CMP Civil Engineering & Land Surveying Inc.
1607 Capell Valley Road
Napa, CA 94558
(707) 266-2559
Cameron@CMPEngineering.com
CMPEngineering.com

Water Availability Analysis Report

for the

Hendry Winery

3104 Redwood Road

Napa, CA 94558

APN: 035-120-031

Prepared By:

CMP Civil Engineering & Land Surveying Inc.
1607 Capell Valley Road
Napa, CA 94558
(707) 266-2559

Date: 6/21/2017
Rev1: 11/20/2017
Rev2: 9/19/2019
Rev3: 9/20/2022
Rev 4: 12/20/2022
Rev 5: 10/12/2023
Rev 6: 6/24/2024

Project # 00067

Table of Contents

Contact Information	
Property Owner:	George Hendry
Owner Address:	3104 Redwood Road Napa, CA 94558
Owner Phone:	(707) 266-2130

Site Map:

Please refer to the Use Permit Site Plan for the Hendry Winery and the Well Location Map for the Hendry Winery which is attached to this report. The Well Location Map shows the existing water source (existing well) and the proposed well location for the winery and their proximity to other water sources.

Narrative:

This project involves an existing winery located on one parcel totaling 59.00 acres located at 3104 Redwood Road in Napa County. The winery owners are proposing to maintain their existing annual wine production at 59,000 gallons. There is one residence located on the subject property but it is served water by the Napa City Water District. There are two existing 5,000 gallon tanks and one 15,000 gallon water tank that provide both potable and fire protection water storage for the winery. All three of the tanks are filled by an existing off-site well located on the parcel directly west of the subject winery parcel. Said well connection is legal and only serves the winery property; see attached well use agreement. The land the well is located on is vacant with no known uses. The said well has a capacity of 17.9 gallons per minute, which is equivalent to 28.87 acre-feet per year. It is the intention of the winery owners to drill a new well located adjacent to the existing off-site well, as shown on the Well Location Map. This proposed well will serve all of the winery water needs and the existing off-site well will no longer be used, but will remain maintained for potential future use. The proposed well will have a Clack Corporation FLO-ET 9 GPM V7A106D (or equivalent) flow control device installed at the well head, which is designed to limit the well yield to a maximum of 9 gallons per minute, or 14.52 acre-feet per year.

Tier 1: Water Use Criteria

Water Use:

The calculated annual water use provided by the off-site well for the winery parcel under the most recently approved Use Permit is 6.24 acre-feet per year. Of this, 5.25 acre-feet is for vineyard irrigation and the remaining 0.99 acre-feet is utilized by the winery. Of the 0.99 acre-feet per year used by the winery, 0.91 is from process water, and the other 0.08 acre-feet per year is from domestic water. The existing calculated annual water use for the winery parcel is 6.28 acre-feet. Of this, 5.25 acre-feet is used to irrigate vineyards and the remaining 1.03 acre-feet is utilized by the winery. Of the 1.03 acre-feet per year used by the winery, 0.91 is from process water, and the other 0.12 acre-feet per year is from domestic water.

Proposed Water Use:

The proposed changes in visitation are expected to increase the annual water use to 6.42 acre-feet. Of this 6.42 acre-feet per year, 5.25 will still be used to irrigate existing vineyards while 1.16 will be utilized by the winery. Of this 1.16 acre-feet, 0.91 will continue to be used for process water while the domestic water increases to 0.26 acre-feet per year. Refer to Appendix A for detailed calculations on existing and proposed water use.

Estimated Recharge:

The well property is located outside of the areas in which the Napa County Water Availability Analysis Guidance Document provides pre-defined groundwater recharge rates. As such, a groundwater recharge analysis was conducted in order to establish the annual groundwater recharge rate attributable to the well parcel. This analysis quantifies the amount of average annual rainfall infiltrating to the underlying aquifer based on the most recent, stable 10-year precipitation data provided by the Oregon State University PRISM Climate Group, estimated losses to runoff, and estimated losses to evapotranspiration. The calculations supporting this analysis are included in this report. The calculated groundwater recharge rate for the well property is 0.60 acre-feet of water per acre of land. Given that the parcel is 35.26 acres, the maximum allowable water use for the well parcel is 20.99 acre-feet per year. Refer to Appendix B for detailed recharge calculations.

