From:	Annje Dodd, PhD P.E.
To:	Mark Roberts
Cc:	Brian Pensack; Richard Knoll
Subject:	Updated Hydro information- 2160 Ogulin Canyon
Date:	Wednesday, September 7, 2022 11:34:09 AM
Attachments:	image002.png image003.png image004.png Ogulin Estate Holdings Hydrology UP with Attachments.pdf

Mark,

It is my understanding that the project description associated with Ogulin Estates Holdings at 2160 Ogulin Canyon Road has been reduced in size from approximately 35 employees to 8 employees and no longer includes cultivation or nursery activities. This reduces the projected water demand from 561,000 gallons per year (1.7 acre feet per year) to 102,200 gallons per year (0.31 acre feet per year); based on 8 employees at 35 gallons per day for 365 days.

This is about an 80% reduction in proposed water demand compared to the originally proposed project. The conclusions in the attached hydrology report were based on a higher projected demand and do not change.

Please let me know if you have any questions or need additional information.

Annje Dodd, PhD, P.E.
Principal Engineer

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CONSULTING GROUP, INC

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TECHNICAL MEMORANDUM

To: Mr. Brian Pensack

From: Annjanette Dodd, PhD, CA PE #77756

Date: December 23, 2021

Subject: Groundwater Hydrology – 2160 Ogulin Canyon Road, Clearlake, CA, APN 010-044-21

PURPOSE AND BACKGROUND

The purpose of this Technical Memorandum is to provide an evaluation of the potential impacts the proposed project would have on the surrounding groundwater resources. The project is located at 2160 Ogulin Canyon Road, Clearlake, Lake County, California. The project includes the development of industrial style structures to be used for cannabis related facilities, including a 33,600 square-foot (sq ft) single story building for processing, manufacturing, and distribution, a 5,000 sq ft office building, five (5) 75 x 25 ft greenhouses for indoor cannabis cultivation, and a 22,600 sq ft, 46-car parking lot (Figure 1). A Water Availability Analysis (WAA) was prepared for the project in June 2021 by Richard Knoll Consulting and submitted to the City of Clearlake.

<u>Irrigation Demand:</u> The estimated project water demand for cultivation (300-day cultivation period) was estimated in the WAA using standard industry values for cultivation (3,000 gallons per acre per day, or 2.1 gallons per minute, per acre; CDFA, 2017). The maximum potential canopy area for five (5) 25 ft x 75 ft greenhouses is 9,375 sq ft, resulting in a daily demand of approximately 645 gallons (0.5 gpm) and annual irrigation demand of approximately 194,000 gallons per year over the course of a 300-day growing season. This cultivation demand estimate is less than presented in the WAA, which was based on 0.5 acres of canopy which is more than double the canopy proposed.

<u>Employee Demand:</u> The project proposes 35 employees. Water demand based on the number of employees is assumed to be equivalent to sanitary sewer generation for factories with shower facilities, which, according to the Lake County Rules and Regulations for On-Site Sewage Disposal (Lake County, 2010), would be 35 gallons per day, per person. The employee demand estimate is less than presented in the WAA, which was not based on standard values for Lake County. At 35 gallons per employee per day, the proposed project employee demand would be 1,225 gallons per day or 367,500 gallons per year based on a 300-day work season.

<u>Total Demand:</u> The total estimated water demand for the proposed project using the numbers provided herein is 1,875 gallons per day (1.3 gpm) and 561,500 gallons per year or 1.7 acre-feet per year.

