5. There is a 2" Wilkins Zurn back flow preventer at the irrigation manifold.
6. There is a 2" brass ball valve (closed) that allows the domestic well to pressurize the irrgation manifold. There is a 2" Wilkins Zurn back flow preventer after 2" ball valve.
RECOMMENDATIONS:
1. There is a 2" brass gate valve on the irrigation manifold that is leaking. Recommend repair.

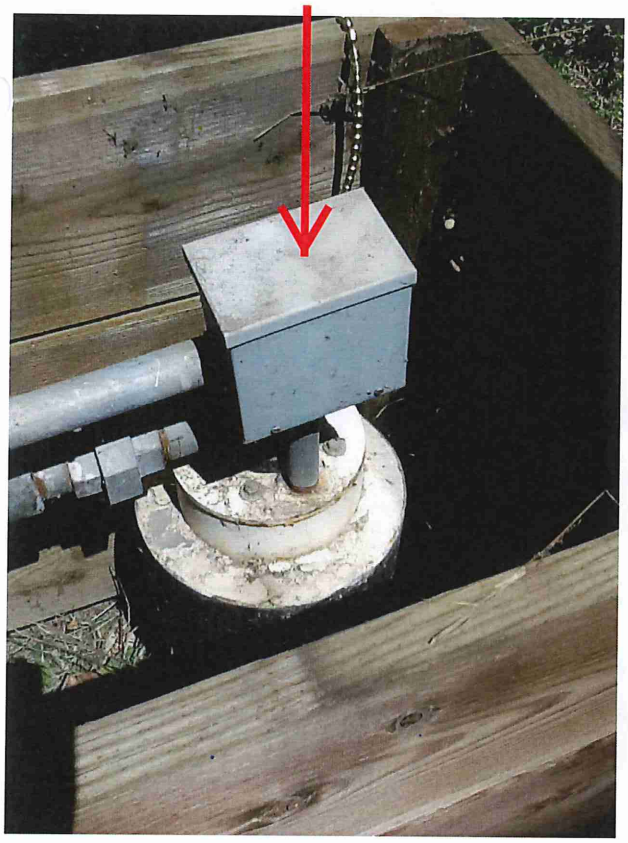
Thank you for allowing us to do your well inspection!

APPROVED BY: NICK BRASESCO

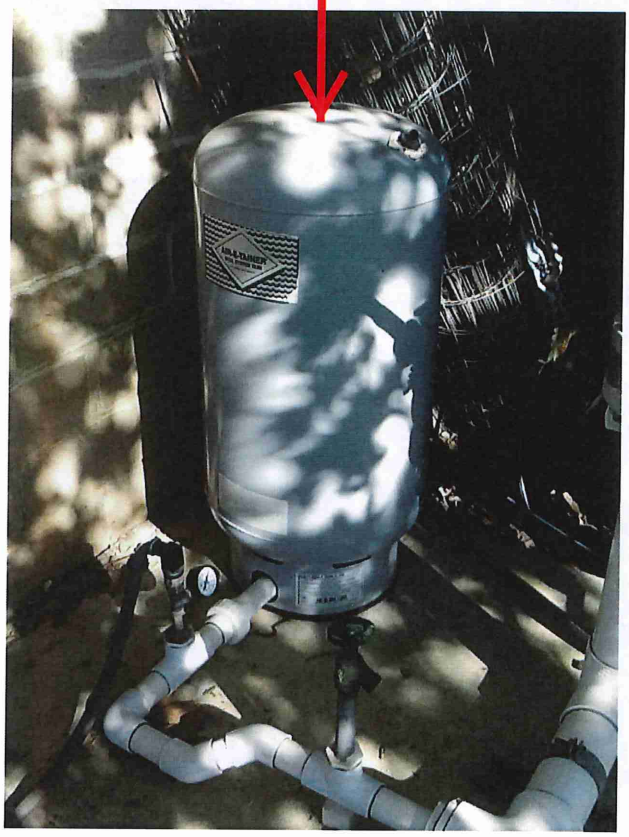
Water levels and well depth are measured as feet below top of well casing unless otherwise noted.