Tier 2: Well and Spring Interference

Neighboring Wells and Springs:

There are no known off-site wells located within 500 feet of the proposed well location and there are no known springs located within 1,500 feet of the proposed well location. As such, the project passes the Tier 2 criteria with no further analysis required.

Tier 3: Groundwater/Surface Water Interaction

Surface Water Interaction:

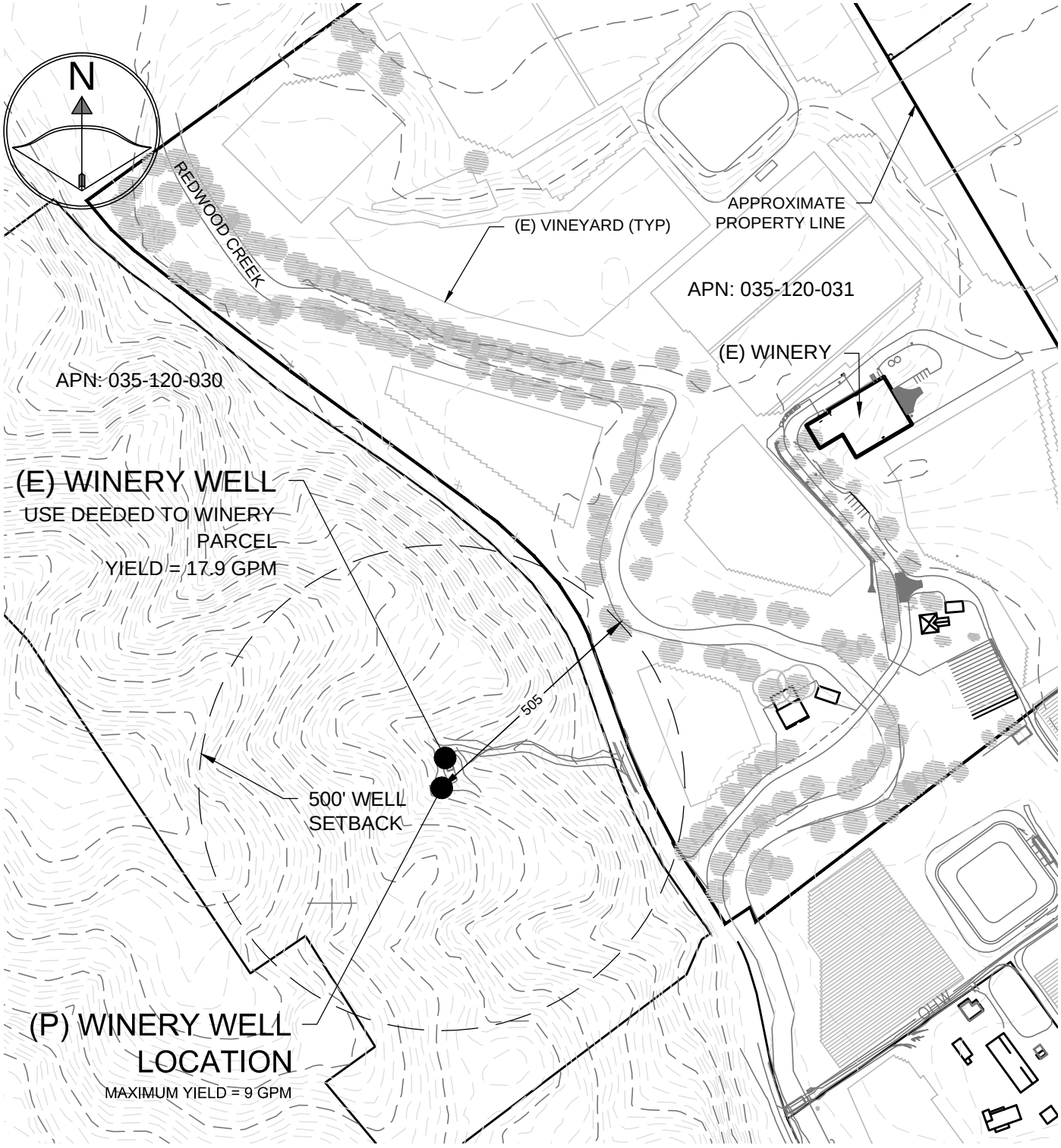
The latest Interim County Well Permit Standards generally require a Tier 3 analysis for proposed wells located within 1,500 feet of a County-designated significant stream inside the Napa River Watershed. The Water Availability Analysis Guidance Document provides distance standards that are expected to preclude any significant adverse effects on surface waters based on well pumping rates, aquifer hydraulic conductivity, and well construction characteristics. These distance standards are presented in Tables 3, 4 & 5 within the Water Availability Analysis Guidance Document.

