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Water Availability Analysis & HMMWC Water Service Letter

Bremer Family Winery (P22-00086)
Planning Commission Hearing – July 1, 2026

WATER AVAILABILITY ANALYSIS

BREMER FAMILY WINERY
975 DEER PARK ROAD
ST. HELENA, CA

APN 021-400-002 AND 021-420-027

Property Owner:

John and Laura Bremer
975 Deer Park Road
St. Helena, CA 94574

Project # 4119005.0
July 12, 2024

1515 Fourth Street, Napa, CA 94559 www.rsacivil.com 707.252.3301.v 707.252.4966.f

I. Executive Summary

The Bremer Winery is applying for a Use Permit Modification to:

(1) Increase production from 15,000 gallons per year to 50,000 gallons per year;

(2) Increase the annual number of visitors from 3,600 persons to 12,500 persons, with no change to the daily maximum of 70 visitors;

(3) Increase marketing events to two (2) annual events with 100 guests, three (3) annual events with 50 guests, and two (2) annual events with 25 guests. Daily visitors on event days as below:

   i. On 100 guest event days, 25 daily visitors.

   ii. On 50 guest event days, 20 daily visitors.

   iii. On 25 guest event days, 45 daily visitors.

   iv. During production in the barrel room, there will be no visitation or events in the barrel room.

(4) Increase staff from four (4) full-time and two (2) part-time, to eight (8) full-time and two (2) part time employees.

(5) Allow on-site consumption pursuant to AB 2004

(6) i. To improve safety, an additional driveway connection and 9 new parking stalls

   ii. To utilize state-of-the-art environmental processes, replace existing conventional commingled wastewater system with separate and domestic wastewater treatment systems.

There are no other proposed modifications or construction.

This report demonstrates that the existing water system is clearly capable of providing the required water per year.

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 – Well	2.73	2.34*
Landscaping	2.80	2.80
Total Well Use	**5.53**	**5.14**
Winery		
Process Water	0.23	0.77
Domestic Water	0.11	0.25
Residential	0.36	0.36
Total Domestic and Process Water Use (From Howell Mountain Mutual Water Company)	**0.70**	**1.38**
Totals (Acre-ft per Year)	**6.23**	**6.52**
Estimated Water Recharge Rate (Acre-ft per Year)	**23.75**	**23.75**

*0.35 af/yr of treated process wastewater will be used for vineyard irrigation

The winery uses water from Howell Mountain Mutual Water Company for process and domestic water. The residences also use water from Howell Mountain Mutual Water Company. Well water is used for vineyard and landscape irrigation. The well is located on APN 021-400-005. There is an existing water supply line from this parcel per an Erosion Control Plan (Trenching Plan) approved by County of Napa on April 10, 2013, in addition to Department of Public Works Encroachment Permit #10273. The Erosion Control Plan Permit number is P11-00317.

The proposed modifications for the Bremer Family Winery project will result in a reduction in the annual use of groundwater from the well of 0.39 af/yr (5.53 af/yr to 5.14 ac/yr). The annual usage of water from Howell Mountain Mutual Water Company will increase by 0.68 af/yr (0.70 af/yr to 1.38 af/yr).

Total water usage will increase slightly by 0.29 af/yr (6.23 af/yr to 6.52 af/yr). Total Water Use of 6.52 af/yr is significantly less than the estimated groundwater recharge rate for the parcel of 23.75 af/yr.