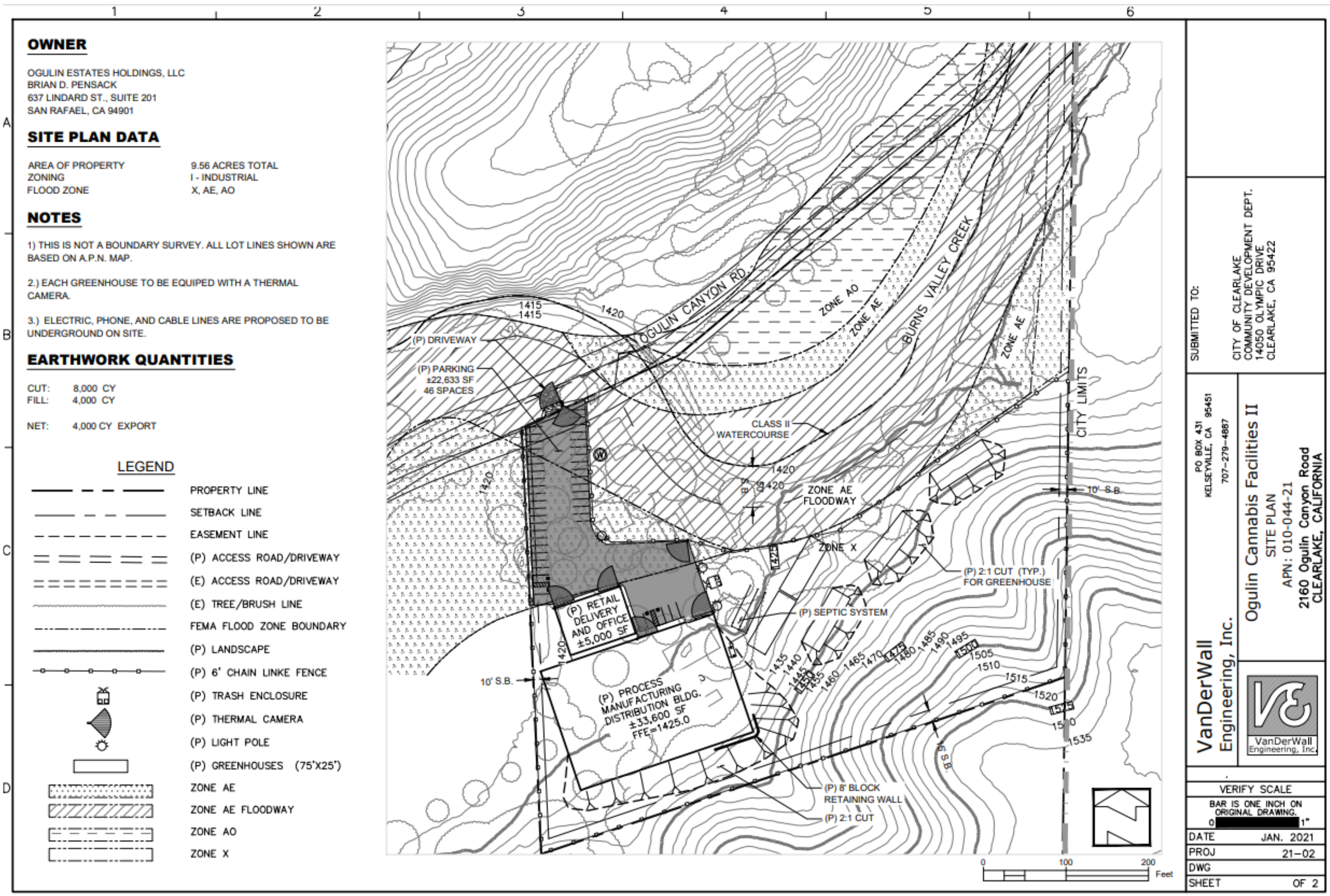

Figure 1: Site Plan for the proposed project at APN 010-044-21.

Water Source, Supply, and Storage

There is one (1) existing, permitted groundwater well (Permit Number: WE 5718AG) that will be used for cultivation (Lat/Long: 38.98068, -122.60521). The well is approximately 300-feet deep and was drilled in September 2021, during a drought period. The well casing is screened at two intervals with 0.32-inch perforated PVC casing - between 80- and 100-feet and between 240- and 300-feet below the ground surface (bgs). During the drilling of the well, the depth of first water was at 80-feet bgs and the static water level was estimated to be 30-feet bgs (Attachment 1 – Well Log).

The well was estimated to have a yield of 100 gpm (161.0 AF per year). The project's demand of 1.7 AF represents 1.1% of the annual well yield in AF.

The project proposes one (1) 50,000-gallon water tank for water storage or approximately 26 days of storage based on the average total daily demand of approximately 1,875 gallons. At 100 gpm, the tank would fill in about 8.3 hours

Groundwater Basin Information and Hydrogeology

The well site is in the Burns Valley Groundwater Basin (Basin #5-17). According to the California Department of Water Resources (DWR), almost all the groundwater in the 4 square mile Burns Valley Groundwater Basin is derived from rain that falls within the 12.5 square mile Burns Valley Watershed (DWR Bulletin 118).

The Burns Valley Groundwater Basin is within the Burns Valley Watershed. Franciscan Formation borders the Burns Valley Groundwater Basin on the north, Clear Lake borders the basin on the west, and Clear Lake Cache Formation borders the basin on the south and east. The valley is drained by Burns Valley Creek, flowing southwest, and eventually into Clearlake. There are three primary water bearing formations in the Burns Valley Groundwater Basin - Quaternary Alluvium, Quaternary Terrace Deposits, and the Lower Lake Formation (CDM, 2006). The *Quaternary Alluvium* aquifer is in the valley lowlands in the southern end of the valley and is composed of silt, sand, and gravel with a thickness up to 50 feet. Groundwater in this formation is unconfined and typically provides water for domestic use. *Quaternary Terrace Deposits* have been deposited on the sides of the alluvial plain in the Burns Valley Groundwater Basin. The terrace deposits are approximately 15 feet above the valley floor and slope up the valley to a similar elevation as the foothill exposures of the Clear Lake Cache Formation. Groundwater in this formation is not well understood. The *Lower Lake Formation*, consisting of lake deposits, underlies the alluvial and terrace deposits in the basin. This formation consists of fine sands, silts, and thick interbeds of marl and limestone, and has a maximum thickness of 200 feet. The formation has low permeability and provides water to wells at up to a few hundred gallons per minute. Based on the Well Completion Report (WCR) Geologic Log and the depths of the screened intervals of the well (80-100 and 240-300 ft bgs), the well draws water from both the shallower, Quaternary alluvium aquifer system, and the deeper water-bearing formation that corresponds with the described greenstone geologic unit, likely Franciscan Formation. The California Department of Water Resources (DWR) estimated the storage capacity of the Burns Valley Groundwater Basin to be 4,000 AF with a usable storage capacity of 1,400 AF. Well depths in the basin mostly range between 25- and 425-feet (CDM 2006; California DWR 2003, 2021).

