Attachment 5

NORTH BAY CIVIL CONSULTING

To County of Lake,

This letter is in response to the Comments on Hydrogeologic Assessment Report letter received from the County of Lake dated September 25th, 2023. The project file numbers are as follows: UP 20-60 for Commercial Cannabis Cultivation located at 3681 Benmore Valley Road, Lakeport, CA (APN: 007-002-27). Below are the responses to the letter in the order as they were received:

1. Please see Appendix D for requested documents.
2. The portion of the report that refers to Alluvium deposits is referring to the typical formation associated with the Basin. That section provides an overview of the Basin and its common properties.
3. The report has been revised and updated. We added a total amount for clarification.
4. The Calculations used in the report are based on the infiltration rate of the soil which is calculated taking a conservative approach of 50% of the infiltration rate for that soil. This equates to 0.19 inches. There is no argument about the evapotranspiration rate and we state that everything that is not infiltrated turns to evapotranspiration. This is why we use the conservative estimate of 0.19 Inches in our calculation. I have attached a copy of our calculations to the report in Appendix C.
5. Please see Appendix D for requested documents.

Please let me know if I can provide any further information to benefit your review.

Respectfully,

Matt Klein, Senior Civil Engineer
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Address: 100 E Street, Suite 104, Santa Rosa, CA 95404

NORTH BAY | CIVIL CONSULTING

Technical Memorandum

For

Lakeport Farm

Cultivation Operations

Project Name: Lakeport Farm

Project Location: 3681 Benmore Valley Road, Lakeport, CA 95453

Risk Level: Tier 2 Low

Client: Ricardo De Mello

Prepared By: Matthew Klein, CA P.E. 79674, Senior Project Manager

Date: January 16th, 2024

Contents

INTRODUCTION AND PURPOSE

The intent of this hydrology technical memorandum is to analyze the ground water supply for the above-named project in accordance with the Lake County Board of Supervisors Urgency Ordinance 3106 (Ordinance 3106). Requiring land use applicants to provide enhanced water analysis during a declared drought emergency. Ordinance 3106 requires that all projects that require a CEQA analysis of water use include the following items in a Hydrology Report prepared by a licensed professional experienced in water resources:

- Approximate amount of water available for the project's identified water source,
- Approximate recharge rate for the project's identified water source, and
- Cumulative impact of water use to surrounding areas due to the project.

The purpose of this Technical Memorandum (TM) is to provide the information required by Ordinance 3106 for Lakeport Farm. In addition to the Hydrology Report, Ordinance 3106 requires a Drought Management Plan (DMP) depicting how the applicant proposes to reduce water use during a declared drought emergency.

PROJECT LOCATION

The project is located at 3681 Benmore Valley Road, Lakeport, CA 95453 (APN: 007-002-27). The project site is located approximately 6-miles West of the City Lakeport.

PROJECT OVERVIEW

Existing Conditions

The existing conditions of the project site includes natural vegetation and a gravel road. The site is mainly undeveloped and is covered with native grass, brush, and trees. Per the Envirostor website, there are no known historic sources of contamination at the site or within 1,000 feet of the project site. The aforementioned project's proposed cannabis cultivation water source will be a well located on the property just east of the cultivation area. The well has an estimated yield of 50 GPM per the Well Completion Report.

The project site's sheet flow currently flows in a Southwest direction towards Scotts Creek. Stormwater is conveyed through surface runoff and flows across natural vegetation creating a vegetative buffer between discharge area and watercourses. Stormwater discharge at all locations on the site are not considered direct discharges into the creek, as defined by the State Water Board. The property varies in slope, ranging from 0% - 50%. The project parcel ranges in elevation from 2600 to 2700 feet above mean sea level (Information derived from Google Earth). The location where cannabis cultivation will occur slopes roughly at 0% - 20%. Existing site vegetation, topography, drainage patterns, stormwater conveyance systems, and watercourses are shown on the Overall Site Plan submitted to the County of Lake.

The site is underlain by a topsoil of loam. The subsoil horizons consist of unweathered bedrock. The area that will be utilized for the proposed Cannabis operation consists of a gravelly loam. The Soil Analysis reference for the proposed cultivation area can be found in Appendix B.

Proposed Conditions

The project is proposing 43,000 square feet of mixed-light cannabis cultivation and 43,000 square feet of outdoor cannabis cultivation on the project parcel. This project proposes a number of site improvements to ensure that the cultivation site meets all local and state regulations and guidelines. The proposed improvements consist of a security fence, security system, employee parking, trash bins, storage sheds, portable toilets, etc. Plants are to be planted in above ground planter bags or raised planter beds. The limits of the canopy and cultivation area are shown on the Overall Site Plan that was submitted to the County of Lake.