II. Groundwater Use Calculation

Existing Residential Water Demand				
Farm House Residence – (80 gallons/bedroom x	3	bedrooms) =	0.27	af/yr
Second Dwelling Unit – (80 gallons/bedroom x	1	bedrooms) =	0.09	af/yr
Existing Vineyard Irrigation and Landscaping Water Demand				
Vineyard – Irrigation from well – (0.67 af/ac-yr x	4.07	acres vineyard) =	2.73	af/yr
Landscape – Irrigation from well – (2.95 af/ac-yr x	0.95	acres landscape) =	2.80	af/yr
Existing Winery Process Water Demand				
Process Water – (5-gal water / 1 gallon wine x	15,000	gal wine/year) =	0.23	af/yr
Existing Winery Domestic Water Demand				
FT Employees – (15 gal/person/day x 260 days/yr x	4	employees/day)	0.05	af/yr
PT Employees – (15 gal/person/day x 260 days/yr x	2	employees/day)	0.02	af/yr
Average Visitors – (3 gal/person/day x 52 weeks/yr x	3,600	visitors/year) =	0.03	af/yr
Marketing Events – (25 visitors @ 10 gal/guest x	6	days/yr) =	0.00	af/yr
		Total =	0.11	af/yr
Total Existing Water Demand		**Total =**	**6.23**	**af/yr**
Proposed Residential Water Demand				
Farm House Residence – (80 gallons/bedroom x	3	bedrooms) =	0.27	af/yr
Second Dwelling Unit – (80 gallons/bedroom x	1	bedrooms) =	0.09	af/yr
Proposed Vineyard Irrigation and Landscaping Water Demand				
Vineyard – Irrigation from well – (0.67 af/ac-yr x	4.01	acres vineyard)	2.69	af/yr
Vineyard – Irrigation from treated PWW			-0.35	af/yr
Landscape – (no change from existing) =			2.80	af/yr
Proposed Winery Process Water Demand				
Process Water – (5-gal water / 1 gallon wine x	50,000	gal wine/year) =	0.77	af/yr
Proposed Winery Domestic Water Demand				
FT Employees – (15 gal/person/day x 260 days/yr x	8	employees/day)	0.10	af/yr
PT Employees – (15 gal/person/day x 260 days/yr x	2	employees/day)	0.02	af/yr
Average Visitors – (3 gal/person/day x 52 weeks/yr x	12,500	visitors/year) =	0.12	af/yr
Marketing Events – (100 visitors @ 10 gal/guest x	2	days/yr) =	0.01	af/yr
Marketing Events – (50 visitors @ 10 gal/guest x	3	days/yr) =	0.00	af/yr
Marketing Events – (25 visitors @ 10 gal/guest x	2	days/yr) =	0.00	af/yr
		Total =	0.25	af/yr
Total Proposed Water Demand		**Total =**	**6.52**	**af/yr**

ANNUAL GROUNDWATER RECHARGE RATE

BREMER FAMILY WINERY
975 DEER PARK ROAD
ST. HELENA, CA

APN 021-400-002 AND 021-420-027

Prepared for:

John and Laura Bremer
975 Deer Park Road
St. Helena, CA 94574

Project # 4119005.0
July 12, 2024

1515 Fourth Street, Napa, CA 94559 www.rsacivil.com 707.252.3301.v 707.252.4966.f

INTRODUCTION

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   ii. To utilize state-of-the-art environmental processes, replace existing conventional commingled wastewater system with separate and domestic wastewater treatment systems.

There are no other proposed modifications or construction.

This report determines the annual groundwater recharge rate for the Bremer Family Winery property. The existing winery is located on APN: 021-400-002 and 021-420-027 (legally one parcel). This parcel has an area of ± 44.58 acres. The parcel has slopes ranging from 1-30%.

For the analysis, the parcel has been divided into four (4) areas, impervious, vineyard, grassland, and coastal oak tree areas.

METHODOLOGY

The groundwater recharge rate has been determined by examining the annual rainfall, runoff and species-specific evapotranspiration during winter months. The 10-year average rainfall PRISM data DEM provided by Napa County was used to determine the annual rainfall amount and site runoff volumes. It was determined that the average annual rainfall amounts to 32.68 inches (32.68”) per year.

The runoff volumes were determined by calculating the site-specific runoff coefficient. The runoff coefficients were calculated using aerial images to view the terrain and the county topography to estimate the slopes in each area.

The evapotranspiration losses were calculated using the Water Use Classifications of Landscape Species (WUCOLS) methodology for the vineyard, grassland, and coastal oak tree areas. Only evapotranspiration from the winter was considered, as it is assumed that evapotranspiration in summer will be from irrigation water.

The groundwater recharge rate was calculated as the difference of the total annual rainfall and losses from the stormwater runoff and evapotranspiration. Refer to attached calculations.

Average Recharge Rate = Average Rainfall - Runoff – Evapotranspiration

CONCLUSION

The Bremer Family Winery property has an annual rainfall of 32.68 inches (32.68”) per year, equating to 121.41 acre-feet per year for the parcel.

Total evapotranspiration volume that occurs through the vineyard, grassland, and oak tree areas is 20.64 acre-feet per year. The stormwater runoff from the parcel totals 77.02 acre-feet per year. The total average evapotranspiration and runoff is 97.66 acre-feet per year. This equates to a groundwater recharge rate of 23.75 acre-feet per year, or 0.53 acre-feet per acre per year.

ATTACHMENT 1

Groundwater Recharge Rate

Bremer Family Winery

Groundwater Recharge Rate

Parcel 021-400-002 and 021-420-027

Site Description	Hydrologic Soil Group	Area (ft^2)	Area (ac)	Total Annual Rainfall (in/yr)	Total Rainfall (ft^3/yr)
Impervious Area	A	81,620	1.87	32.68	222,278
Vineyard Area	A	187,040	4.29	32.68	509,372
Grass and Shrubs	A	669,840	15.38	32.68	1,824,198
Coastal Oak Trees	*	1,003,500	23.04	32.68	2,732,865
Total			**44.58**	**32.68**	**5,288,713**