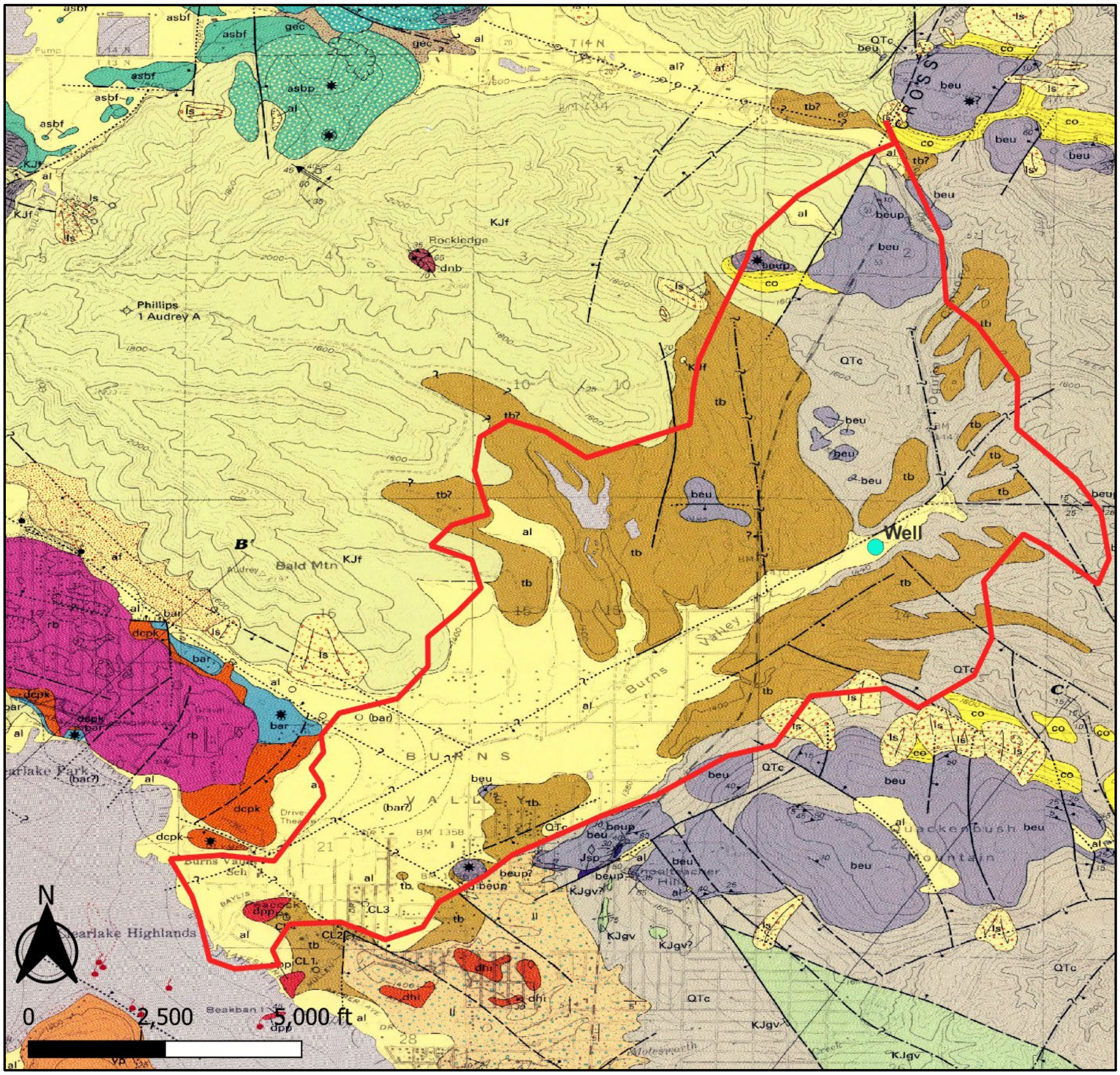

Figure 2: The project well location (blue dot) plotted on the Hearn et al. (1995) geologic map. The project well is in an area mapped as Quaternary Alluvium in the upper Burns Valley Creek. The boundary for the California Bulletin 118 Burns Valley Groundwater Basin is shown in red.