All wells and springs are subject to seasonal and yearly changes in regards to water yield, production and quality. Wells may be influenced by creeks or other water sources and are likely to yield less water during dry months of the year; typically August, September, & October. We make no predictions of future water production or water quality.

Well Head



Pressure Tank

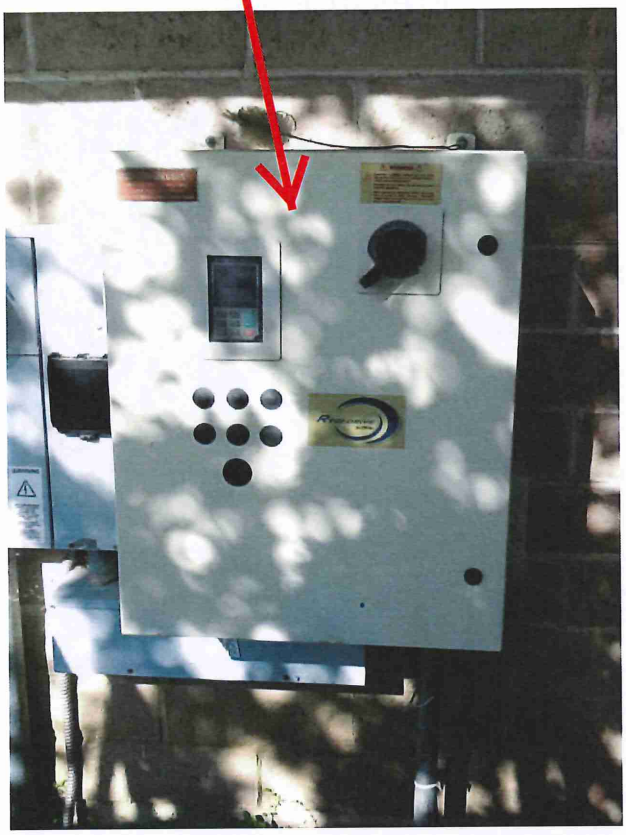


3" Amaid Filter

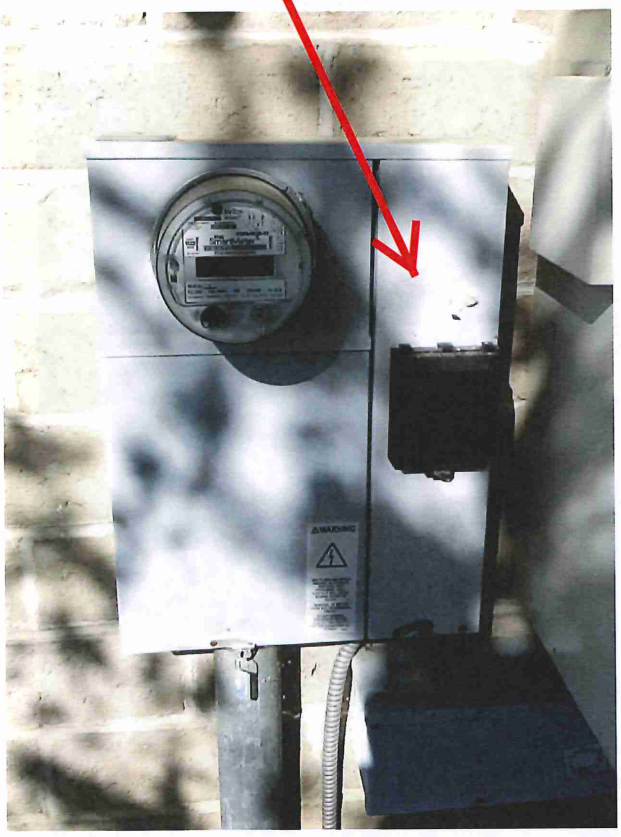
Domestic Well Line

2" Amiad Filter

Variable Speed Contoller



Main Panel



Well Completion Report

ORIGINAL
File with DWR

Page 1 of 1

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. e033971

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./ STATION NO.
LATITUDE / LONGITUDE
APN/TRS/OTHER

Owner's Well No. 1-'06
Date Work Began 1/16/2006, Ended 2/3/2006
Local Permit Agency Napa County Environmental Mgmt
Permit No. E05-1055 Permit Date 11/30/2005