* = undefined soil group

Evapotranspiration (ET_0)										
Site	January (Et_o) (in)	February (Et_o) (in)	March (Et_o) (in)	October (Et_o) (in)	November (Et_o) (in)	December (Et_o) (in)	Total ET_o (in)	Landscape Coefficient (k_c)	Landscape Evapotrans. (Et_c) (in) = Total Et_o x k_c	Total Landscape Evapotranspiration (ft^3/yr)
Impervious Area	0	0	0	0	0	0	0	0	0.00	0
Vineyard Area	1.03	1.53	2.93	3.53	1.64	1.17	11.83	0.08	0.95	14,751
Grass and Shrubs	1.03	1.53	2.93	3.53	1.64	1.17	11.83	0.68	8.04	449,038
Coastal Oak Trees	1.03	1.53	2.93	3.53	1.64	1.17	11.83	0.44	5.21	435,285
Total										**899,074**

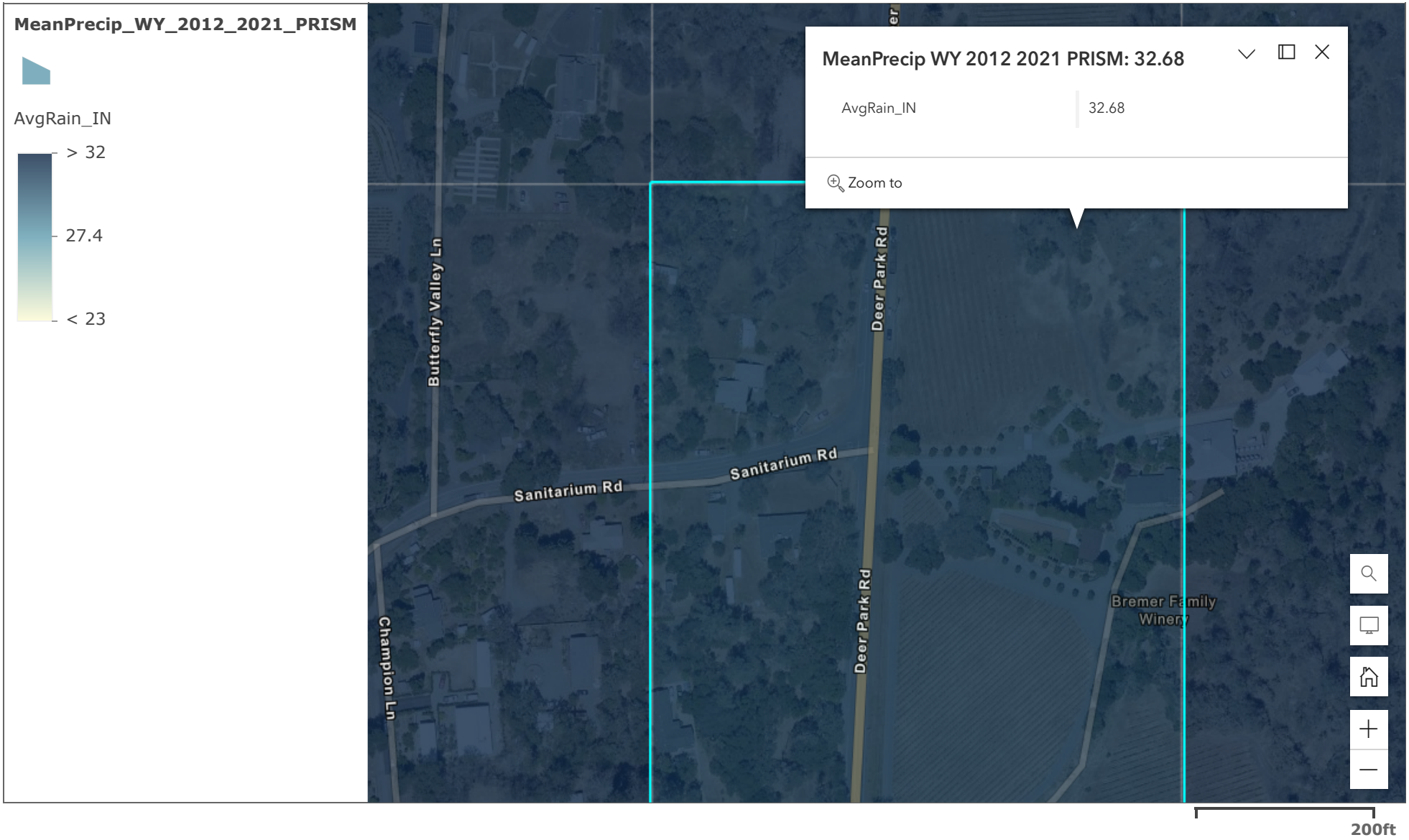
Runoff		
Site	Run-Off Coefficient (C)	Total Runoff (ft^3/yr)
Impervious Area	0.90	200,051
Vineyard Area	0.54	275,061
Grass and Shrubs	0.50	912,099
Coastal Oak Trees	0.72	1,967,663
Total		**3,354,873**