In order to limit the radius of potential interaction and to preclude any significant adverse effects on surface waters, the proposed well will be constructed with a minimum 50 foot deep annular seal, well perforations will begin at a depth greater than 100 feet, and the well will be equipped with a Clack Corporation FLO-ET 9 GPM V7A106D (or equivalent) flow control device, which will limit the flow rate of the well to 9 gallons per minute. As proposed, the new well will meet the criteria of Table 3 of the Water Availability Analysis Guidance Document, and the acceptable distance from surface water is 500 feet.

The nearest County-designated significant stream to the proposed well is Redwood Creek, which is located to the northeast of the proposed well. At its nearest point, Redwood Creek is approximately 505 feet from the proposed well and therefore the proposed well will not have any significant adverse effect on Redwood Creek. The proposed well passes the Tier 3 screening criteria.

Summary and Conclusions:

Comparing the proposed total groundwater use of 6.42 acre-feet per year to the calculated parcel groundwater recharge rate of 20.99 acre-feet per year, it is clear that the well parcel has adequate groundwater available to serve the proposed use, and therefore passes the Tier 1 screening criteria. Since there are no known off-site springs within 1,500 feet and no known off-site wells within 500 feet of the proposed well, the project passes the Tier 2 screening criteria. Lastly, the proposed well meets the distance and construction assumptions in Table 3 of the WAA Guidance Document, and therefore passes the Tier 3 screening criteria.



WELL LOCATION MAP

SHEET: 1 OF 1

PROJECT INFO:

HENDRY WINERY
3104 REDWOOD ROAD
NAPA, CA 94558
APN: 035-120-031

PREPARED BY:

CMP CIVIL ENGINEERING &
LAND SURVEYING, INC.
1607 CAPELL VALLEY ROAD
NAPA, CA 94558
(707) 266-2559

P #: 00067

DATE: 9/19/2019
REV: 6/6/2024

CMP
CIVIL & LAND
ENGINEERING & SURVEYING

Appendix A

Water Use Calculations

CMP Civil Engineering & Land Surveying Inc.
1607 Capell Valley Road
Napa, CA 94558
(707) 266-2559
Cameron@CMPEngineering.com
CMPEngineering.com

Water Availability Calculations
for the
Hendry Winery Well Property

Located at:
APN: 035-120-030, Redwood Road
Napa, CA 94558

Date: 11/10/2015
Rev 1: 6/21/2017
Rev 2: 11/10/2017
Rev 3: 9/19/2019
Rev 4: 9/20/2022
Rev 5: 10/12/2023
Rev 6: 6/24/2024

Project # 00067

Legend
Requires Input
Automatically Calculates
Important Value Automatically Calculates
Important Value Requires Input

Hit ctrl+alt+shift+F9 when finished to recalc all formulas

WATER AVAILABILITY ANALYSIS CALCULATIONS

WATER USE CALCULATIONS FOR EXISTING USE

RESIDENTIAL	#	FACTOR	AF/YR
PRIMARY RESIDENCES (Well) =	0	0.6	0.00
SECONDARY RESIDENCES (Well) =	0	0.25	0.00
FARM LBR DWELLING (# OF PPL) =	0	0.08	0.00
		SUB TOTAL=	0.00