PROJECT WATER DEMAND

The CalCannabis Environmental Impact Report (CDFA, 2017) uses a conservative estimate of 6.0 gpd and assumes that there are approximately 500 plants per acre of canopy and the demand is 3,000 gpd (2.1 gallons per minute [gpm]) per acre of canopy; this use rate is more conservative with the Water Use Management Plan section (Section 12) of the project's Property Management Plan. The total water demand for 43,000 square feet of mixed-light canopy and 43,000 square feet of indoor canopy is approximately as follows:

Water Demand Calculations:

- Daily – 6,000 gpd (4.2 gpm) for a maximum of 180 days
- Annually (Cultivation Season)
  - i. 270-day cultivation season – 2.48 acre-feet (AF) for (1) acres of mixed-light cultivation.
    - ➢ Typical for Indoor, Mixed-light, and Auto-flowering plants.
  - ii. 180-day cultivation season – 1.66 acre-feet (AF) for (1) acre of outdoor cultivation
    - ➢ Typical for outdoor flowering plants.
  - iii. Maximum Total Annual Demand – 4.14 (AF) for (1) acres of mixed-light and (1) acre of outdoor cultivation.

WATER SOURCE AND SUPPLY

There is one (1) existing permitted groundwater well that will be used for all cultivation activities. The well is located approximately (Lat/Long, 39.000543°, -123.008895°). The well has a surface elevation of 2,740-feet and is approximately 136 feet deep. The Well Completion Report was performed in December 2015 by Weeks Drilling & Pump Co. in which the static water level was at 2-feet below the ground surface prior to pumping, Appendix A. Using USGS topography, the well has initial and static water level elevation of approximately 2,740-feet.

The well was estimated to have a yield of 50 gpm (80.65 acre-feet per year). The potential daily demand of 4.2 gpm represents 8.4% of the well yield and between 5.1% of the annual well production in acre-feet.

IRRIGATION AND WATER STORAGE

Irrigation for the cultivation operation will use water supplied by the existing well. The irrigation water would be pumped from the well via PVC piping to (3) 2,500-gallon water storage tanks, totaling 7,500 gallons of water storage and then delivered to a drip irrigation system. The drip lines will be sized to irrigate the cultivation areas at a rate slow enough to maximize absorption and prevent runoff.

GROUNDWATER BASIN INFORMATION AND HYDROGEOLOGY

The well site is on a ridge located to the west of the Scotts Valley groundwater basin (Basin #5-014). Due to the well location being closest to the Scotts Valley Groundwater Basin boundary, it is likely the well draws from an tributary location that feeds the Scotts Valley Groundwater Basin, (Appendix D). According to the California Department of Water Resources (DWR), almost all the groundwater in the Scotts Valley Basin is derived from rain that falls within the 11 square mile Scotts Valley Watershed drainage area (DWR Bulletin 118).

The Scotts Valley Basin includes Scotts Valley, the foothills between Scotts Valley and Clear Lake, and the foothills immediately to the south of Lakeport. Clear Lake borders the basin to the east and the Franciscan Formation borders the basin to the north, west and south. Scotts Creek flows through Scotts Valley and drains to the northwest around White Rock Mountain into the Upper Lake Basin. Scotts Valley Basin consists of three water bearing formations; Quaternary Alluvium, Quaternary Lake and Floodplain Deposits, and Quaternary Terrace Deposits. Quaternary Alluvium consists of channel deposits of Scoots Creek and the valley deposit in the southern portion of Scotts Valley. Older stream channels deposited by Scotts Creek also underlie Quaternary Lake and Floodplain Deposits in the northern portion of Scotts Valley. In the southern portion of the valley, the alluvium is exposed at the surface. This is the recharge area for the valley. In the northern portion of the valley, the alluvium is buried by lake deposits and is confined to a groundwater aquifer. Wells completed in the confined portion of Quaternary Alluvium produce up to 600 gallons per minute, (Wahler 1970). The Quaternary Lake and Floodplain Deposits are also in the northern portion of Scotts Valley and is underlain by lake deposits of clay. This clay layer acts as a confining layer for the northern portion of Scotts Valley, where it overlies Quaternary Alluvium. Quaternary Terrace deposits lie directly on bedrock and consist of poorly consolidated clay, silt, and sand, with some gravel. Quaternary Terrace deposits form the ridge that separates Scotts Valley from Clear Lake and are exposed in foothills in the western and southern portions of the Scotts Valley Basin. The Quaternary Terrace Deposits also underlie the alluvium and lake deposits in Scotts Valley. Wells in the formations sustain small yields of up to 60 gallons per minute (Wahler 1970).