Groundwater Recharge Rate						
Site	Total Rainfall (ft^3/yr)	Total Crop Evapotranspiration (ft^3/yr)	Total Runoff (ft^3/yr)	Total Stormwater loss on site (ft^3/yr)	Groundwater Recharge Rate (ft^3/yr)	Groundwater Recharge Rate (ac-ft/ac/yr)
Impervious Area	222,278	0	200,051	200,051	22,228	0.27
Vineyard Area	509,372	14,751	275,061	289,812	219,560	1.17
Grass and Shrubs	1,824,198	449,038	912,099	1,361,137	463,060	0.69
Coastal Oak Trees	2,732,865	435,285	1,967,663	2,402,948	329,917	0.33
Total	**5,288,713**	**899,074**	**3,354,873**	**4,253,948**	**1,034,766**	**0.53**

ATTACHMENT 2

Napa County 10 Year PRISM Map

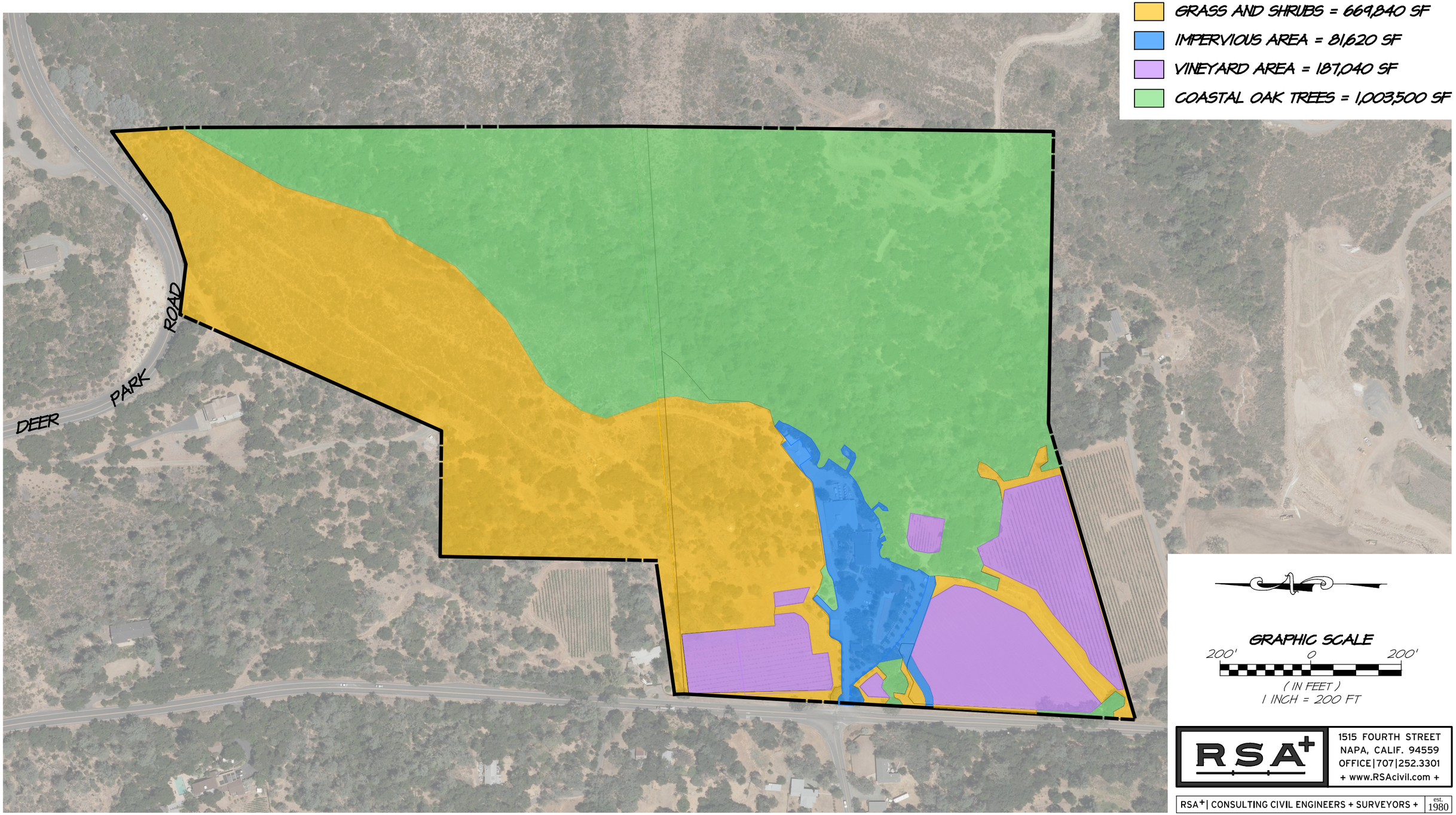
My Map



ATTACHMENT 3

Exhibit: Groundwater Recharge

BREMER FAMILY WINERY
GROUNDWATER RECHARGE EXHIBIT
NAPA COUNTY CALIFORNIA



LEGEND

- GRASS AND SHRUBS = 669,840 SF
- IMPERVIOUS AREA = 81,620 SF
- VINEYARD AREA = 187,040 SF
- COASTAL OAK TREES = 1,003,500 SF