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL — HORIZONTAL — ANGLE — (SPECIFY)
DRILLING METHOD ROTARY FLUID BENTONITE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION Describe material, grain, size, color, etc.
0	35	BROWN CLAY
35	53	GREEN CLAY
53	60	GRAY CLAY
60	78	SAND & GRAVEL
78	90	SANDY BROWN CLAY
90	98	GRAY CLAY
98	140	SANDY BROWN CLAY
140	190	SAND & GRAVEL WITH BROWN CLAY
190	255	SAND & GRAVEL WITH GRAY CLAY
255	285	SANDY GREEN CLAY
285	390	SAND & GRAVEL
390	430	GREEN & BROWN SANDY CLAY
430	475	HARD MIXED VOLCANICS
475	480	FRACTURED VOLCANICS
480	497	HARD MIXED VOLCANICS
497	500	TAN VOLCANIC ASH
		CONTINUED CASING LAYOUT
400	420	BLANK PVC 8"
420	500	SCREEN PVC 8" .032 SLOT

TOTAL DEPTH OF BORING 500 (Feet)
TOTAL DEPTH OF COMPLETED WELL 500 (Feet)

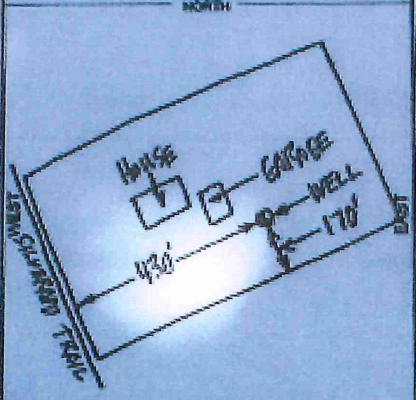
WELL OWNER

Name Jess Knubis
Mailing Address 3286 Silverado Trail
Napa CA 94558
CITY STATE ZIP

WELL LOCATION

Address 3286 Silverado Trail
City Napa CA
County Napa
APN Book 039 Page 010 Parcel 001
Township ____ Range ____ Section ____
Latitude ____ DEG. MIN. SEC. ____ DEG. MIN. SEC.

LOCATION SKETCH



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

ACTIVITY (✓)
✓ NEW WELL
MODIFICATION/REPAIR
— Deepen
— Other (Specify)
— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)
WATER SUPPLY
✓ Domestic — Public
✓ Irrigation — Industrial
— MONITORING
— TEST WELL
— CATHODIC PROTECTION
— HEAT EXCHANGE
— DIRECT PUSH
— INJECTION
— VAPOR EXTRACTION
— SPARGING
— REMEDIATION
— OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER N/A (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 84 (Ft.) & DATE MEASURED 2/3/2006
ESTIMATED YIELD 125 (GPM) & TEST TYPE AIR LIFT
TEST LENGTH 3 (Hrs.) TOTAL DRAWDOWN N/A (Ft.)
May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONCRETE/CEMENT GROUT	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	500	15								
0	140		✓				PVC F480	8	SDR-21	
140	260			✓			PVC F480	8	SDR-21	.032
260	280		✓				PVC F480	8	SDR-21	
280	400			✓			PVC F480	8	SDR-21	.032

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	56	✓			CONCRETE
56	500			✓	#3 SAND

ATTACHMENTS (✓)

— Geologic Log
— Well Construction Diagram
— Geophysical Log(s)
— Soil/Water Chemical Analysis
— Other
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.
NAME HUCKFELDT WELL DRILLING, INC.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
2110 Penny Lane Napa CA 94559
ADDRESS CITY STATE ZIP
Signed _____ 02/03/06 439-746
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV 11-97
IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

BARTELT ENGINEERING

REGULATED WATER SYSTEM FEASIBILILTY STUDY FOR THE ELLMAN FAMILY WINERY 3286 SILVERADO TRAIL, NAPA COUNTY, CA APN 039-610-001

As required by Napa County Planning, Building and Environmental Services (PBES), this study outlines the feasibility of providing onsite potable water for a winery and hospitality building and residential structures on the above referenced parcel located at 3286 Silverado Trail in Napa, CA.

