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Water Study

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WATER AVAILABILITY ANALYSIS

FOR THE

CANARD VINEYARD

PROJECT LOCATED AT

1016 DUNAWAEL LANE
CALISTOGA, CA 94515

COUNTY: NAPA
APN: 020-150-027

INITIAL SUBMITTAL: JULY 24, 2015

PREPARED FOR REVIEW BY:

NAPA COUNTY PLANNING, BUILDING,
AND ENVIRONMENTAL SERVICES
1195 THIRD STREET
NAPA, CA 94559

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I. BACKGROUND

This project is requesting a Use Permit to establish a new winery on a 24.68 acre parcel located at 1016 Dunawear Lane by owners and applicants Rich and Carolyn Czapleski. The winery will include conversion of the ground floor of the existing barn/office to a 925 square-foot winery, construction of a covered outdoor crush pad, uncovered pad for tank storage and loading/unloading of supplies and materials, and outdoor tasting area. Other improvements include widening of a gravel road, construction of 4 parking spaces including an accessible space, and construction of a fire pump house/trash enclosure.

This water availability analysis is prepared in accordance with the Water Availability Analysis (WAA) adopted in May 2015 by the County Board of Supervisors and provided by the County of Napa Planning Building, and Environmental Services Department.

Based on the WAA, all projects fall within three Tiers of screening when determining the level of analysis required by the County of Napa. See Table 1 from the WAA below:

Table 1: Project Screening Criteria Applicability

Tier	Criteria Type	Napa Valley Floor	MST	All Other Areas
1	Water Use	Yes	Yes	Yes
2	Well Interference	No ¹	No ¹	Yes
3	Groundwater/Surface Water Interaction	No ¹	No ¹	No ¹

1. Further analysis may be required under CEQA if substantial evidence, in the record, indicates a potentially significant impact may occur from the project.

The winery is located in the Napa Valley Floor, and the zoning of the parcel is AP. As such, this project is subject to the analysis required in Tier 1. Tier 2 and 3 are not expected to be required according to Table 1 above.



II. TIER 1 ANALYSIS

Tier 1 of the WAA requests the applicant estimate the proposed water usage for the project, and then compare the estimated parcel usage for the property to the applicable water use criteria. As noted in Table 2A of the WAA (referenced below), the water use criteria is subject to the parcel location.

Table 2A: Water Use Criteria

Project parcel location	Water Use Criteria (acre-feet per acre per year)
Napa Valley Floor	1.0
MST Groundwater Deficient Area	0.3 or no net increase, whichever is less ¹
All Other Areas	Parcel Specific ²
1. Does not apply to the Ministerial Exemption as outlined in the Groundwater Conservation Ordinance 2. Water use criteria for project shall be considered in relation to the average annual recharge available to project property, as calculated by the applicant or their consultant.	

As the project has been determined to be located in the Napa Valley Floor, the WAA requires the applicant to compare water usage to the allotted maximum of 1.0 acre-feet per acre per year. This analysis will identify the existing and proposed water usage for the property and compare it to the water use criteria of 1.0 acre-feet per acre per year.

A. Water Usage Guidelines

Appendix B of the WAA includes guidelines for determining the estimated water use for specified land uses. A summary of these guidelines, including the values applied in this report, are identified in the table below:

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Table 3: Water Use Guidelines per Appendix B of WAA

Use	Recommended Water Use Values	Applied Water Use Values	Unit
Residence	0.5 to 0.75	0.75	AF per Year
Winery			
Process Water	0.0215	0	AF per 1,000 gal Wine Produced per Year
Domestic Water	0.005	0	AF per 1,000 gal Wine Produced per Year
Employees	15	0	Gallons Per Shift
Tasting Room Visitation	3	0	Gallons Per Visitor
Events and Marketing	15	0	Gallons Per Visitor
Vineyards			
Irrigation Only	0.2 to 0.5	0	AF per Acre Planted per Year
Heat Protection	0.25	0	AF per Acre Planted per Year
Frost Protection	0.25	0	AF per Acre Planted per Year
Landscaping	-	0.07	AF per year for entire property*

*The only landscaping on the property is in and around the residence.

B. Existing Water Usage

The current property uses on the subject parcel include the following:

Table 4: Existing Property Uses

Use	Value	Unit
Residence(s)	1	Main Residence
Vineyards		
Acres Planted	~24	Acres*
Heat Protection	N/A	
Frost Protection	N/A	

* Vineyards have been dry-farmed since the 1980's, and have no associated water use.



Applying the water-usage values identified in Appendix B of the WAA to the existing uses of the parcel, the existing water usage of the parcel is estimated as follows:

Table 5: Existing Water Usage

Residence	0.75	AF per Year
Pool/Spa with cover	0.03	AF per Year
Landscaping	0.07	AF per Year
Vineyards		
Irrigation Only	0	AF per Year
Heat Protection	0	AF per Year
Frost Protection	0	AF per Year
Total Water Usage	0.850	AF per Year

The estimated existing water usage for the parcel utilizing Appendix B values is 0.850 acre-feet per year.

C. Proposed Water Usage

The proposed marketing plan for this Use Permit Application for Canard Vineyard is as follows:

Table 6: Proposed Property Uses

Use	Value	Unit
Residence	1	Main Residence
Winery		
Wine Produced	10	Thousand Gallons per Year
Employees (Full + Part Time)	3 Full, 1 Part	Employee Shifts per Day
Employees (Full + Part Time)	840	Employee Shifts per Year*
Visitors	6	Visitors Per Day (avg)
Visitors	2190	Visitors Per Year**
Event Visitors	500	Visitors Per Year
Vineyards		
Acres Planted	~24	Acres
Heat Protection	N/A	
Frost Protection	N/A	

* Estimated using 5-day work weeks

** Conservatively estimated based on average visitation 7 days per week

The goal of the proposed Use Permit Application is to obtain permits for 10,000 gallons of annual wine production, visitation of 6 average (and up to 10 maximum) visitors on-site per day, and a handful of small marketing events. No additional vineyards will be planted in association with this Use Permit Application.