The Burns Valley Groundwater Basin has not been identified by the California Department of Water Resources (DWR) as a critically overdrafted basin. Critically overdrafted is defined by DWR as, "A basin subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." In addition, as part of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program, DWR created the CASGEM Groundwater Basin Prioritization statewide ranking system to prioritize California groundwater basins in order to help identify, evaluate, and determine the need for additional groundwater level monitoring. California's groundwater basins were classified into one of four categories high-, medium-, low-, or very low-priority. The Burns Valley Groundwater Basin is ranked as very low-priority basins by the CASGEM ranking system (DWR, 2021).

RECHARGE RATE

The annual recharge can be estimated using a water balance equation, where recharge is equal to precipitation (P) less runoff (Q) and abstractions that do not contribute to infiltration (e.g., evapotranspiration). A simple tool that can be used to estimate runoff and abstractions, which uses readily available data, is the Natural Resources Conservation Service (NRCS) Curve Number (CN) Method (NRCS, 1986). Determination of the CN depends on the watershed's soil and cover conditions, cover type, treatment, and hydrologic condition. The CN Method runoff equation is

$$Q = \frac{(P - I_a)^2}{(P - I_a) + S}$$

Where,

Q = runoff (inches)
P = rainfall (inches)
S = potential maximum retention after runoff begins (inches) and
I_a = initial abstraction (inches)

The initial abstraction (I_a) represents all losses before runoff begins, including initial infiltration, surface depression storage, evapotranspiration, and other factors. The initial abstraction is estimated as $I_a = 0.2S$. S is related to soil and cover conditions of the watershed through the CN, determined as $S = 1000/CN - 10$. Using these relations, the runoff equation becomes:

$$Q = \frac{(P - 0.2S)^2}{(P + 0.8S)}$$

The CN is estimated based on hydrologic soil group (HSG), cover type, condition, and land use over the area of recharge, which is estimated as the area of the Burns Valley Watershed. However, to be conservative, a small unnamed 23.1-acre tributary draining to the project parcel and eventually into Burns Valley Creek was used as the recharge area (Figure 2).

Soils are classified into four HSGs (A, B, C, and D) according to the ability of the soil to infiltrate water; where HSG A has the highest infiltration potential and HSG D has the lowest infiltration potential. HSGs are based on soil type and can be determined from the NRCS Web Soil Survey. 100% of the recharge area is comprised of HSG C. Approximately 70% of the recharge area is undeveloped with a cover type of 'Woods' in fair condition (wooded area may be grazed but not burnt, with some leaf litter on ground) with a CN of 73 for HSG C. The remaining recharge area is classified as 'Woods-grass combination' in fair condition due to sparse rows of trees with annual grassland in aerial imagery, represented with a CN of 76. The weighted CN for the recharge area is 74.

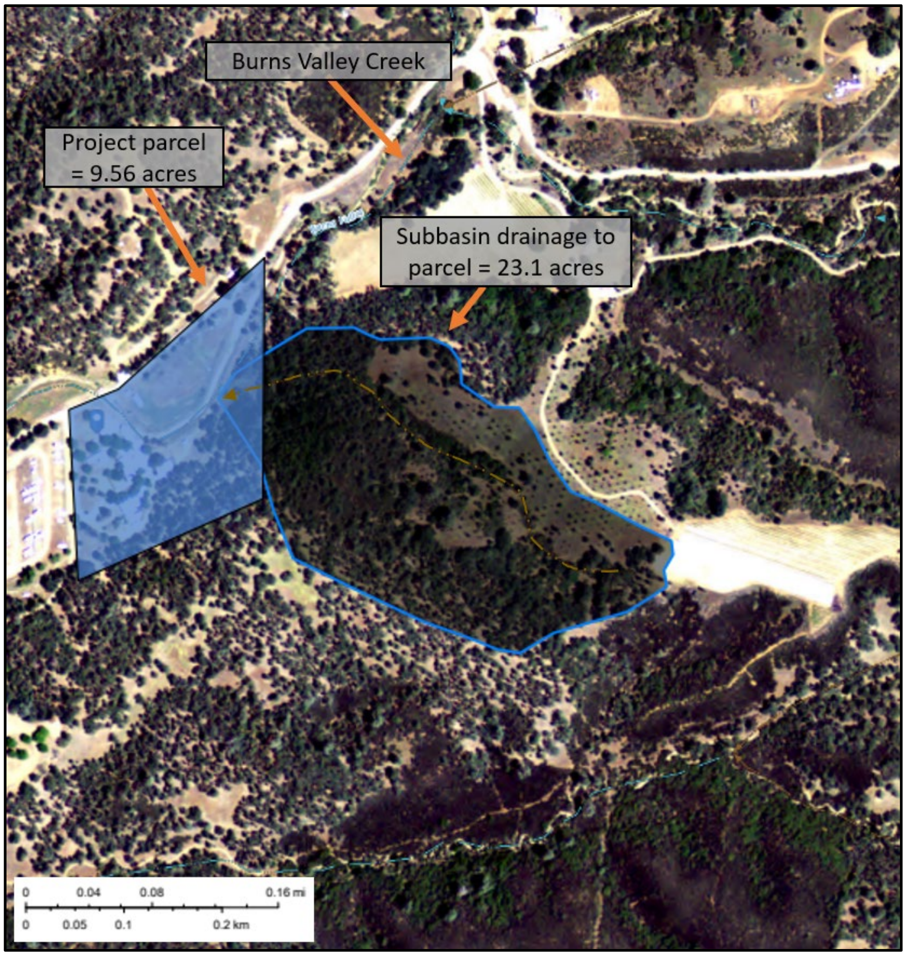

Figure 3: The recharge area for the proposed project is a 23.1-acre subbasin that drains to the project parcel and Burns Valley Creek.