GRAPHIC SCALE

200' 0 200'

(IN FEET)
1 INCH = 200 FT

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ATTACHMENT 4

Hydrological Soil Group

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Napa County, California

Bremer Family Winery

June 8, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group (Bremer Family Winery)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

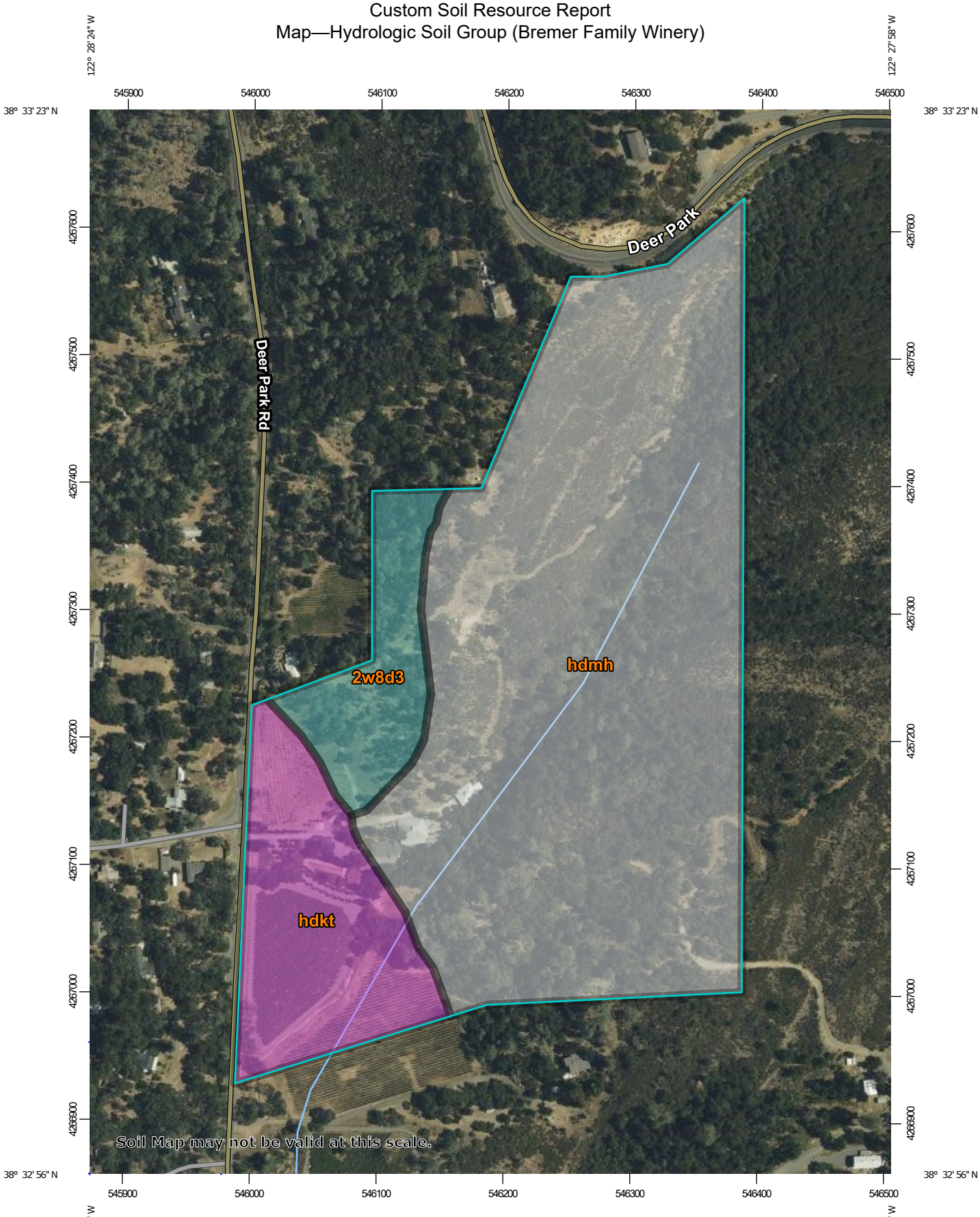
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report
Map—Hydrologic Soil Group (Bremer Family Winery)