To limit the water usage with the proposed marketing plan, the owner has agreed for the following limitations to be placed on the proposed Use Permit:

- Wine club/release events and large auction-related events shall be catered and use portable toilets.



See Table 7 below for a summary of the proposed water usage.

Table 7: Proposed Water Usage

Residence	0.750	AF per Year
Pool/Spa with cover	0.030	AF per Year
Landscaping	0.070	AF per Year
Winery		
Process Water	0.215	AF per Year
Domestic Water + Landscaping	0.050	AF per Year
Employees	0.039	AF per Year
Visitors	0.020	AF per Year
Event Visitors per Year	0.023	AF per Year
Vineyards		
Irrigation Only	0	AF per Year
Heat Protection	0	AF per Year
Frost Protection	0	AF per Year
Total Water Usage	1.197	AF per Year

The estimated water use for the proposed marketing plan, using the values as identified in Appendix B of the WAA, is 1.197 acre-feet per year. This is an increase from the existing estimated water usage by 0.347 acre-feet of water per year (89,277 gallons per year). See Table 8 below:

Table 8: Proposed Increase in Water Usage

Existing Water Usage	0.85	AF per Year
Proposed Water Usage	1.197	AF per Year
Expected Water Usage Increase	0.347	AF per Year

D. Water Usage Summary

The Canard Vineyard parcel is approximately 24.69 acres in size. Due to the parcel's location in the Napa Valley Floor, the historical assumption of maximum water availability is 1.0 acre-feet per acre per year. This translates to a recommended maximum annual usage of ~24.69 acre-feet for the Canard Vineyard parcel. Water usage beyond this amount is assumed to be detrimental to available groundwater in the vicinity of the parcel.

As noted above, the total proposed water use for all existing activities and all uses requested in this Use Permit is 1.197 acre-feet per year. This is less than 5% of the recommended maximum annual usage for the parcel.



III. REPORT CONCLUSION

Based on the analysis completed in this report, the proposed winery development meets Tier 1 Criteria, uses 95% less water than the allotted 1.0 acre-feet per acre per year, and is therefore in compliance with the requirements of the Water Availability Analysis.

IV. APPENDIX

A. Detailed Water Use Calculations

Project: 0118
Canard Vineyard

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APPENDIX A

Detailed Water Use Calculations



Canard Vineyard
Existing Pool Evaporation Analysis

Water Usage Due to Evaporation

	Information Source	Location
Rainfall	California Department of Water Resources	Calistoga
Pan Evaporation	Western Regional Climate Center	Warm Springs Dam, CA
Temperatures	California Department of Water Resources	Healdsburg, CA

Month	Precipitation		Evaporation		Average Temperatures		Month
	Avg Rainfall (in)	10-Year Rainfall ^a (in)	PAN Evaporation (in)	Lake Evaporation ^b (in)	High (°F)	Low (°F)	
Jan	7.88	11.03	1.17	0.90	58.0	37.8	Jan
Feb	6.55	9.17	1.83	1.41	62.5	40.3	Feb
Mar	5.10	7.14	3.23	2.49	66.3	41.8	Mar
Apr	2.37	3.32	5.37	4.13	73.0	44.2	Apr
May	1.00	1.40	7.83	6.03	79.2	48.0	May
Jun	0.25	0.35	9.33	7.18	85.5	52.1	Jun
Jul	0.05	0.07	10.04	7.73	89.3	53.9	Jul
Aug	0.10	0.14	8.49	6.54	88.3	53.6	Aug
Sep	0.38	0.53	6.58	5.07	85.6	51.6	Sep
Oct	2.14	3.00	4.59	3.53	77.7	47.2	Oct
Nov	4.60	6.44	2.10	1.62	65.1	41.6	Nov
Dec	7.44	10.42	1.17	0.90	58.4	36.7	Dec
	37.86	53.00	61.73	47.53	89.3	36.7	

←Max/Min Temp (°F)
←Max/Min Month

Residential Pool Water Usage sf

	Pool Area (sf)	Annual Evaporation (ft)	Annual Precipitation (ft)	Total Annual Water Loss (cf)	Total Annual Water Loss (gal)	Total Daily Water Loss (gal)	Total Annual Loss (acre-ft)
Existing Pool	625	5.14	3.16	1,243	9,299	25.48	0.03
Total	625	5.14	3.16	1,243	9,299	25.48	0.03

Canard Vineyard
Existing Landscaping Water Usage Analysis

PROPOSED WATER USAGE ANALYSIS

Landscaping Watering Requirements

	Jun - Sep	Mar - May, Oct	Nov - Feb
Irrigation Days/Wk	7	2	0
Hours/Irrigation Day	0.5	0.5	0.5
Irrigation hours/month	15	4	0
Irrigation hours (annual total)	78 hrs		
Emitter Spacing	3 ft		
Emitter Lateral Influence	2.5 ft		
Area per Emitter	7.5 sf		
Emitter Flow Rate (gph)	0.5 gph		

Calculations - Landscaping Areas

	Area (sf)	Area with Drip Irrigation (sf)	Number of Drip Emitters	Irrigation Hours (annual total)	Total Daily Flow (gpd)	Total Annual Flow (gal)
Parcel Landscaping	4,500	4,500	600	78.0	64.1	23,398
					Acre-ft-->	0.07