The PRISM Climate Group gathers climate observations from a wide range of monitoring networks and provides time series values of precipitation for individual locations (https://prism.oregonstate.edu/explorer/). Using the annual precipitation from 1895 to 2020, as predicted by PRISM, the annual average precipitation over this period is 27.6 inches and the minimum precipitation over this period is 6.5 inches.

Using the above information, and assuming that 50% of the initial abstraction infiltrates and the remainder is evapotranspiration (0.35 inches or 0.7 AF), the estimated annual recharge over the recharge area of 23.1 acres is 6.7 AF during an average year and 4.9 AF during a dry year (Table 1).

Table 1. Estimated annual recharge over the recharge area of the project's well.

Recharge Area (acres)	P (inches)	CN	S (inches)	I_a (inches)	Q (inches)	Recharge = $P - Q - 0.5*I_a$ (inches)	Recharge (AF)
23.1	6.5	74	3.5	0.70	3.6	2.5	4.9
23.1	27.6	74	3.5	0.70	23.8	3.5	6.7

CUMULATIVE IMPACT TO SURROUNDING AREAS

Annual water demand of the proposed project is approximately 1.7 AF per year. The demand represents approximately 25% and 35% of the annual recharge during an average and dry year, respectively. Recharge in the Burns Valley Groundwater Basin is derived from rain that falls within the 12.5 square mile Burns Valley Watershed, which drains to the Burns Valley Groundwater Basin, delineated as 4 square miles of area (CDM, 2006). The area used to estimate the recharge for the proposed project is only 0.3% of the Burns Valley Watershed that drains to and recharges the Burns Valley Groundwater Basin. The area used to estimate the recharge did not include the project parcel, which would provide additional recharge. Thus, the recharge estimate is a conservative (low) estimate of the available recharge over the entire recharge area. Overall, the project would need only 0.9-inches of rainfall to infiltrate over the recharge area to meet the project's demand. Thus, there is sufficient recharge, on an annual basis, to meet the project's demand during both average and dry years.

The estimated storage capacity of the Burns Valley Groundwater Basin is 4,000 AF, with a usable storage capacity of 1,400 AF. According to DWR, groundwater in the Burns Valley Groundwater Basin is derived from rain that falls within the 12.5 square mile Burns Valley Watershed drainage area. It takes 2.1-inches of rainfall to infiltrate into the 12.5 square mile watershed to recharge 1,400 AF. The project's demand is only 0.12% of the usable storage capacity of the Burns Valley Groundwater Basin.

According to the Lake County Groundwater Management Plan, there are 86 domestic wells and 9 irrigation wells in the Burns Valley Groundwater Basin and agricultural demand during an average year is 105 AF per year; of this, 14 AF is supplied from groundwater. The Groundwater Management Plan is dated 2006 and does not include the demand from additional proposed/potential cannabis cultivation projects in the Burns Valley Groundwater Basin. The Lake County Zoning Ordinance allows 1-acre of outdoor canopy for each 20 acres of parcel size for specific zones. Within the Burns Valley Groundwater Basin, there are 57 parcels with total area of 1,124 acres with zoning that would allow for outdoor cultivation with a County Use Permit, of this area, approximately 11 parcels or 741 acres, are existing vineyards/hops/agriculture. Excluding these 11 parcels, there are 46 parcels with 383 acres eligible for cannabis cultivation in areas without pre-existing agriculture activities, or up to 19 acres of potentially new cultivation/agriculture (the County allows only 1-acre of cultivation for each 20 acres of parcel area). The increased irrigation demand could be up to approximately 31.5 AF assuming 3,000 gallons per day per acre for 180 days. The City of Clearlake Zoning Ordinance allows for mixed-light/indoor cultivation in the Burns Valley Groundwater Basin, with a City Cannabis Permit, on 23 parcels with a total area of 242 acres. Accounting for existing development, steep topography, waterbody setbacks, and flood zones only approximately 20 to 25 acres of this area could have the potential for mixed-light/indoor cultivation. The increased irrigation demand could be up to approximately 69 AF assuming 3,000 gallons per day per acre for 300 days. The total potential new demand from both the County and City for cannabis cultivation could be up to 89 AF per year, which includes the proposed project at 2160 Ogulin Canyon Road.