Evaluation of the groundwater level data shows an average seasonal fluctuation ranging from 5- to 10-feet for normal and dry years for wells located in the vicinity of Scotts Creek and Clear Lake. For wells located closer to the Coastal Range the average seasonal fluctuation is approximately 20- to 40-feet for normal and dry years. The average specific yield for the depth interval of 0- to 100-feet is estimated to be 8 percent based on review and analysis of well logs (DWR 1957). The storage capacity for the basin is estimated to be 5,900 acre-feet based on the above depth interval and estimate of specific yield (DWR 1957). DWR (1960) estimates the useable storage capacity to be 4,500 acre-feet.

The Scotts Valley Basin has not been identified by the California Department of Water Resources (SGMA 2019) as a critically overdrafted basin. DWR defines critically overdrafted 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." The California Statewide Groundwater Elevation Monitoring (CASGEM) program was developed by DWR to establish a permanent, locally managed system to monitor groundwater elevation in California’s alluvial groundwater basins and subbasins. A statewide ranking system, CASGEM Groundwater Basin Prioritization, was created to prioritize California ground water basins to help assess the need for additional groundwater level monitoring. The rankings for the Groundwater Basin Prioritization are classified into four categories high-priority, medium-priority, low-priority, or very low-priority. The Scotts Valley Basin is ranked as very low-priority basins by the California Department of Water Resources (SGMA 2019).

Recharge Rate

The annual recharge rate can be estimated using a water balance equation, where recharge is equal to precipitation (P) minus runoff (Q) and abstractions that do not contribute to infiltration (e.g., evapotranspiration). The equation that can be used to estimate runoff and abstractions, that 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

$I_a = 0.2 * S$, S is related to soil and cover conditions of the watershed through the CN, determined as $S = \frac{1000}{CN} - 10$. Using these relations, the runoff equation becomes:

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

The CN is estimated based on hydrologic soil group (HSG), cover type, condition, and land use over the area of recharge. The area of recharge being an estimate of the area that Scotts Valley Watershed contributes to the well. The well is screened from elevations 1,485 to 1,630-feet and has a static water level of 1,654-feet, measured when the well was tested in October 2020. The surface elevations of the Scotts Valley Watershed range between a maximum of 1,800-feet and a minimum of 1,320-feet at the outlet. Since the well is screened within the range of the Scotts Valley Watershed surface elevations, it is likely the recharge area relies on the Scotts Valley Watershed. However, to be conservative, a localized area of approximately 157 acres of recharge was assumed (Appendix D).

The recharge area soils are classified using the NRCS Web Soil Survey. The different classifications of the recharge soils are classified into four Hydrologic Soil Groups (HSGs) A, B, C, and D. The HSGs are used to determine the soil's ability to infiltrate water. HSG A has the highest infiltration potential and HSG D has the lowest infiltration potential. The project's site recharge area is considered to have both HSG C and HSG D. HSG D will be used to provide a more conservative value. The site is undeveloped with a cover type of brush and is in fair condition (50% to 75% ground cover) and has a CN of 84.

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 43.59 inches and the minimum precipitation over this period is 9.29 inches (Appendix C).

Using the above information, and assuming that 50% of the initial abstraction infiltrates and the remainder is evapotranspiration (0.19 inches or 1.53 AF), the estimated annual recharge over the recharge area of 96.57 acres is 16.21 AF during an average year and 14.16 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)
Min	96.57	9.29	84	1.9	0.38	7.34	1.76	14.16
Avg	96.57	43.59	84	1.9	0.38	41.38	2.01	16.21

CUMULATIVE IMPACT TO SURROUNDING AREAS

The Scotts Valley groundwater is accumulated from rain that falls within the 11 square mile Scotts Valley Watershed drainage area (DWR). Scotts Valley Basin's estimated storage capacity is 5,900 AF and has a usable storage capacity of 4,500 AF. Scotts Valley is not considered a critically overdrafted basin according to the California Department of Water Resources (SGMA 2019). The proposed Lakeport Farm project's annual water demand could change depending on the length of the cultivation season. The demand is estimated to be 4.14 AF per year, or approximately 25% and 29% of the annual recharge during an average and dry year, respectively. Lakeport Farm would need approximately 0.78 inches of rainfall to infiltrate into the recharge area shown in Appendix D, to satisfy its demand. Thus, there is sufficient recharge, on an annual basis, to meet the project's demand.