PROJECT DESCRIPTION

The 13.52± acre parcel is currently experiencing residential improvements and a Track I Vineyard Replant was approved; both of these projects are under separate permits. There are existing vineyard blocks not associated with the Track I project and one (1) existing well on the parcel that will be the source for all the existing and proposed parcel improvements (residence, vineyard irrigation, and winery).

The total parcel post-Track I Vineyard Replant vineyard area is estimated to be 9.08 acres, which will decrease to 6.22± acres as a result of this project's proposed winery improvements. Refer to the attached Use Permit drawings for the existing and proposed development.

It is our understanding that the project proposes to construct a full crush winery on the above referenced parcel with the intent of the facility having the capability of producing 30,000 gallons of wine per year. Along with the proposed wine production at the site, the project proposes a modest staffing and marketing plan. The project proposes eight (8) full-time employees, one (1) part-time employee and one (1) seasonal (harvest) employee. The project also proposes to offer Private Tours and Tastings with Food for an average of 10 guests (maximum number of 15 guests) per day or 70 per week and two (2) Food and Wine Pairings (Lunch) per month for 10 guests. Additionally, the Applicant intends to host one (1) Wine Club Event per year for groups of up to 200 persons, one (1) Release Event per year for groups of up to 100 persons, and one (1) other 125 person Large Event per year at the winery with up to 15, 8, and 10 additional event staff, respectively.

It is our understanding that the Ellman Family Winery may be required to install a Transient Non-Community Water System (TNCWS) as a result of the marketing, staffing and commercial kitchen being proposed in this Use Permit Application and yearlong residents associated with improvements under separate permits. The following Technical, Managerial and Financial (TMF) Capacity Worksheet outlines the potential requirements associated with the development of a new TNCWS.

WATER SYSTEM OVERVIEW

TABLE 1: WATER SYSTEM OVERVIEW	
Water System Name	Ellman Family Winery
Location/Address	3286 Silverado Trail, Napa, CA 94558 APN 039-610-001
Application Type	New System
Water System ID	XX-XXXX (to be assigned)
Water System Classification	Transient Non-Community Water System (TNCWS)
Name of Person(s) Who Prepared The Report	Michael G. Grimes, P.E. Project Engineer, Bartelt Engineering
Water Source	Onsite Well

TECHNICAL CAPACITY

System Description

Under Napa County Planning, Building and Environmental Services - Environmental Health Division guidelines, the Ellman Family Winery may be required to install a Transient Non-Community Water System (TNCWS) serving all buildings on the parcel in conjunction with this Use Permit Application and the residential improvements being constructed under separate permits. The water system requires regulation because of the proposed commercial kitchen in the winery and hospitality building, peak staffing, maximum number of guests and the number of yearlong residents being served. A transient non-community water system is identified as a system that has less than five (5) connections, serves 25 or more yearlong residents[1], and serves 25 people per day at least 60 days per year but does not serve more than 25 of the same people at least six (6) months out of the year.

The subject parcel currently sources water from one onsite well[2] that is currently being utilized as a water source for vineyard irrigation and has an appropriate annular seal depth that meets water system regulations. It is this onsite well that is proposed to be used to meet the demands of the residential improvements currently underway, the existing vineyard irrigation demand and as the water source for the proposed winery and hospitality building.

Upon approval of this Use Permit and subsequent construction and installation of the TNCWS, the well would be disconnected from the residential water system (currently being constructed) and connected to the proposed TNCWS water system. Utilizing this well would allow groundwater to be extracted, treated at the source to the required level for potable water and then conveyed to the proposed winery production and hospitality building, residential structures and any other service connections serving the public. Onsite water storage tanks will be located in the vicinity of the buildings requiring service connections.