Map Scale: 1:4,070 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Napa County, California
Survey Area Data: Version 13, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 2, 2019—Jul 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (Bremer Family Winery)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
2w8d3	Boomer gravelly loam, volcanic bedrock, 14 to 60 percent slopes, MLRA 15	C	3.8	8.5%
hdkt	Cortina very stony loam, 0 to 5 percent slopes	A	7.2	16.1%
hdmh	Rock outcrop-Kidd complex, 50 to 75 percent slopes		33.6	75.4%
Totals for Area of Interest			**44.5**	**100.0%**

Rating Options—Hydrologic Soil Group (Bremer Family Winery)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

ATTACHMENT 5

Coastal Oak ETo with Weighted Average

TABLE 1. Crop coefficients used in daily modeling of soil water processes in vineyards, oak trees and grasslands

Vineyards		Oak trees		Grasslands	
Period	K_c	Period	K_c	Period	K_c
3/1–4/15	0.10	3/1–3/31	0.5	3/1–3/15	0.90
4/16–4/30	0.20	4/1–10/1	0.6	3/16–4/30	0.95
5/1–5/15	0.25	10/2–11/25	0.5	5/1–5/15	0.25
5/16–5/31	0.30	11/26–2/28	0.4	5/16–6/15*	0.10
6/1–6/15	0.35			6/16*–10/13	0.00
6/16–6/30	0.40			10/14–10/31	0.25
7/1–9/30	0.50			11/1–2/28	0.75
10/1–10/15	0.30				
10/16–10/31	0.20				
11/1–11/15	0.15				
11/16–11/30	0.05				
12/1–2/28	0.01				

Sources: Allen et al. 1998 (grasses and trees); Caprile 2007 (vineyards).

* Variable date depending on available soil moisture.

Oak Trees - weighted average for October to March

Time Period	# of Days	K_C	Days * K^C	
3/1-3/31	31	0.5	15.5	
10/01	1	0.6	0.6	Weighted Kc=
10/2-11/25	55	0.5	27	80.7/182 = 0.44
11/26-2/28	95	0.4	37.6	
Totals=	182		80.7	

Vineyard - weighted average for October to March

Time Period	# of Days	K_C	Days * K^C	
3/1-4/15	31	0.1	3.1	
10/1-10/15	15	0.3	4.5	
10/16-10/31	16	0.2	3.2	
11/1-11/15	15	0.15	2.25	Weighted Kc=
11/16-11/30	15	0.05	0.75	14.7/182 = 0.08
12/1-2/28	90	0.01	0.9	
Total=	182		14.7	

Grasslands - weighted average for October to March

Time Period	# of Days	K_C	Days * K^C	
3/1-3/15	15	0.9	13.5	
3/16-3/31	16	0.95	15.2	Weighted Kc=
10/1-10/13	13	0.00	0.00	123.2/182 = 0.68
10/14-10/31	18	0.25	4.5	
11/1-2/28	120	0.75	90	
Totals=	182		123.2	

ATTACHMENT 6

Runoff Factor

Grass & Shrubs

WATERSHED TYPES AND FACTORS

RUN-OFF PRODUCING CHARACTERISTICS OF WATERSHEDS SHOWING FACTORS FOR EACH CHARACTERISTIC FOR VARIOUS WATERSHED TYPES				
WATERSHED TYPES AND FACTORS				
Run-off Producing Features	**Extreme**	**High**	**Normal**	**Low**
Relief	**0.28 – 0.38** Steep, rugged terrain, with average slopes above 30%	0.20 **0.20 – 0.28** Rolling, with average slopes of 10 to 30%	**0.14 – 0.20** Rolling, with average slopes of 5 to 10%	**0.08 – 0.14** Relatively flat land, with average slopes of 0 to 5%
Soil Infiltration	**0.12 – 0.16** No effective soil cover either rock or thin soil mantle of negligible infiltration capacity.	0.12 **0.08 – 0.12** Slow to take up water; clay or shallow loam soils of low infiltration capacity imperfectly or poorly drained.	**0.06 – 0.08** Normal; well drained light and medium textured soils sandy loams, silt, and silt loams.	**0.04 – 0.06** Slow to take up water; clay or shallow loam soils of low infiltration capacity imperfectly or poorly drained.
Vegetation Cover	**0.12 – 0.16** No effective plant cover; bare or very sparse cover.	**0.08 – 0.12** Poor to fair; clean cultivation crops or poor natural cover; less than 20% of drainage area under good cover.	**0.06 – 0.08** Fair to good; about 50% of area in good grassland or woodland; not more than 50% of area in cultivated crops.	0.06 **0.04 – 0.06** Good to excellent; about 90% of drainage area in good grassland, woodland, or equivalent crop.
Surface	0.12 **0.10 – 0.12** Negligible; surface depressions, few and shallow; drainage ways steep and small; no marshes.	**0.08 – 0.10** Low well-defined system of small drainage ways; no ponds or marsh.	**0.06 – 0.08** Normal; considerable surface depression storage; lakes, ponds, and marshes.	**0.04 – 0.06** High; surface storage high; drainage system not sharply defined; large floodplain storage or large number of ponds or marshes.