NON- RESIDENTIAL CALCULATIONS

AGRICULTURAL	# ACRE	FACTOR	AF/YR
VINEYARD IRRIGATION ONLY =	26.26	0.2	5.25
VINEYARD HEAT PROTECTION =	0	0.25	0.00
VINEYARD FROST PROTECTION =	0	0.25	0.00
IRRIGATED PASTURE =	0	4	0.00
ORCHARDS =	0	4	0.00
LIVESTOCK (SHEEP/COWS) =	0	0.01	0.00
		SUB TOTAL=	5.25
WINERY	**# GAL**	**FACTOR**	**AF/YR**
PROCESS WATER =	295000	SEE WW CALCS	0.91
DOMESTIC AND LANDSCAPING =	38078	SEE WW CALCS	0.12
		SUB TOTAL=	1.03
INDUSTRIAL	**# EMPL**	**FACTOR**	**AF/YR**
FOOD PROCESSING =	0	31	0.00
PRINTING/ PUBLISHING =	0	0.6	0.00
		SUB TOTAL=	0.00
COMMERCIAL	**# EMPL**	**FACTOR**	**AF/YR**
OFFICE SPACE =	0	0.01	0.00
WAREHOUSE =	0	0.05	0.00
		SUB TOTAL=	0.00

EXISTING USE TOTALS

RESIDENTIAL =	0.00	AF/YR
AGRICULTURAL =	5.25	AF/YR
WINERY =	1.03	AF/YR
INDUSTRIAL =	0.00	AF/YR
COMMERCIAL =	0.00	AF/YR
OTHER USAGE (LIST BELOW)		
		AF/YR
		AF/YR
		AF/YR
		AF/YR
		AF/YR
TOTAL EXISTING WATER USE =	**2045835**	**G/YR**
TOTAL EXISTING WATER USE =	**6.28**	**AF/YR**

WATER AVAILABILTY CALCULATIONS FOR EXISTING USE			
WELL NUMBER	Q - GPM	AF/YR	
1	17.9	28.87	
2			
3			
4			
5			
TOTAL =	17.9	28.87	
SPRING NUMBER	Q - GPM	AF/YR	
1			
2			
3			
4			
5			
TOTAL =	0	0.000	
TANK #	GAL	AF	
1	15000	0.05	
2	5000	0.02	
3	5000	0.02	
4			
5			
TOTAL =	25000	0.08	
RESERVOIR #	GAL	AF	
1			
2			
3			
4			
5			
TOTAL =	0	0	
GROUND WATER RECHARGE	AF/YR/ACRE	PARCEL AC	AF/YR
CALC'D HILLSIDE ANNUAL RECHARGE RATE =	0.60	35.26	20.99
TOTAL AVAILABLE WATER =	**6839147**	**G/YR**	
TOTAL AVAILABLE WATER =	**20.99**	**AF/YR**	
TOTAL EXISTING WATER USE =	**6.28**	**AF/YR**	
REMAINING AVAILABLE WATER =	**14.71**	**AF/YR**	

WATER USE CALCULATIONS FOR PREVIOUSLY APPROVED USE			
RESIDENTIAL	**#**	**FACTOR**	**AF/YR**
PRIMARY RESIDENCES (Well) =	0	0.6	0.00
SECONDARY RESIDENCES (Well) =	0	0.25	0.00
FARM LBR DWELLING (# OF PPL) =	0	0.08	0.00
		SUB TOTAL=	0.00
NON- RESIDENTIAL CALCULATIONS			
AGRICULTURAL	**# ACRE**	**FACTOR**	**AF/YR**
VINEYARD IRRIGATION ONLY =	26.26	0.2	5.25
VINEYARD HEAT PROTECTION =	0	0.25	0.00
VINEYARD FROST PROTECTION =	0	0.25	0.00
IRRIGATED PASTURE =	0	4	0.00
ORCHARDS =	0	4	0.00
LIVESTOCK (SHEEP/COWS) =	0	0.01	0.00
		SUB TOTAL=	5.25
WINERY	**# GAL**	**FACTOR**	**AF/YR**
PROCESS WATER =	295000	SEE WW CALC	0.91
DOMESTIC AND LANDSCAPING =	25685	SEE WW CALC	0.08
		SUB TOTAL=	0.99
INDUSTRIAL	**# EMPL**	**FACTOR**	**AF/YR**
FOOD PROCESSING =	0	31	0.00
PRINTING/ PUBLISHING =	0	0.6	0.00
		SUB TOTAL=	0.00
COMMERCIAL	**# EMPL**	**FACTOR**	**AF/YR**
OFFICE SPACE =	0	0.01	0.00
WAREHOUSE =	0	0.05	0.00
		SUB TOTAL=	0.00