[1] The one (1) seasonal (harvest) employee is not considered a yearlong resident because the person is employed less than 183 days per year.
[2] Installed under Napa County permit number E05-1055

It is anticipated that water service connections would be at the primary residence (currently under construction) and secondary residential structure, winery production building, winery production offices and tasting room all of which will be located on the above referenced parcel. The water treatment equipment will most likely include micron filters, calcite filter, water softener, storage tanks, booster pumps, pressure tanks and ultraviolet radiation treatment. Equipment requirements may vary based on water sample testing. If a water treatment system is found to be required during the Use Permit process, then the location of the water system structures will be shown on the forthcoming improvement plans.

One Year Projection

The average daily water demand is estimated to be 1,371 gallons, peak day demand is 3,330 gallons and the total annual demand is approximately 500,385 gallons based on the number of yearlong residents, employees, staff and proposed marketing events and production that are anticipated to be served by the water system. Based on the Well Completion Report[3], the estimated water yield from the existing groundwater well that meets the annular seal depth is 70± gallons per minute; therefore, the proposed water system should have more than adequate capacity to meet projected domestic water demands. Refer to the Water Availability Analysis for The Ellman Family Winery, prepared by Bartelt Engineering and submitted to Napa County for additional information on estimated production and domestic water demands. The projected water system service area, water demand and the number of users are expected to remain constant over the next several years with no future plan for expansion.

SOURCE ADEQUACY

Groundwater

The well currently serving as an irrigation source for the vineyard was constructed with a 56 foot annular seal which meets the minimum standards (50 foot annular seal) for a TNCWS and therefore could be utilized to serve as the supply well for the water system. If this well is not used to supply the TNCWS a new well would need to be drilled and constructed with the required annular seal to meet State regulations.

Surface Water Treatment

The TNCWS water system source water will be a groundwater well; therefore, no surface water treatment is anticipated or required.

Water Supply Capacity

It is anticipated that any required non-community water system will be able to supply the minimum 3 gallons per minute for at least 24 hours for each service connection. It is anticipated that the water system may contain two (2) separate water service connections. To assist in offsetting peak water demand periods, all treated potable water will be stored in tanks adjacent to the buildings requiring service connections.

[3] Well Completion Report by Huckfeldt Well Drilling, Inc. of Napa, California, signed February 03, 2006 for work completed on Februry 03, 2006.

Water Quality

Water quality tests were performed and results provided by Analytical Sciences in April 2015 for the existing onsite well and showed Total Coliform and E. Coli at levels below the Reporting Detection Limit (RDL). The results also provided information for other constituents that will be reviewed and addressed during the water system design so that it complies with County and/or State regulations.

Consolidation with Other Water Systems

The closest large scale municipal water system is operated by the City of Napa. The system is not within the vicinity of the proposed water system for the Ellman Family Winery project. It is infeasible to consolidate with any existing water systems at this time. If municipal water service becomes available in the future, it is anticipated that the onsite well will continue to be utilized for wine production and vineyard irrigation and any municipal water service would be utilized for domestic purposes. There is no anticipated consolidation with other (existing) water systems near the site.

MANAGERIAL

Organizational Ability

The Owner of the water system is primarily responsible for the review and overseeing of all winery financial and business decisions to ensure financial stability of the winery, in addition to allocating appropriate staffing levels and assigning responsibilities to ensure continuous water system quality. The water system will be primarily managed by the winery Facilities Manager. The Facilities Manager is responsible for managing the day-to-day operations of the winery including periodic inspection of the water system and will obtain sufficient training to inspect, operate and maintain the water system equipment within specified parameters to meet state water quality standards; in addition, the Facilities Manager will also take groundwater samples as necessary and submit the samples to a local laboratory for testing. If necessary, the Facilities Manager and any other employees working with the water system will attend classes in water distribution systems for certification at Solano Community College (or other suitable school) and will maintain a working knowledge of changes in codes and requirements associated with the water system. The Facilities Manager will obtain support from a Certified Operator if it becomes necessary to make modifications to the water system. Approximately five percent (5%) of the Facilities Manager's time will be dedicated to inspecting, monitoring and quality sampling of the water system.

The Facilities Manager will typically perform visual inspections, routine operation and maintenance of the well head, storage and pressure tanks, booster pumps, pressure gauges, meters and valves checking for signs of leaks or damage, proper operation, maintain lubricant levels, eliminate potential electrical or chemical hazards, clean storage tanks, etc.; in addition, to bacteriological and chemical monitoring and reporting.