THE RUNOFF FACTOR IS DETERMINED BY THE SUM OF THE FACTORS FOR RELIEF INFILTRATION, COVER, AND SURFACE. NOT APPLICABLE TO BUILT UP AREAS.

FIGURE 3

Sum = 0.20 + 0.12 + 0.06 + 0.12 = 0.50

Coastal Oak Trees

WATERSHED TYPES AND FACTORS

RUN-OFF PRODUCING CHARACTERISTICS OF WATERSHEDS SHOWING FACTORS FOR EACH CHARACTERISTIC FOR VARIOUS WATERSHED TYPES				
WATERSHED TYPES AND FACTORS				
Run-off Producing Features	**Extreme**	**High**	**Normal**	**Low**
Relief	0.38 **0.28 – 0.38** Steep, rugged terrain, with average slopes above 30%	**0.20 – 0.28** Rolling, with average slopes of 10 to 30%	**0.14 – 0.20** Rolling, with average slopes of 5 to 10%	**0.08 – 0.14** Relatively flat land, with average slopes of 0 to 5%
Soil Infiltration	0.16 **0.12 – 0.16** No effective soil cover either rock or thin soil mantle of negligible infiltration capacity.	**0.08 – 0.12** Slow to take up water; clay or shallow loam soils of low infiltration capacity imperfectly or poorly drained.	**0.06 – 0.08** Normal; well drained light and medium textured soils sandy loams, silt, and silt loams.	**0.04 – 0.06** Slow to take up water; clay or shallow loam soils of low infiltration capacity imperfectly or poorly drained.
Vegetation Cover	**0.12 – 0.16** No effective plant cover; bare or very sparse cover.	**0.08 – 0.12** Poor to fair; clean cultivation crops or poor natural cover; less than 20% of drainage area under good cover.	**0.06 – 0.08** Fair to good; about 50% of area in good grassland or woodland; not more than 50% of area in cultivated crops.	0.06 **0.04 – 0.06** Good to excellent; about 90% of drainage area in good grassland, woodland, or equivalent crop.
Surface	0.12 **0.10 – 0.12** Negligible; surface depressions, few and shallow; drainage ways steep and small; no marshes.	**0.08 – 0.10** Low well-defined system of small drainage ways; no ponds or marsh.	**0.06 – 0.08** Normal; considerable surface depression storage; lakes, ponds, and marshes.	**0.04 – 0.06** High; surface storage high; drainage system not sharply defined; large floodplain storage or large number of ponds or marshes.

THE RUNOFF FACTOR IS DETERMINED BY THE SUM OF THE FACTORS FOR RELIEF INFILTRATION, COVER, AND SURFACE. NOT APPLICABLE TO BUILT UP AREAS.

FIGURE 3

Sum = 0.38 + 0.16 + 0.06 + 0.12 = 0.72

Vineyard Area

WATERSHED TYPES AND FACTORS

RUN-OFF PRODUCING CHARACTERISTICS OF WATERSHEDS SHOWING FACTORS FOR EACH CHARACTERISTIC FOR VARIOUS WATERSHED TYPES				
WATERSHED TYPES AND FACTORS				
Run-off Producing Features	**Extreme**	**High**	**Normal**	**Low**
Relief	**0.28 – 0.38** Steep, rugged terrain, with average slopes above 30%	**0.20 – 0.28** Rolling, with average slopes of 10 to 30%	**0.14 – 0.20** Rolling, with average slopes of 5 to 10%	0.14 **0.08 – 0.14** Relatively flat land, with average slopes of 0 to 5%
Soil Infiltration	0.16 **0.12 – 0.16** No effective soil cover either rock or thin soil mantle of negligible infiltration capacity.	**0.08 – 0.12** Slow to take up water; clay or shallow loam soils of low infiltration capacity imperfectly or poorly drained.	**0.06 – 0.08** Normal; well drained light and medium textured soils sandy loams, silt, and silt loams.	**0.04 – 0.06** Slow to take up water; clay or shallow loam soils of low infiltration capacity imperfectly or poorly drained.
Vegetation Cover	**0.12 – 0.16** No effective plant cover; bare or very sparse cover.	0.12 **0.08 – 0.12** Poor to fair; clean cultivation crops or poor natural cover; less than 20% of drainage area under good cover.	**0.06 – 0.08** Fair to good; about 50% of area in good grassland or woodland; not more than 50% of area in cultivated crops.	**0.04 – 0.06** Good to excellent; about 90% of drainage area in good grassland, woodland, or equivalent crop.
Surface	0.12 **0.10 – 0.12** Negligible; surface depressions, few and shallow; drainage ways steep and small; no marshes.	**0.08 – 0.10** Low well-defined system of small drainage ways; no ponds or marsh.	**0.06 – 0.08** Normal; considerable surface depression storage; lakes, ponds, and marshes.	**0.04 – 0.06** High; surface storage high; drainage system not sharply defined; large floodplain storage or large number of ponds or marshes.

