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Water System Feasibility Study For a Regulated System

Anthem Winery P14-00320-MOD and Exception to Road and Street Standards,
Variance P14-00321-VAR and Viewshed, and
Agricultural Erosion Control Plan P14-00322-ECPA
Planning Commission Hearing Date (Wednesday, October 3, 2018)



Water System Feasibility Study for a Regulated System

**ANTHEM WINERY
NAPA COUNTY, CA**

APN 035-470-046

Prepared for:

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Project #4111010.0

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RECEIVED

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Napa County Planning, Building
& Environmental Services





TECHNICAL CAPACITY

System Description

The proposed Anthem Winery is located at 3454 Redwood Road, Napa. Existing wells on site will serve the proposed 50,000 gallon per year winery, existing dwellings and vineyard.

The proposed winery development will require the establishment of a Transient-Noncommunity water system. The consolidation of this project into an existing public water system has been investigated and no existing system within 3 miles of the Anthem Winery is willing to provide water service to the winery.

There are several wells on the parcel, two will provide water to the winery public water system which will include the domestic use within the winery. The other wells will be used for supplementary irrigation and process water. The two wells to be used for the public water system have a 50-ft annular seal of bentonite. No chemical or biological treatment will be performed on the well water unless quarterly testing results deem further treatment is necessary. Water for the Public Water System will be stored in a proposed +/- 10,000 gallon tank. Separate tanks will be installed for firewater, irrigation and other winery use. Separate pumps will supply the domestic water, irrigation water, fire water, and other winery water. See the Use Permit-Utility Plan for system layout.

Twenty-Year Evaluation of Projected Water Demand

Based on the Tier 1 Water Use Calculations, the annual public water demand (employees, visitors, and events) is 0.33 acre feet per year (110,000 gallons per year). The daily average public water demand is 300 gallons per day. Peak daily public water demand is estimated at 600 gallons per day, being 200% of average daily demand.

If the Winery seeks expansion in the future, thereby increasing the water demand on the public water system, the Winery will need to acquire a use permit modification and prove that increased capacity is available. It will not be permissible for future developments in the vicinity of this project to join this public water system without first justifying that the water supply is available to meet the demand.

Twenty-Year Evaluation of Water Supply Capacity

Additional non-public water demand for the site includes winery process water, landscape and vineyard irrigation, and existing non-project residential uses. The proposed non-public water use for the two parcels is 6.71 acre feet per year. Of this, 0.77 acre feet per year will be provided by reclaimed process wastewater, and an average of 1.55 acre feet per year will be provided by harvested rainwater. The total groundwater use for both parcels (public and non-public) is 4.72 acre feet per year.



As noted in the Tier 1 Water Use Calculations, non-project wells (1, 5, 4, and 7) will continue to produce at their current rate of 3.79 acre feet per year. The remaining 0.93 acre-feet per year (300,000 gallons per year) will be provided by the project wells (3, 6, and 8). The daily average demand on project wells is 830 gallons per day. Sufficient storage will be provided on site to mitigate peaking effects and allow for a constant 830 gallons per day demand on project wells.

The existing water source (project wells) is capable of supporting the proposed daily groundwater demand of 830 gal/day. Recommendation 5 of the Anthem Winery WAA Memo DRAFT 4-10-17 shows the capacity of project wells to be 2.5 gpm. When pumped on a 50% operational basis (pumping 12 hours per day), the daily project well yield is 1,800 gallons per day. This exceeds the daily demand on project wells.

$$2.5 \text{ gpm} * 720 \text{ min/ day} = 1,800 \text{ gal / day}$$
$$1,800 \text{ gal / day} \geq 821 \text{ gallons (peak daily total demand)}$$

Source Adequacy

The two wells have a 50-ft annular seal of Bentonite to comply with Napa County Code 13.12.380 as Class IA wells for a Public Water System. The Application and Permit to Construct a Water Well document outlines the well construction and inspection by the Department of Environmental Management. Application and Permit are on file at Napa County. The owner's well numbers for these wells are 3 and 8.

Water Quality

Water sampling will be conducted prior to operation of the system. Water quality is expected to meet or exceed all requirements of Chapter 15 of Title 22, California Code of Regulations (CCR).

CONSOLIDATION

An investigation of the adjacent Public Water Systems within 3 miles of the project has been performed using the map viewer provided on the California Environmental Health Tracking Program website. The only public water system found within 3 miles of the proposed winery is the City of Napa Community Water System. An Outside Water Service Application was submitted to the City of Napa and the request to connect was denied. Without the possibility of connection, the estimated cost of connection was not investigated.

MANAGERIAL

General

The owner of the water system will be the property owner of the parcel. The costs of operation will be covered in the winery operation costs. The owner will also hold the responsibility of water system manager for the property.



Operation and Maintenance

The following is a summary of the required Operations and Maintenance schedule:

Tasks	Frequency	Action
System Water Level	Daily	Visual Inspection
System Pressure and Conveyance	Daily	Visual Inspection
Water Tanks	Quarterly	Visual Inspection
Manually Operate Valves and Pumps	Quarterly	Operation
Water Quality Test & Reporting	Quarterly	Unit Samples Taken & Reported to Napa Co.

A certified distribution operator or treatment operator (T1 level or above) as specified by Chapter 13 of Title 22 CCR contracted by the owner will be responsible for system repairs.

Monitoring and Testing

Water quality testing will be conducted to comply with Chapter 15 of Title 22 of CCR. Samples will be taken to Caltest or approved laboratory for testing.

FINANCIAL

Below is a brief summary of the system's annual estimated financial capacity. Capital improvement costs and installation of the treatment and distribution systems, are estimated to be a one-time expense of \$50,000, amortized over 20 years.

Capital Improvements: \$2,500

Power: \$2,000

Maintenance: \$3,500

Water Quality Testing: \$1,500

Total: \$9,500

Projected Annual Gross Revenue: \$10,504,000 (Based on 21,008 cases at \$500/case)

Annual Operating Costs: \$8,403,200 (at 20% profit)

Percent of Total Operating Costs: 0.1%