The Lake County Groundwater Management Plan (Table 3-1), states that there are 235 domestic wells, 87 irrigation wells, no municipal wells, no monitoring wells, and 31 others wells in in the Scotts Valley Basin. The groundwater demand from agriculture in an average year is 2,369 AF (Table 2-5). The demand from additional proposed cannabis cultivation projects in the Scotts Valley Groundwater Basin is not included in the Lake County Groundwater Management Plan, so the total additional proposed cannabis cultivation is unknown. It will be assumed that new cannabis cultivation could add an additional 30 to 50 acres to the Scotts Valley Groundwater Basin. This additional agricultural demand of the groundwater could increase by 85 AF. With the addition of these new cultivations and the proposed Lakeport Farm project, the annual groundwater demand could increase up to 87 AF of the leftover usable storage capacity of the Scotts Valley Basin.

Therefore, the proposed project water use would have little to no cumulative impact on the agricultural groundwater demand.

QUALIFICATIONS OF AUTHOR

I am a registered Professional Engineer with the State of California with 5-years of experience practicing Water Resources Engineering.

LIMITATIONS

North Bay Civil Consulting is not responsible for the independent conclusions, recommendations, or opinions made by other individuals or agencies based on the well test, research data, topographic mapping, site visit, and interpretations presented in this report.

Hydrogeologic interpretations are based on the drillers' reports which are made available to us through the California department of water resources (DWR), existing geological maps, hydrogeologic findings and professional assessment. This analysis is based on limited hydrogeologic data and therefore relies extensively on individual interpretation of data.

In addition, the passage of time may result in environmental changes, impacting the characteristics at this site and surrounding properties. This report does not guard against future operations or conditions, nor does this allow for operations or conditions present of a type or at a location not investigated.

This report is for the exclusive use of Lakeport Farm, their affiliates, designates and assignees. No other party shall have any right to rely on any service provided by North Bay Civil Consulting without prior written consent.

REFERENCES

CDFA (2017) CalCannabis Cultivation Licensing Program Draft Program Environmental Impact Report.
State Clearinghouse #2016082077. Prepared by Horizon Water and Environment, LLC, Oakland, California. 484 pp.

California DWR (2003). California's Groundwater Bulletin 118 Update 2003. October 2003. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater- Management/Bulletin-118/Files/Statewide-Reports/Bulletin_118_Update_2003.pdf

California DWR (2003). California's Groundwater Bulletin 18, Update 2003. October 2003.

California DWR (2021). California's Groundwater. https://water.ca.gov/programs/groundwater-management/bulletin-118

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Gupta, R.S. (2008). Hydrology and Hydraulic Systems, 3rd Edition. Waveland Press, Long Grove IL.

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NRCS Technical Release 55. June 1986. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044171.pdf

APPENDIX A: Well Report & Test

JAN 2 9 2016

File Original with DWR

Page 1 of 1

Owner's Well Number #1

Date Work Began 12/16/2015 Date Work Ended 12/28/2015

Local Permit Agency Lake County Environmental

Permit Number We 4558 Permit Date 5/4/15

State of California

Well Completion Report

No. e0297344

DWR Use Only – Do Not Fill In

13N/10W-05

State Well Number/Site Number

N Latitude W Longitude

APN/TRS/Other

Geologic Log

Orientation ⦿ Vertical ○ Horizontal ○ Angle Specify ____

Drilling Method Air Drilling Drilling Fluid ____

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
0	2	Topsoil
2	28	Sandy yellow silt and clay
28	128	Blue sandstone
128	140	Shale

Total Depth of Boring 140 Feet

Total Depth of Completed Well 136 Feet

[redacted]

Well Location

Address 3681 Benmore Valley Road

City Lakeport County Lake

Latitude 39 Deg. 0 Min. 40 Sec. N Longitude 123 Deg. 0 Min. 465 Sec. W

Datum ____ Decimal Lat. ____ Decimal Long. ____

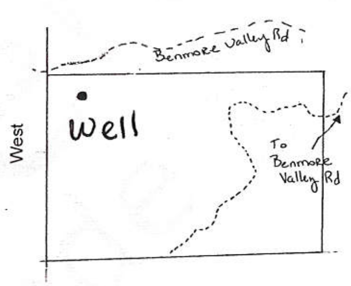
APN Book 007 Page 002 Parcel 27

Township 13N Range 10W Section 5

Location Sketch

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

North



West East South

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 83 (Feet below surface)

Depth to Static Water Level 2 (Feet) Date Measured 12/28/2015

Estimated Yield * 50 (GPM) Test Type Air Lift

Test Length 1.0 (Hours) Total Drawdown 136 (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	20	11						
20	140	8						
0	76		Blank	PVC Sch. 40	SDR21	5		
76	136		Screen	PVC Sch. 40	SDR21	5	Milled Slots	0.032

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	22	Bentonite	
22	136	Filter Pack	3/8 Pea Gravel

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 Weeks Drilling & Pump Co.
Person, Firm or Corporation

P.O. Box 176 Sebastopol CA 95473
Address City State Zip

Signed June Angiolini 1/19/2016 177681
C-57 Licensed Water Well Contractor Date Signed C-57 License Number