Water Rights

The existing groundwater well is located on the parcel associated with the proposed winery (APN 039-610-001).

FINANCIAL

The water system will generate no revenue of its own. The water system expenses are covered as part of the general fund for winery operations. Most of the capital expenditures over a 20 year period will be minor. Annual maintenance and repair will be accomplished by onsite winery personnel, assisted by a private contractor (such as Oakville Pump) and will be covered in the winery general fund. The expenses associated with water testing will also be covered as part of the winery general fund. Tests will be conducted by a private testing company (such as CalTest or Brelje and Race Laboratory).

The total Operations and Maintenance (O&M), General and Administrative (G&A), and Installation and Commitioning costs associated with the water system for the first year will be approximately $75,000 including employee allocated time, training, facilities and maintenance. A detailed breakdown of O&M and G&A costs can be found on the 20 Year Budget Projecttion table provided.

CONCLUSION

The water system for the proposed project is anticipated to be regulated by the Sate of Califonia and Napa County PBES. Following approval of the Use Permit, the Applicant understands that all permit requirments for the public water system will be submitted prior to issuance of any building permits associated with the proposed winery development.

ATTACHMENTS

Regulated Water System Calculations

20 Year Budget Projection

BARTELT ENGINEERING

REGULATED WATER SYSTEM CALCULATIONS

Description of Item	No. of Items	Water use per Item [gpd/item]	Water Demand [gpd]
Winery & Tasting Room			
Number of Employees (8 Full, 1 Part & 1 Seasonal)	10	15.0	150
Number of Wine Club Event(s) Visitors	200	7.0	1,400
Number of Wine Club Event(s) Staff	15	10.0	150
Winery Production [annual gallons]	30,000		
Length of Crush [days]	45		
Averaged Annual Water Demand per Day		4.5	494
Averaged Peak Water Demand per Day		1.5	1,000
Residential Sanitary Wastewater			
Residential (No. of Bedrooms)	4	120.0	480
Secondary (Guest Cottage) (No. of Bedrooms)	1	150.0	150
Averaged Annual Site Water Demand per Day (refer to notes 2 and 3)			1,371
Averaged Peak Site Water Demand per Day			3,330
	Units		
Site Hours of Operation	[hours]	8	
Flow Rate based on Averaged Annual Demand	[gpm]	2.9	
Flow Rate based on Averaged Peak Demand	[gpm]	6.9	
Flow Peak Factor		2	
Peak Flows during Averaged Annual Demands	[gpm]	5.7	
Peak Flows during Averaged Peak Demands	[gpm]	13.9	
Estimated period of time for Peak Flow	[hours]	6	
Estimated Water Demand during Peak Flow Time Period based on Averaged Annual Demands	[gallons]	2,059	
Estimated Water Demand during Peak Flow Time Period based on Averaged Peak Demands	[gallons]	4,997	
	Units		
Estimated Well Yield	[gpm]	70	
Estimated Water Filtration and Softening Rate	[gpm]	15	
Estimated Reverse Osmosis Processing Rate	[gpm]	4	
Water Reverse Osmosis Hours of Operation	[hours]	20	
Daily Volume of "Treated" Water	[gallons]	4800	

Notes:

1. Water Demand Calculations are based on the demands from the residential structures and operations at the winery facility which are planned to remain consistent for the next ten (10) years.
2. Refer to the Onsite Wastewater Dispersal Feasibility Study prepared by Bartelt Engineering for detailed design flow.
3. Average water demand is equal to the total wastewater generated by all employees, visitors, staff, residents and winery process annually divided by 365.
4. Peak demand value corresponds to the greatest practical harvest and non-harvest season maximum process and sanitary wastewater flows as outlined in the Onsite Wastewater Dispersal Feasibility Study prepared by Bartelt Engineering.

20 Year Budget Projection

Water System Specific

BARTELT ENGINEERING

Water System No.