Cumulatively, the existing (CDM, 2006) and potential new agricultural groundwater demand could be up to 103 AF per year or up to 7.4% of the usable storage capacity in the Burns Valley Groundwater Basin. The demand of the proposed project, 1.7 AF, is only 1.7% of the potential future demand.

Since project's well has sufficient yield to meet the project's demand; the project proposes 26 days of water storage; there is sufficient recharge and supply to meet the project's demand during average and dry years; the project's demand is only 0.12% of the usable storage capacity of the Burns Valley

Groundwater Basin; and the potential future cannabis demand in the basin is a fraction of the usable storage capacity, the proposed project water use would have little to no cumulative impact on the surrounding area.

Additionally, if needed in the future to create water redundancy for the project, the project could install a rainwater catchment system. The project proposes 47,975 sq. ft. of footprint that could be utilized as rainwater catchment. The rainwater catchment potential is approximately 0.60 acre-feet (195,500 gallons) during a dry year and up to 2.5 acre-feet (814,600 gallons) during a wet year.

Qualifications of Author

I have a PhD in Water Resources Engineering. In addition, I am a registered Professional Engineer with the State of California with 30-years of experience practicing and teaching Water Resources Engineering, including over 15 years of teaching, practicing, and modeling surface and groundwater hydrology.

LIMITATIONS

The study of groundwater hydrology is very complex and often relies on limited data, especially in rural areas. Recommendations and conclusions provided herein are based on professional judgment made using information of the groundwater systems and geology in Lake County, which is limited and allows only for a general assessment of groundwater aquifer conditions and recharge. NorthPoint Consulting Group, Inc. is making analyses, recommendations, and conclusions based on readily available data, including studies and reports conducted by other professionals, Lake County, the State of California, and other consultants hired by the project proponent to prepare technical studies for the proposed project. If additional information or data becomes available for the project area, the recommendations and conclusions presented herein may be subject to change.

Attachments

1. Well Completion Report
2. NRCS Soil Survey Results
3. PRISM Climate Precipitation 1895-2020

References

Bauer S, Olson J, Cockrill A, van Hattem M, Miller L, Tauzer M, et al. (2015). Impacts of Surface Water Diversions for Marijuana Cultivation on Aquatic Habitat in Four Northwestern California Watersheds. PLoS ONE 10(9): e0137935. https://doi.org/10.1371/journal.pone.0137935

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ATTACHMENT 1:
WELL COMPLETION REPORT

COUNTY OF LAKE
HEALTH SERVICES DEPARTMENT
Division of Environmental Health
922 Bevins Court, Lakeport, CA 95453-9739
Telephone 707/ 263-1164 FAX: 263-1681

Denise Pomeroy
Health Services Director

Erin Gustafson
Public Health Officer

Jasjit Kang
Environmental Health Director

SEAL WITHOUT WITNESS

Permit Number: WE 5718-AG

Site Address: 2160 Ogulin Canyon RD Clearlake Ca. 95422

Assessor's Parcel No: 010 - 044 - 21

Owner Name: Ogulin Hills Holdings LLC

Date: 10/1/21

REASON FOR SEAL WITHOUT WITNESS:

☐ **Emergency Seal – Explain:** __________

☒ **Inspector unable to witness**

☐ **Other:** __________

IMPERMEABLE LAYER in which annular space terminates:

2" **at a depth of** 20' **feet.**

SEALANT USED: Bentonite clay & concrete
METHOD OF PLACEMENT: Pour down Hole and mix and Pour concrete cap

I hereby certify that I have installed the annular seal in accordance with the provisions of the Lake County Well Ordinance and unless otherwise specified in the Lake County Well Ordinance, with the California Department of Water Resources Bulletin 74-81 or as modified by subsequent revisions or supplements.

DRILLING CONTRACTOR SIGNATURE: [signature]

COMPANY: Will Petersen well Drilling **LICENSE NO:** 1009053

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

Page 1 of 1

Owner's Well Number 2

Date Work Began 9-29-21 Date Work Ended 10-1-21

Local Permit Agency Lake County Environmental Health

Permit Number WE-571846 Permit Date 9-28-21

State of California
Well Completion Report
Refer to Instruction Pamphlet
No. XXXXXXX

DWR Use Only – Do Not Fill In
State Well Number/Site Number
Latitude N / Longitude W
APN/TRS/Other

Geologic Log

Orientation ● Vertical ○ Horizontal ○ Angle Specify ____

Drilling Method Air Rotary Drilling Fluid N/A

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
0	20	gravel and Brown clay
20	70	gravel & tan clay
70	220	fransican gravel trace of sandstone
220	240	fransican gravel
240	300	green Stone