PREVIOUSLY APPROVED USE TOTALS		
RESIDENTIAL =	0.00	AF/YR
AGRICULTURAL =	5.25	AF/YR
WINERY =	0.99	AF/YR
INDUSTRIAL =	0.00	AF/YR
COMMERCIAL =	0.00	AF/YR
OTHER USAGE (LIST BELOW)		
		AF/YR
		AF/YR
		AF/YR
		AF/YR
		AF/YR
TOTAL PREVIOUSLY APPROVED WATER USE =	**2032319**	**G/YR**
TOTAL PREVIOUSLY APPROVED WATER USE =	**6.24**	**AF/YR**

WATER AVAILABILTY CALCULATIONS FOR PREVIOUSLY APPROVED USE			
WELL NUMBER	Q - GPM	AF/YR	
1	17.9	28.87	
2			
3			
4			
5			
TOTAL =	17.9	28.87	
SPRING NUMBER	Q - GPM	AF/YR	
1			
2			
3			
4			
5			
TOTAL =	0	0.000	
TANK #	GAL	AF	
1	15000	0.05	
2	5000	0.02	
3	5000	0.02	
4			
5			
TOTAL =	25000	0.08	
RESERVOIR #	GAL	AF	
1			
2			
3			
4			
5			
TOTAL =	0	0	
GROUND WATER RECHARGE	AF/YR/ACRE	PARCEL AC	AF/YR
CALC'D HILLSIDE ANNUAL RECHARGE RATE =	0.60	35.26	20.99
TOTAL AVAILABLE WATER =	**6839147**	**G/YR**	
TOTAL AVAILABLE WATER =	**20.99**	**AF/YR**	
TOTAL PREVIOUSLY APPROVED WATER USE =	**6.24**	**AF/YR**	
REMAINING AVAILABLE WATER =	**14.75**	**AF/YR**	

WATER USE CALCULATIONS FOR PROPOSED USE			
RESIDENTIAL	**#**	**FACTOR**	**AF/YR**
PRIMARY RESIDENCES (Well) =	0	0.6	0.00
SECONDARY RESIDENCES (Well) =	0	0.25	0.00
FARM LBR DWELLING (# OF PPL) =	0	0.08	0.00
		SUB TOTAL=	0.00
NON- RESIDENTIAL CALCULATIONS			
AGRICULTURAL	**# ACRE**	**FACTOR**	**AF/YR**
VINEYARD IRRIGATION ONLY =	26.26	0.2	5.25
VINEYARD HEAT PROTECTION =	0	0.25	0.00
VINEYARD FROST PROTECTION =	0	0.25	0.00
IRRIGATED PASTURE =	0	4	0.00
ORCHARDS =	0	4	0.00
LIVESTOCK (SHEEP/COWS) =	0	0.01	0.00
		SUB TOTAL=	5.25
WINERY	**# GAL**	**FACTOR**	**AF/YR**
PROCESS WATER =	295000	SEE WW CALC	0.91
DOMESTIC AND LANDSCAPING =	84050	SEE WW CALC	0.26
		SUB TOTAL=	1.16
INDUSTRIAL	**# EMPL**	**FACTOR**	**AF/YR**
FOOD PROCESSING =	0	31	0.00
PRINTING/ PUBLISHING =	0	0.6	0.00
		SUB TOTAL=	0.00
COMMERCIAL	**# EMPL**	**FACTOR**	**AF/YR**
OFFICE SPACE =	0	0.01	0.00
WAREHOUSE =	0	0.05	0.00
		SUB TOTAL=	0.00

PROPOSED USE TOTALS		
RESIDENTIAL =	0.00	AF/YR
AGRICULTURAL =	5.25	AF/YR
WINERY =	1.16	AF/YR
INDUSTRIAL =	0.00	AF/YR
COMMERCIAL =	0.00	AF/YR
OTHER USAGE (LIST BELOW)		
		AF/YR
		AF/YR
		AF/YR
		AF/YR
		AF/YR
TOTAL PROPOSED WATER USE =	**2090303**	**G/YR**
TOTAL PROPOSED WATER USE =	**6.42**	**AF/YR**