INFLATION FACTOR (%) - 5.0

Line		Expense	Current Year	Year	Year	Year	Year	Year	Year	Year	Year	Year
			0	1	2	3	4	5	6	7	8	9
1	Operations & Maintenance											
2		Salaries and Benefits	$9,600.00	$10,080.00	$10,584.00	$11,113.20	$11,668.86	$12,252.30	$12,864.92	$13,508.16	$14,183.57	$14,892.75
3		Contract Operations and Maintenance	$6,000.00	$6,300.00	$6,615.00	$6,945.75	$7,293.04	$7,657.69	$8,040.57	$8,442.60	$8,864.73	$9,307.97
4		Power and Other Utilities	$240.00	$252.00	$264.60	$277.83	$291.72	$306.31	$321.62	$337.70	$354.59	$372.32
5		Fees	$551.00	$578.55	$607.48	$637.85	$669.74	$703.23	$738.39	$775.31	$814.08	$854.78
6		Treatmet Chemicals	$250.00	$262.50	$275.63	$289.41	$303.88	$319.07	$335.02	$351.78	$369.36	$387.83
7		Coliform Monitoring	$400.00	$420.00	$441.00	$463.05	$486.20	$510.51	$536.04	$562.84	$590.98	$620.53
8		Chemical Monitoring	$400.00	$420.00	$441.00	$463.05	$486.20	$510.51	$536.04	$562.84	$590.98	$620.53
9		Transporation	$50.00	$52.50	$55.13	$57.88	$60.78	$63.81	$67.00	$70.36	$73.87	$77.57
10		Materials, Supplies and Parts	$300.00	$315.00	$330.75	$347.29	$364.65	$382.88	$402.03	$422.13	$443.24	$465.40
11		Miscellaneous	$100.00	$105.00	$110.25	$115.76	$121.55	$127.63	$134.01	$140.71	$147.75	$155.13
		Equipment Replacement List										
12a		Ultraviolet Lamp		$278.25	$292.16	$306.77	$322.11	$338.21	$355.13	$372.88	$391.53	$411.10
12b		Sediment Filter Cartridges			$16.54		$18.23		$20.10		$22.16	
12c		Booster Pump Station, 2 HP, complete; Booster Pump Station Electrical Controls; Ultraviolet Ballast						$3,250.69				
12d		Submersible Pump, 7.5 HP								$4,924.85		
12e		Pressure Tank; Master Meter, 2"; Sediment Filter Housing; Water Softener; Ultraviolet Water Purifier; Distribution Valve, 2"										
12f		Air & Vacuum Relief Valve, Typical										
12		**Equipment Replacement Sub Total**	$0.00	$278.25	$308.70	$306.77	$340.34	$3,588.90	$375.23	$5,297.73	$413.69	$411.10
13												
14		**Total Operations and Maintenance**	$17,891.00	$19,063.80	$20,033.53	$21,017.84	$22,086.96	$26,422.86	$24,350.88	$30,472.17	$26,846.84	$28,165.92
15												
16	General & Administrative											
17		Engineering and Professional Services	$1,000.00	$1,050.00	$1,102.50	$1,157.63	$1,215.51	$1,276.28	$1,340.10	$1,407.10	$1,477.46	$1,551.33
18		Depreciation and Amortization	$4,500.00	$4,725.00	$4,961.25	$5,209.31	$5,469.78	$5,743.27	$6,030.43	$6,331.95	$6,648.55	$6,980.98
19		Insurance	$250.00	$262.50	$275.63	$289.41	$303.88	$319.07	$335.02	$351.78	$369.36	$387.83
20												
21												
22		**Total General and Administrative**	$5,750.00	$6,037.50	$6,339.38	$6,656.34	$6,989.16	$7,338.62	$7,705.55	$8,090.83	$8,495.37	$8,920.14
23												
24	Total Annual Expense		$23,641.00	$25,101.30	$26,372.90	$27,674.18	$29,076.13	$33,761.48	$32,056.43	$38,562.99	$35,342.21	$37,086.05