DWR 188 REV. 1/2006

APPENDIX B: NRCS Soil Survey Results

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

Lake County, California

May 22, 2020

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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map


123° 0' 22" W
123° 0' 7" W
39° 0' 3" N
38° 59' 48" N
499490
499540
499590
499640
499690
499740
499790
4316890
4316840
4316790
4316740
4316690
4316640
4316590
4316540
4316490
4316440
170
169
170
Soil Map may not be valid at this scale.
Map Scale: 1:2,260 if printed on A portrait (8.5" x 11") sheet.
Meters
0 30 60 120 180
Feet
0 100 200 400 600
N
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 Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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 16, Sep 16, 2019

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

Date(s) aerial images were photographed: May 8, 2019—May 10, 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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
169	Maymen-Etsel-Snook complex, 30 to 75 percent slopes	13.6	52.3%
170	Maymen-Etsel-Speaker association, 30 to 50 percent slopes	12.4	47.7%
Totals for Area of Interest		**26.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Lake County, California

169—Maymen-Etsel-Snook complex, 30 to 75 percent slopes

Map Unit Setting

National map unit symbol: 2y4jn
Elevation: 1,970 to 3,310 feet
Mean annual precipitation: 74 to 83 inches
Mean annual air temperature: 54 to 55 degrees F
Frost-free period: 221 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Maymen and similar soils: 35 percent
Snook and similar soils: 25 percent
Etsel and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Maymen

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Colluvium derived from sandstone and shale and/or residuum weathered from sandstone and shale

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 11 inches: loam
Bw - 11 to 17 inches: loam
R - 17 to 27 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): 8
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Snook

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium derived from sandstone and shale and/or residuum weathered from sandstone and shale

Typical profile

A - 0 to 6 inches: loam
R - 6 to 16 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 4 to 10 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 0.8 inches)

Interpretive groups

Land capability classification (irrigated): 8
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Etsel

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Colluvium derived from sandstone and shale and/or residuum weathered from sandstone and shale

Typical profile

A - 0 to 5 inches: gravelly sandy loam
C - 5 to 14 inches: very gravelly loam
R - 14 to 24 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 4 to 14 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water storage in profile: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Hopland

Percent of map unit: 4 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Wohly

Percent of map unit: 4 percent
Landform: Mountains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Hydric soil rating: No

Gube

Percent of map unit: 4 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Rock outcrop

Percent of map unit: 3 percent
Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

170—Maymen-Etsel-Speaker association, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: hf6y
Elevation: 400 to 6,000 feet
Mean annual precipitation: 22 to 70 inches
Mean annual air temperature: 45 to 68 degrees F
Frost-free period: 90 to 330 days
Farmland classification: Not prime farmland

Map Unit Composition

Maymen and similar soils: 35 percent
Etsel and similar soils: 30 percent
Speaker and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Maymen

Setting

Landform: Mountains, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 12 inches: gravelly loam
H2 - 12 to 22 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 12 to 16 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 1.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D

Hydric soil rating: No

Description of Etsel

Setting

Landform: Mountains, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 3 inches: gravelly loam
H2 - 3 to 10 inches: very gravelly loam
H3 - 10 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 10 to 14 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 0.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Speaker

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Residuum weathered from sandstone

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 27 inches: gravelly clay loam
H3 - 27 to 60 inches: weathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 27 to 31 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Sanhedrin

Percent of map unit: 3 percent
Hydric soil rating: No

Marpa

Percent of map unit: 3 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 3 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 3 percent
Hydric soil rating: No

Neuns

Percent of map unit: 3 percent
Hydric soil rating: No

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APPENDIX C: Prism Climate Precipitation

	Recharge Area (acres)	P (inches)	CN	S (inches)	I_a (inches)	Q (inches)	Recharge = $P - Q - 0.5*I_a$ (inches)	Recharge (AF)
Min	96.57	9.29	84	1.90	0.38	7.34	1.76	14.16
Avg	96.57	43.59	84	1.90	0.38	41.38	2.01	16.21

Use to find rainfall needed to infiltrate to satisfy the demand

Demand	96.57	0.78	84	1.90	0.38	0.07	0.52	4.19	2

Recharge Area: Approximate
P : predicted by Prism https://prism.oregonstate.edu/explorer/.
CN: TR-55 pdf pg 2-5

50% Infiltration Remainder		
	0.5*Ia (inches)	AF
50% of I	0.19	1.53

PRISM Time Series Data
Location: Lat: 39.0005 Lon: -123.0089 Elev: 2369ft
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: Off
Time series generated: 2022-Jul-29
Details: http://www.prism.oregonstate.edu/documents/PRISM_datasets.pdf