WATER AVAILABILTY CALCULATIONS FOR PROPOSED USE			
WELL NUMBER	Q - GPM	AF/YR	
1	0	0.00	
2 (PROPOSED WELL)	9	14.52	
3			
4			
5			
TOTAL=	9	14.52	
SPRING NUMBER	Q - GPM	AF/YR	
1			
2			
3			
4			
5			
TOTAL=	0	0.00	
TANK #	GAL	AF	
1	15000	0.05	
2	5000	0.02	
3	5000	0.02	
4			
5			
TOTAL=	25000	0.08	
RESERVOIR #	GAL	AF	
1			
2			
3			
4			
5			
TOTAL=	0	0.00	
GROUND WATER RECHARGE	AF/YR/ACRE	PARCEL AC	AF/YR
CALC'D HILLSIDE ANNUAL RECHARGE RATE =	0.60	35.26	20.99
TOTAL WATER AVAILABLE =	**6839147**	**G/YR**	
TOTAL WATER AVAILABLE =	**20.99**	**AF/YR**	
TOTAL PROPOSED WATER USE =	**6.42**	**AF/YR**	
REMAINING AVAILABLE WATER =	**14.57**	**AF/YR**	

Appendix B

Groundwater Recharge Calculations

CMP Civil Engineering & Land Surveying Inc.
1607 Capell Valley Road
Napa, CA 94558
(707) 266-2559
Cameron@CMPEngineering.com
CMPEngineering.com

Ground Water Recharge Analysis

for the

Hendry Winery Well Property

Located at:
APN: 035-120-030, Redwood Road
Napa, CA 94558

Date: 9/19/2019
Rev 1: 9/20/2022
Rev 2: 10/12/2023
Rev 3: 6/24/2024

Project # 00067

Legend
Requires Input
Automatically Calculates
Important Value Automatically Calculates
Important Value Requires Input

Hit ctrl+alt+shift+F9 when finished.

GROUND WATER RECHARGE CALCULATIONS

PARCEL VARIABLES			
Parcel size =	35.26	ac	
Average annual rainfall (P) =	26.45	in (from latest stable PRISM 10-yr Data)	
Total parcel average rainfall volume =	77.72	ac-ft/yr	
EVAPOTRANSPIRATION (E)			
Crop Type	Area (ac)	E (ac-ft)	
Vineyard =			
Orchard =			
Hay =			
Other Crops =			
Totals =	0.00	0.00	
Native plants area =	35.26	ac	
Native plants estimated coefficient =	0.35	coefficient	
Plant density =	90%	percent	
Native Plant Growth Cycle Factor =	0.70	factor	
Grass reference ETo =	45.34	in (from Zone 8 ITRC value typ yr)	
Native plant ETc =	11.11	in	
Total annual native plant E =	29.38	ac-ft	
Total annual E for parcel =	**29.38**	**ac- ft**	
RUNOFF (R)			
Average runoff relief coefficient =	24%	%	
Average runoff soil coefficient =	7%	%	
Average runoff vegetation coefficient =	5%	%	
Average runoff surface coefficient =	8%	%	
Total Runoff Coefficient =	44%	%	
Average annual rainfall =	77.72	ac-ft	
Runoff producing rainfall =	80%	%	
Total Annual Runoff (R) =	**27.36**	**ac-ft**	
ANNUAL GROUND WATER RECHARGE STORAGE (S) = P-(R+E)			
Total Annaul Precipitation (P) =	77.72	ac-ft	
Total Annual Runoff (R) =	27.36	ac-ft	
Total Annual Evapotranpiration (E) =	29.38	ac-ft	
Total Annual Ground Recharge (S) =	**20.99**	ac-ft	
Annual Recharge Rate Per Acre =	**0.60**	**ac-ft / yr / ac**	

