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Water Availability Analysis & Water
System Feasibility Study for a Regulated
System



WATER AVAILABILITY ANALYSIS

MADONNA ESTATE WINERY
5400 OLD SONOMA ROAD
NAPA, CA 94559

APN 047-110-016

PROPERTY OWNER:

Madonna Estate Winery
5400 Old Sonoma Road
Napa, CA 94559

Project# 4119003.0
July 10, 2020





I. Executive Summary

Madonna Estate Winery (APN 047-110-016) proposes to increase visitation with no increase in production. Production of 50,000 gallons of wine per year is permitted under Use Permit 95203. There is one well on the 4.37-acre parcel. A groundwater recharge rate study was performed and the report is attached. A groundwater recharge rate of 0.65 af/yr/acre was found to give the 4.37 acre parcel a total groundwater recharge rate of 2.84 af/yr for the project parcel.

Below is a summary of the existing and proposed water use. Detailed calculations can be found on the next page.

Usage Type	Existing Usage [af/yr]	Proposed Usage [af/yr]
Vineyard		
Irrigation	0.48	0.48
Landscaping	0.25	0.25
Winery		
Process Water	0.77	0.77
Domestic Water	0.62	0.62
Totals (Acre-ft per Year)	2.11	2.11
Estimated Water Recharge Rate (Acre-ft per Year)	2.84	2.84

The proposed modifications for the Madonna Estate Winery project will result in no change to the use of groundwater for a total annual usage of 2.11 af/yr which is less than the estimated groundwater recharge rate for the parcel of 2.84 af/yr.



WATER SYSTEM FEASIBILITY STUDY FOR A REGULATED SYSTEM

For

MADONNA ESTATE WINERY
5400 OLD SONOMA ROAD
NAPA, CA 94559

APN: 047-110-016

Prepared for:

Madonna Estate Winery
5400 Old Sonoma Road
Napa, CA 94559

Project #4119003.0
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TECHNICAL CAPACITY

System Description

Madonna Estate Winery (APN 047-110-016) proposes to increase the number of employees and visitation. The winery will serve more than 25 people for at least 60 days of the year so the applicant will apply for a Transient-Noncommunity Water System Permit.

There is one well on the winery parcel which has a 58' seal and will be used for the public water system, winery process water, and supplementary landscape and vineyard irrigation. 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 ± 2,000-gallon tank.

Twenty-Year Evaluation of Projected Water Demand

Based on the Tier 1 Water Use Calculations, the annual domestic water demand for the winery (employees and visitors) is 0.62 acre-feet per year (202,000 gallons per year).

Source	Number of People/Day	Water Demand [af/yr]
Full-Time Employees	6	0.07
Part-Time Employees	7	0.05
Visitors	280	0.50
Total		0.62

The daily average public water demand is 553 gallons per day. Peak daily public water demand is estimated at 1,106 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 facility 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 parcel includes winery process water and water for landscape and vineyard irrigation. The proposed non-public well water demand is 1.47 acre-feet per year (1,312 gallons per day). Peak daily non-public water demand is estimated at 2,624 gallons per day, being 200% of average daily demand. The resulting peak public and non-public well water demand for the parcel is 3,730 gallons per day.

The existing water source is capable of supporting the proposed peak daily groundwater demand of 3,730 gal/day. The existing well has a capacity of 20 gpm based on information from the well log. When pumped on a 50% operational basis (pumping 12 hours per day), the daily project well yield is 14,400 gallons per day. This exceeds the peak daily demand on the well.

$$20 \text{ gpm} * 720 \text{ min/day} = 14,400 \text{ gal/day}$$

$$14,400 \text{ gal/day} \geq 3,730 \text{ gallons (peak daily total demand)}$$



Source Adequacy

The well has a 58 ft annular seal 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.

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. There are two Public Water Systems within 3 miles of Madonna Estate Winery, the City of Napa and the Carneros Inn. The City of Napa Policy Resolution No. 7 requires that City water service be for residential structures. Since Madonna Estate Winery is a commercial service, a connection is not permitted. Without the possibility of connection, the estimated cost of connection was not investigated. Our understanding is that the Carneros Inn is currently seeking additional water supplies to supplement groundwater so the Carneros Inn would be unable to provide sufficient groundwater to Madonna Estate Winery. A connection is not feasible so the cost of connection was not investigated.

MANAGERIAL

General

The owner of the water system will be the property owner. 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 an approved laboratory for testing.



FINANCIAL

Below is a brief summary of the system's annual estimated financial capacity based on winery revenue. Capital improvement costs and installation of the treatment and distribution systems, are estimated to be a one-time expense of \$10,000, amortized over 20 years.

Capital Improvements: \$500

Power: \$2,000

Maintenance: \$3,500

Water Quality Testing: \$5,000

Total: \$11,000

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

Annual Operating Costs: \$2,100,800 (at 20% profit)

Percent of Total Operating Costs: 0.5%