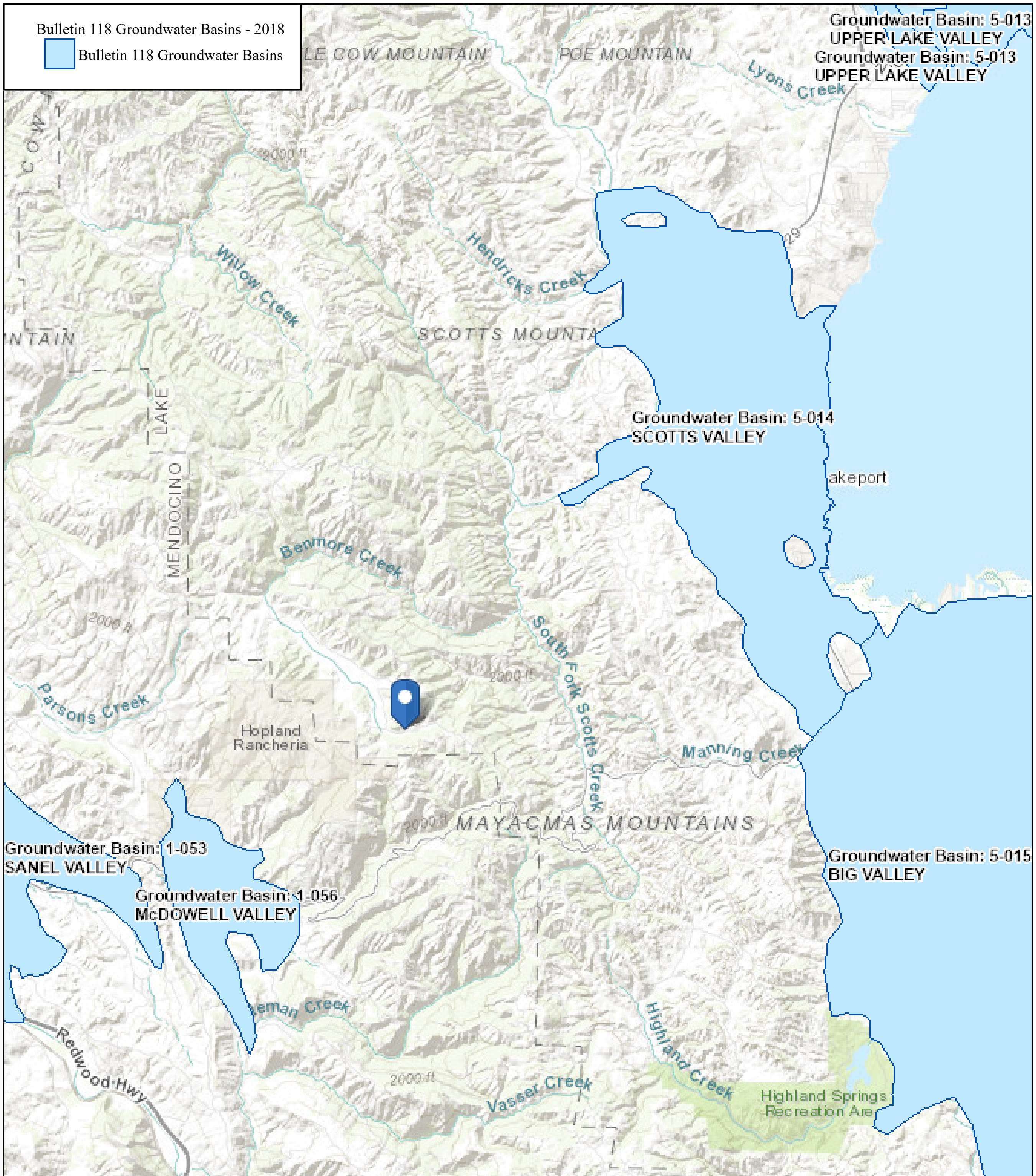
Date	ppt (inches)
1895	52.82
1896	60.89
1897	40.89
1898	25.85
1899	54.22
1900	36.58
1901	40.33
1902	62.66
1903	41.22
1904	66.53
1905	35.62
1906	58.51
1907	55.19
1908	29.89
1909	69.36
1910	27.07
1911	41.5
1912	39.29
1913	46.23
1914	52.33
1915	62.49
1916	44.22
1917	28.07
1918	32.83
1919	39.91
1920	48.21
1921	37.8
1922	42.1
1923	21.5
1924	34.1
1925	43.8
1926	52.63
1927	48.47
1928	37.03
1929	27.68
1930	24.97