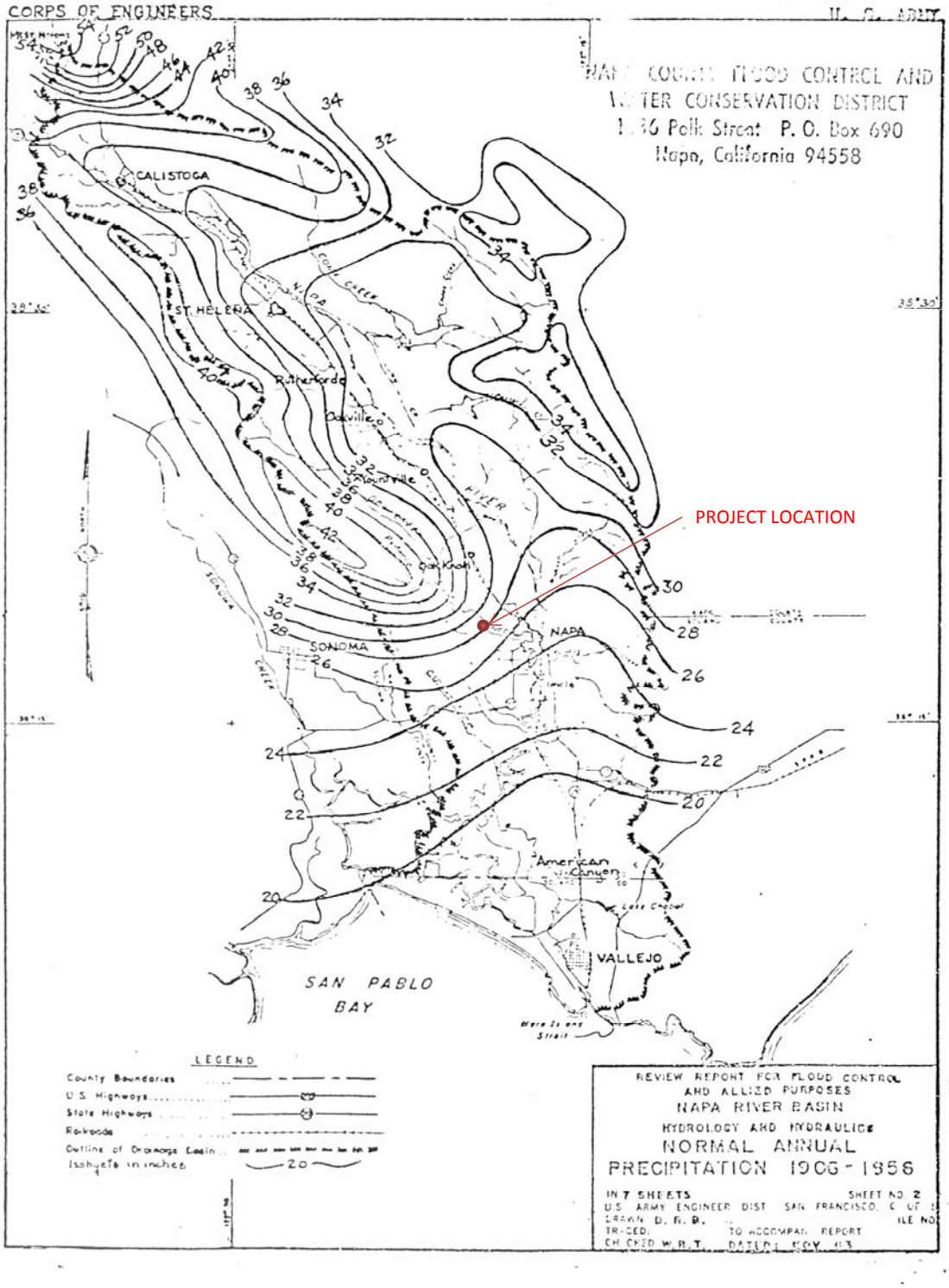
PRISM Time Series Data
Location: Lat: 38.3188 Lon: -122.3466 Elev: 138ft
Climate variable: ppt
Spatial resolution: 4km
Period: 2014-01 - 2023-12
Dataset: AN91m
PRISM day definition: 24 hours ending at 1200 UTC on the day shown
Grid Cell Interpolation: Off
Time series generated: 2024-Jun-06
Details: http://www.prism.oregonstate.edu/documents/PRISM_datasets.pdf