THE RUNOFF FACTOR IS DETERMINED BY THE SUM OF THE FACTORS FOR RELIEF INFILTRATION, COVER, AND SURFACE. NOT APPLICABLE TO BUILT UP AREAS.

FIGURE 3

Sum = 0.14 + 0.16 + 0.12 + 0.12 = 0.54

Howell Mountain Mutual Water Co.

www.hmmwco.com

AGREEMENT FOR WATER SERVICE

This Agreement is by and between Howell Mountain Mutual Water Company, Inc., a California non-profit mutual benefit corporation ("Seller"), and

BREMER FAMILY WINERY
User name (Please complete the back of this form) ("User").

Seller shall sell and deliver to User, and User shall purchase all of the water which User may need at the location described as

975 DEER PARK RD, SAINT HELENA, CA 94574
Location Address

and by this reference made part hereof. Seller shall not, however, be obligated to sell or deliver water to User which is substantially disproportionate to User's prior water usage. Water service shall be provided upon the following terms:

1. Payment.

A. User shall pay Seller for service hereunder at the rates and upon the terms and conditions set forth in HMMWC's "Water Rate Plan and Company Policies for Users."

B. The initial billing period shall start when HMMWC begins providing water service to the customer.

C. Bills for service should be mailed to Howell Mountain Mutual Water Company, Inc., PO Box 9, Angwin CA 94508, or PUC Bookstore located in the Angwin Plaza in Angwin, County of Napa, State of California. Such payment shall be due on the 1st day of each month for the service furnished during the preceding monthly billing period.

If User shall fail to make any such payment within thirty (30) days after such payment is due, Seller may discontinuance service to User upon giving fifteen (15) days' written notice to User of its intention to do so; provided, however, that such discontinuance of service shall not relieve User of any of its obligations under this Agreement; and Seller may have a lien placed on the property to which the water is delivered and notice of such lien may be recorded by Seller's manager with the County Recorder.

D. User agrees that if, at any time, the rate under which Seller supplies water services is modified, Seller may make a corresponding modification in the rate for service hereunder.

2. Continuity of Service; Liability Limitation.
Seller shall use reasonable diligence to provide a constant and uninterrupted supply of water hereunder. If the supply of water shall fail or be interrupted or become defective through act of God, governmental authority, action of the elements, accident, strikes, required maintenance work or any other cause beyond the reasonable control of Seller, Seller shall not be liable therefore or for damages caused thereby. In any event, the extent of Seller's liability for any interruption in the supply of water to User shall be limited to not more than $10,000 or actual damages incurred by User, which ever is less, regardless of the cause or extent of User's damage.

3. Right of Access.
Duly authorized representatives of Seller shall be permitted to enter User's premises for access to Seller's water lines and meter at all reasonable times in order to carry out the provisions hereof.

4. Term.
This Agreement shall become effective on the date of execution hereof by each party hereto and shall remain in effect until terminated by either party giving to the other thirty (30) day's notice in writing.

5. Attorney's Fees.
Should a dispute arise between the parties with respect to this Agreement or the rights and duties provided for herein, the prevailing party in such dispute shall be entitled to recover its attorneys' fees and costs incurred in connections therewith.

6. Succession.
This Agreement shall be binding upon and inure to the benefit of the successors, legal representatives and assigns of the respective parties.

USER

Signature: X _____ **Dated:** 7.19.17
User/Customer

Name: JOHN BREWER

Cell Phone: —

WORK ~~Home~~ **Phone:** (707) 963-5411 (WINERY)

Mailing Address: 10490 DAWSON CANYON RD.
CORONA, CA 92883 (951) 638-1000 x324 MAIN OFFICE

Accepted By: _____
Howell Mountain Mutual Water Company
Shannon Damonte

Howell Mountain Mutual Water Company

July 18, 2017

Ms. Emily Hedge, Planner II
Planning, Building & Environmental Services County of Napa
1195 Third Street, Suite 210
Napa, CA 94559

Dear Ms. Hedge:

This letter is to confirm that Howell Mountain Mutual Water Company, Inc. has been providing water service to Bremer Group, LLC at 975 Deer Park Road, Deer Park CA 94576, since 2004. We intend to continue to provide service to this customer at this property. Please contact me at (707)965-2205 if you have any questions or concerns.

Thank you,

Shannon Damonte
Office Manager

Phone (707) 965-2205 P.O. Box 9, Angwin CA 94508 Fax (707) 965-2655