Total Depth of Boring 305 Feet

Total Depth of Completed Well 300 Feet

Well Owner

Name Ogulin Hills Holdings

Mailing Address 637 Lindaro St. Suite 201

City San Rafel State CA Zip 94901

Well Location

Address 2160 Ogulin canyon Rd

City Clearlake CA County Lake

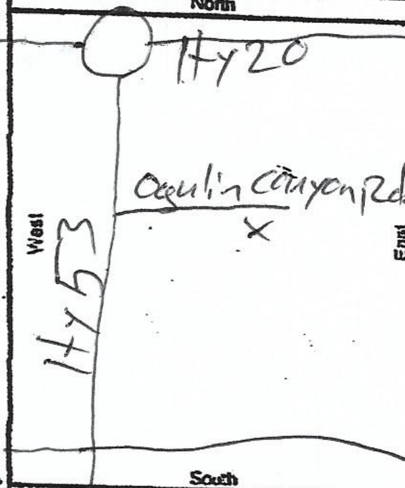
Latitude ___ Deg. ___ Min. ___ Sec. N Longitude ___ Deg. ___ Min. ___ Sec. W

Datum ____ Dec. Lat. ____ Dec. Long. ____

APN Book 010 Page 044 Parcel 21

Township ____ Range ____ Section ____

Location Sketch
(Sketch must be drawn by hand after form is printed.)



Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

● New Well
○ Modification/Repair
○ Deepen
○ Other ____
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

● Water Supply
■ Domestic □ Public
■ Irrigation □ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
○ Test Well
○ Vapor Extraction
○ Other ____

Water Level and Yield of Completed Well

Depth to first water 80' (Feet below surface)

Depth to Static Water Level 30' (Feet) Date Measured 9-30-21

Estimated Yield * 100+ (GPM) Test Type Airlift

Test Length 2 hrs (Hours) Total Drawdown ____ (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	80	9"	F480	pvc	1/4"	4½"	None	None
80	100	9"	F480	pvc	1/4"	4½"	Perfs	.032
100	240	9"	F480	pvc	1/4"	4½"	Blanks	N/A
240	300	9"	F480	pvc	1/4"	4½"	Perfs	.032

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	20	Concrete	SEAL
1	21	Bentonite	
21	300	3/16 Pea	Gravel Pack

Attachments

□ Geologic Log
□ Well Construction Diagram
□ Geophysical Log(s)
□ Soil/Water Chemical Analyses
□ Other ____

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name Will Peterson Well Drilling
Person, Firm or Corporation

P.O. Box 695 Kelseyville CA 95451
Address City State Zip

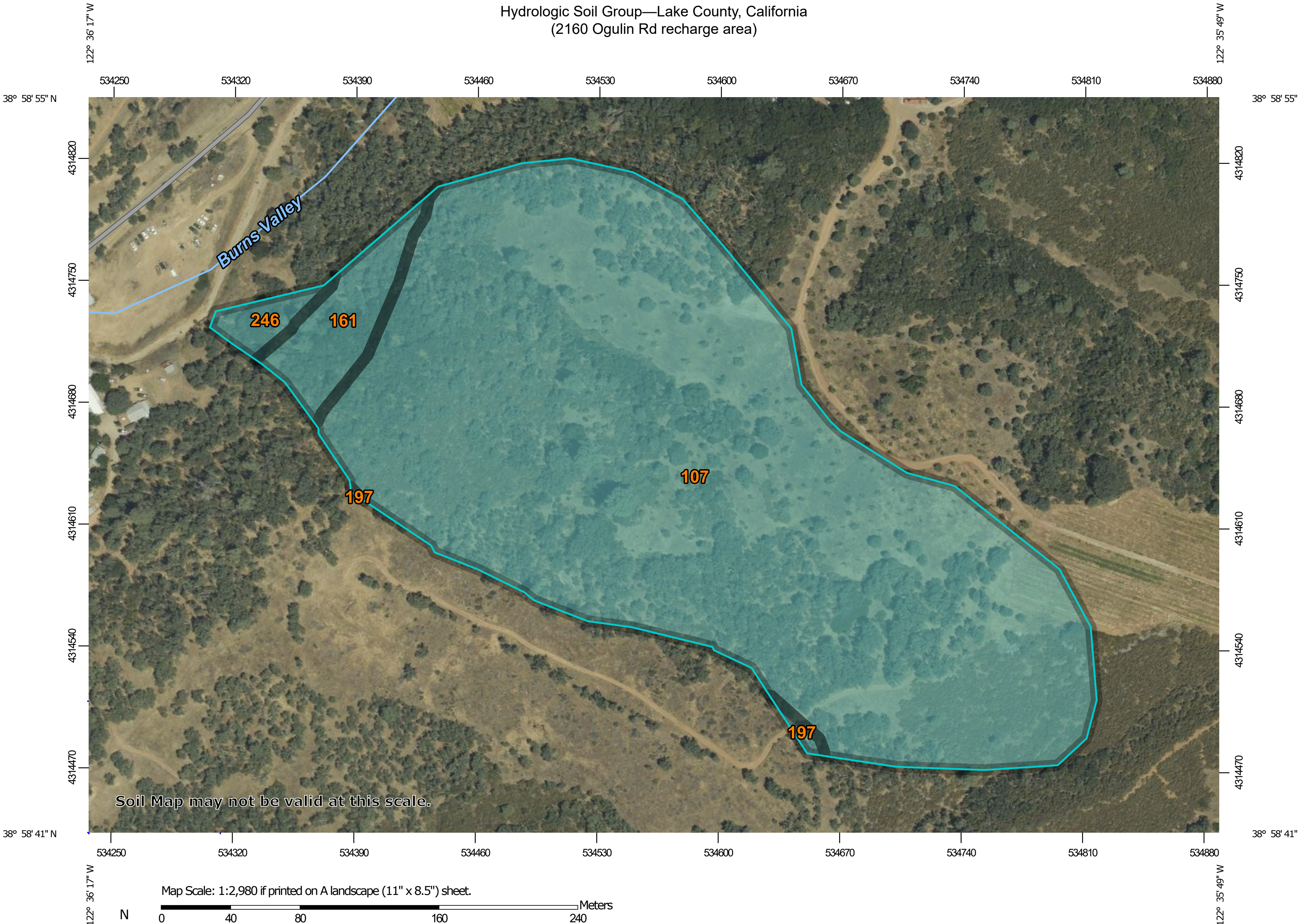
Signed [signature] 10-1-21 1009053
C-57 Licensed Water Well Contractor Date Signed C-57 License Number