Date	ppt (inches)
2014-01	0.1
2014-02	8.81
2014-03	2.7
2014-04	2.2
2014-05	0.05
2014-06	0
2014-07	0
2014-08	0.03
2014-09	0.43
2014-10	0.5
2014-11	3.17
2014-12	14.98
2015-01	0
2015-02	2.67
2015-03	0.2
2015-04	1.48
2015-05	0.02
2015-06	0.08
2015-07	0.02
2015-08	0
2015-09	0.33
2015-10	0.04
2015-11	1.44
2015-12	5.01
2016-01	8.95
2016-02	1.02
2016-03	9.05
2016-04	1.02
2016-05	0.22
2016-06	0
2016-07	0
2016-08	0
2016-09	0
2016-10	4.62
2016-11	2.54
2016-12	6.54

Annual Average = 26.45 (inches)

2017-01	15.11
2017-02	12.26
2017-03	4.54
2017-04	3.08
2017-05	0
2017-06	0.37
2017-07	0
2017-08	0
2017-09	0.01
2017-10	0.23
2017-11	3.79
2017-12	0.04
2018-01	4.87
2018-02	0.2
2018-03	6.36
2018-04	3.97
2018-05	0.04
2018-06	0
2018-07	0
2018-08	0
2018-09	0
2018-10	0.38
2018-11	5.58
2018-12	2.84
2019-01	9.27
2019-02	14.41
2019-03	5.93
2019-04	0.43
2019-05	3.29
2019-06	0
2019-07	0
2019-08	0
2019-09	0.04
2019-10	0
2019-11	0.85
2019-12	6.68
2020-01	2.43
2020-02	0
2020-03	1.32
2020-04	1.08
2020-05	1.3
2020-06	0
2020-07	0
2020-08	0
2020-09	0
2020-10	0
2020-11	1.11

2020-12	2.06
2021-01	3.35
2021-02	1.42
2021-03	1.85
2021-04	0.09
2021-05	0
2021-06	0
2021-07	0
2021-08	0
2021-09	0.04
2021-10	9.73
2021-11	1.59
2021-12	6.8
2022-01	0.67
2022-02	0.05
2022-03	0.74
2022-04	1.76
2022-05	0.01
2022-06	0.37
2022-07	0
2022-08	0
2022-09	0.76
2022-10	0
2022-11	1.33
2022-12	8.85
2023-01	11.57
2023-02	3.36
2023-03	10.3
2023-04	0.37
2023-05	0.66
2023-06	0
2023-07	0
2023-08	0
2023-09	0.1
2023-10	0.53
2023-11	1.85
2023-12	4.25


CORPS OF ENGINEERS
U. S. ARMY
NAPA COUNTY FLOOD CONTROL AND
WATER CONSERVATION DISTRICT
1136 Polk Street P. O. Box 690
Napa, California 94558
CALISTOGA
ST. HELENA
Rutherford
Oakville
Mountville
Oak Knoll
NAPA
SONOMA
American Canyon
VALLEJO
SAN PABLO BAY
PROJECT LOCATION
LEGEND
County Boundaries
U.S. Highways
State Highways
Railroads
Outline of Drainage Basin
Isohyets in inches
REVIEW REPORT FOR FLOOD CONTROL
AND ALLIED PURPOSES
NAPA RIVER BASIN
HYDROLOGY AND HYDRAULICS
NORMAL ANNUAL
PRECIPITATION 1906 - 1956
IN 7 SHEETS
SHEET NO 2
U.S. ARMY ENGINEER DIST. SAN FRANCISCO, C. OF E.
DRAWN D. F. B.
FILE NO
TRACED
TO ACCOMPAN. REPORT
CHECKED W.R.T.
DATED NOV. 63

RUN-OFF PRODUCING CHARCTERISTICS OF WATERSHEDS SHOWING FACTORS FOR EACH CHARACTERISTIC FOR VARIOUS WATERSHED TYPES

WATERSHED TYPES AND FACTORS				
Run-off Producing Features	Extreme	High	Normal	Low
Relief	0.28-0.36 Steep, rugged terain, 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	0.12 - 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 High; deep sand or other soil that takes up water readily; very light, well drained soils.
Vegtal 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.	0.04-0.06 Good to excellent; about 90% of drainage area in good grassland, woodland, or equivalent crop.
Surface	0.10-0.12 Negligible; surface depressions, few and shallow; drainageways steep and small; no marshes.	0.08 - 0.10 Low; well-defined system of small drainageways; 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