20 Year Budget Projection

Water System Specific

BARTELT ENGINEERING

Water

Line	Expense	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
1	**Operations & Maintenance**											
2	Salaries and Benefits	$15,637.39	$16,419.26	$17,240.22	$18,102.23	$19,007.34	$19,957.71	$20,955.60	$22,003.38	$23,103.54	$24,258.72	$25,471.66
3	Contract Operations and Maintenance	$9,773.37	$10,262.04	$10,775.14	$11,313.89	$11,879.59	$12,473.57	$13,097.25	$13,752.11	$14,439.72	$15,161.70	$15,919.79
4	Power and Other Utilities	$390.93	$410.48	$431.01	$452.56	$475.18	$498.94	$523.89	$550.08	$577.59	$606.47	$636.79
5	Fees	$897.52	$942.40	$989.52	$1,038.99	$1,090.94	$1,145.49	$1,202.76	$1,262.90	$1,326.05	$1,392.35	$1,461.97
6	Treatmet Chemicals	$407.22	$427.58	$448.96	$471.41	$494.98	$519.73	$545.72	$573.00	$601.65	$631.74	$663.32
7	Coliform Monitoring	$651.56	$684.14	$718.34	$754.26	$791.97	$831.57	$873.15	$916.81	$962.65	$1,010.78	$1,061.32
8	Chemical Monitoring	$651.56	$684.14	$718.34	$754.26	$791.97	$831.57	$873.15	$916.81	$962.65	$1,010.78	$1,061.32
9	Transporation	$81.44	$85.52	$89.79	$94.28	$99.00	$103.95	$109.14	$114.60	$120.33	$126.35	$132.66
10	Materials, Supplies and Parts	$488.67	$513.10	$538.76	$565.69	$593.98	$623.68	$654.86	$687.61	$721.99	$758.09	$795.99
11	Miscellaneous	$162.89	$171.03	$179.59	$188.56	$197.99	$207.89	$218.29	$229.20	$240.66	$252.70	$265.33
	Equipment Replacement List											
12a	Ultraviolet Lamp	$431.66	$453.24	$475.90	$499.70	$524.68	$550.92	$578.46	$607.38	$637.75	$669.64	$703.12
12b	Sediment Filter Cartridges	$24.43		$26.94		$29.70		$32.74		$36.10		$39.80
12c	Booster Pump Station, 2 HP, complete; Booster Pump Station Electrical Controls; Ultraviolet Ballast	$4,148.79					$5,295.03					$6,757.95
12d	Submersible Pump, 7.5 HP					$7,276.25						
12e	Pressure Tank; Master Meter, 2"; Sediment Filter Housing; Water Softener; Ultraviolet Water Purifier; Distribution Valve, 2"	$13,438.38										$21,889.71
12f	Air & Vacuum Relief Valve, Typical											$53.07
12	**Equipment Replacement Sub Total**	$18,043.27	$453.24	$502.84	$499.70	$7,830.63	$5,845.95	$611.20	$607.38	$673.85	$669.64	$29,443.64
13												
14	**Total Operations and Maintenance**	$47,185.82	$31,052.92	$32,632.51	$34,235.85	$43,253.59	$43,040.05	$39,665.01	$41,613.88	$43,730.68	$45,879.31	$76,913.79
15												
16	**General & Administrative**											
17	Engineering and Professional Services	$1,628.89	$1,710.34	$1,795.86	$1,885.65	$1,979.93	$2,078.93	$2,182.87	$2,292.02	$2,406.62	$2,526.95	$2,653.30
18	Depreciation and Amortization	$7,330.03	$7,696.53	$8,081.35	$8,485.42	$8,909.69	$9,355.18	$9,822.94	$10,314.08	$10,829.79	$11,371.28	$11,939.84
19	Insurance	$407.22	$427.58	$448.96	$471.41	$494.98	$519.73	$545.72	$573.00	$601.65	$631.74	$663.32
20												
21												
22	**Total General and Administrative**	$9,366.14	$9,834.45	$10,326.17	$10,842.48	$11,384.61	$11,953.84	$12,551.53	$13,179.11	$13,838.06	$14,529.96	$15,256.46
23												
24	**Total Annual Expense**	$56,551.96	$40,887.37	$42,958.68	$45,078.33	$54,638.19	$54,993.89	$52,216.54	$54,792.99	$57,568.74	$60,409.27	$92,170.26