	ppt (inches)
Minimum:	9.29
Average:	43.59183
Maximm:	92.35

1931	39.13
1932	22.32
1933	37.53
1934	31.79
1935	37.89
1936	37.56
1937	57.63
1938	49.45
1939	24.02
1940	69.89
1941	69.12
1942	52.37
1943	33.91
1944	42.95
1945	49.1
1946	23.55
1947	27.5
1948	39.62
1949	26.93
1950	50.51
1951	49.65
1952	51.03
1953	37.86
1954	49.21
1955	44.48
1956	38
1957	52.33
1958	54.64
1959	33.28
1960	49.16
1961	35.84
1962	44.55
1963	46.03
1964	48.96
1965	40.09
1966	42.85
1967	44.79
1968	48.41
1969	57.42
1970	63.38
1971	32.92
1972	35.6
1973	64.32
1974	43.64
1975	45.39
1976	17.55
1977	34.04

1978	45.57
1979	53.22
1980	40.74
1981	56.01
1982	61.92
1983	92.35
1984	33.7
1985	27.17
1986	50.82
1987	41.49
1988	30.22
1989	28.97
1990	26.45
1991	34.1
1992	44.84
1993	48.83
1994	32.57
1995	73.92
1996	64.65
1997	40.66
1998	71.88
1999	39.7
2000	40.31
2001	49.72
2002	43.48
2003	44.88
2004	41
2005	59.46
2006	51.29
2007	27.74
2008	32.86
2009	28.92
2010	60.59
2011	34
2012	50.73
2013	9.29
2014	44.41
2015	26.8
2016	53.11
2017	54.74
2018	33.85
2019	58.97
2020	15.66

APPENDIX D: Maps



0 1 2mi N S E W Datum: WGS 1984 Projection: Mercator Auxiliary Zone: Units: Mile Source:	**Groundwater Basin Map** **Project Location:** 3681 Benmore Valley Road Lakeport, CA 95453	NORTH BAY CIVIL CONSULTING Prepared MK — Figure: 1 Job No.: 20-033 — Date: 07/05/22 File:

0 100 200 400

SCALE 1" = 200'

NORTH BAY CIVIL CONSULTING

WWW.NBCANNACONSULTING.COM
PHONE: (707) 293-4224
P.O. BOX 2520
PETALUMA, CA 94953

NOTES:

1. PROPERTY LINES, EASEMENTS, AND TOPOGRAPHIC INFORMATION IS APPROXIMATE AND OBTAINED FROM PUBLICLY AVAILABLE INFORMATION.
2. THERE ARE NO; PUBLIC OR PRIVATE SCHOOLS FOR GRADES 1 THROUGH 12, DEVELOPED PARK CONTAINING PLAYGROUND EQUIPMENT, DRUG OR ALCOHOL REHABILITATION FACILITY, LICENSED CHILD CARE FACILITY OR NURSERY SCHOOL, OR CHURCH OR YOUTH-ORIENTED FACILITY CATERING TO OR PROVIDING SERVICES PRIMARILY INTENDED FOR MINORS WITHIN 1,250 FEET OF THE PROPERTY.
3. FOR PARCEL BOUNDARIES, ADJACENT PARCEL BOUNDARIES, AND LOCATION MAP SEE SHEET 1.0.
4. WATERCOURSE LINETYPE THICKNESS TO DELINEATE THE TOP OF BANK.
5. BASED ON PUBLICLY AVAILABLE DATA THERE ARE NO FAULT ZONES ON THE SUBJECT PROPERTY.
6. ALL ROADWAY SLOPES SHOWN WITHIN THIS PLAN SET ARE LESS THAN 16%. ROADWAY SLOPES EXCEEDING 16% ARE NOT ALLOWED BY GOVERNING JURISDICTION AND ALL FUTURE ROAD IMPROVEMENTS ONSITE SHALL COMPLY.
7. ALL PROPOSED WATER TANKS INTENDED FOR FIRE SUPPRESSION WATER STORAGE SHALL BE STEEL OR FIBERGLASS. ANY EXISTING WATER TANKS INTENDED FOR FIRE SUPPRESSION WATER STORAGE THAT CONSIST OF MATERIAL OTHER THAN STEEL OR FIBERGLASS SHALL BE REPLACED WITH A STEEL OR FIBERGLASS TANK.
8. ALL ROADWAYS SHALL BE IMPROVED TO MEET STATE, FEDERAL, AND LOCAL FIRE JURISDICTIONS' REQUIREMENTS AT THE TIME PERMITS ARE OBTAINED FOR SUCH IMPROVEMENTS.
9. ALL STRUCTURES SHALL HAVE 100' OF DEFENSIBLE SPACE. DEFENSIBLE SPACE SHALL BE AS DEFINED IN STATE, FEDERAL, AND LOCAL FIRE JURISDICTIONS' REQUIREMENTS. STRUCTURES AND/OR LOCATIONS WHICH STORE HAZARDOUS, FLAMMABLE, OR DANGEROUS MATERIAL SHALL ESTABLISH AND MAINTAIN A MINIMUM 300' VEGETATION FUELS REDUCTION BUFFER.