DWR 188 REV 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ATTACHMENT 2:
NRCS SOIL SURVEY RESULTS

Hydrologic Soil Group—Lake County, California
(2160 Ogulin Rd recharge area)



Map Scale: 1:2,980 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 40, 80, 160, 240

Feet: 0, 100, 200, 400, 600

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: Lake County, California
Survey Area Data: Version 18, Sep 6, 2021

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
107	Bally-Phipps complex, 15 to 30 percent slopes	C	20.8	93.4%
161	Manzanita loam, 15 to 25 percent slopes	C	1.1	4.8%
197	Phipps complex, 30 to 50 percent slopes	C	0.1	0.3%
246	Wolfcreek gravelly loam	C	0.3	1.5%
Totals for Area of Interest			**22.3**	**100.0%**

Description

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.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

ATTACHMENT 3:
PRISM CLIMATE PRECIPITATION
1985-2020

PRISM Time Series Data
Location: Lat: 38.9801 Lon: -122.6001 Elev: 1637ft
Climate variable: ppt
Spatial resolution: 4km
Period: 1895 - 2020
Dataset: AN81m
PRISM day definition: 24 hours ending at 1200 UTC on the day shown
Grid Cell Interpolation: On
Time series generated: 2021-Dec-15
Details: http://www.prism.oregonstate.edu/documents/PRISM_datasets.pdf

Date	ppt (inches)		
1895	33.65	average	27.64
1896	39.54	minimum	6.47
1897	26.51		
1898	15.11		
1899	36.11		
1900	24.89		
1901	26.3		
1902	34.57		
1903	26.85		
1904	43.01		
1905	23.19		
1906	43.23		
1907	35.8		
1908	18.8		
1909	45.52		
1910	17.49		
1911	33.98		
1912	20.54		
1913	26.32		
1914	31.28		
1915	35.75		
1916	30.09		
1917	13.05		
1918	20.66		
1919	23.08		
1920	29.95		
1921	24.21		
1922	27.56		
1923	14.72		
1924	21.12		
1925	26.24		
1926	34.62		
1927	28.56		
1928	20.66		
1929	15.35		
1930	17.43		

1931	25.08
1932	12.81
1933	20.93
1934	18.96
1935	25.57
1936	25.58
1937	34.51
1938	31.94
1939	12.69
1940	46.18
1941	45.3
1942	32.4
1943	21.32
1944	26.56
1945	29.34
1946	14.25
1947	16.85
1948	23.47
1949	16.87
1950	34.45
1951	29.85
1952	34.57
1953	21.29
1954	29.51
1955	25.11
1956	21.24
1957	30.94
1958	35.76
1959	20.72
1960	27.18
1961	20.09
1962	27.14
1963	28.56
1964	23.1
1965	26.03
1966	22.74
1967	27.62
1968	30.57
1969	34.17
1970	35.46
1971	17.75
1972	19.43
1973	41.75
1974	24.09
1975	24.4
1976	8.68
1977	19.26

1978	30.31
1979	35.13
1980	24.72
1981	31.37
1982	33.72
1983	62.59
1984	21.31
1985	16.74
1986	38.77
1987	27.96
1988	17.68
1989	21.03
1990	16.85
1991	24.17
1992	30.03
1993	36.44
1994	21.37
1995	55.6
1996	37.2
1997	30.3
1998	52.65
1999	23.63
2000	27.59
2001	36.25
2002	28.89
2003	33.03
2004	33.67
2005	39.24
2006	34.9
2007	13.72
2008	19.47
2009	17.74
2010	34.12
2011	23.3
2012	30.68
2013	6.47
2014	31.45
2015	18.12
2016	35.83
2017	43.81
2018	23.64
2019	43.4
2020	9.97