PROJECT ADDRESS:
3681 BENMORE VALLEY ROAD
LAKEPORT, CA 95453

APN:
007-002-27

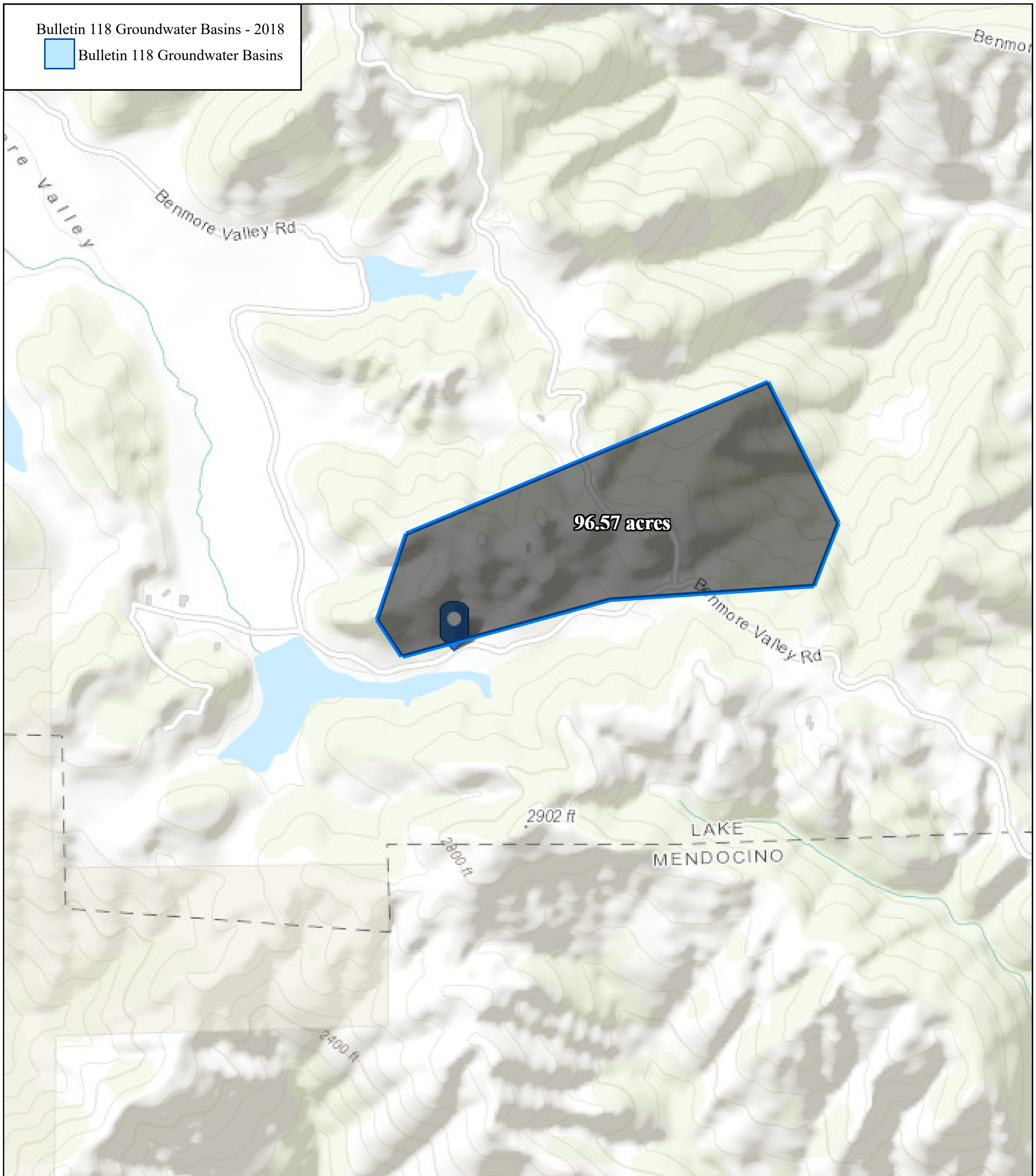
CLIENT:
RICARDO DE MELLO

CONSULTANT:
KYLE GEITNER,
PRINCIPAL CONSULTANT

DATE: 5/18/2020	DRAWN: ANR
JOB #: 20-033	SCALE: AS SHOWN
REVISION:	CHECKED: KJG

SHEET TITLE:
SURROUNDING AREA AERIAL

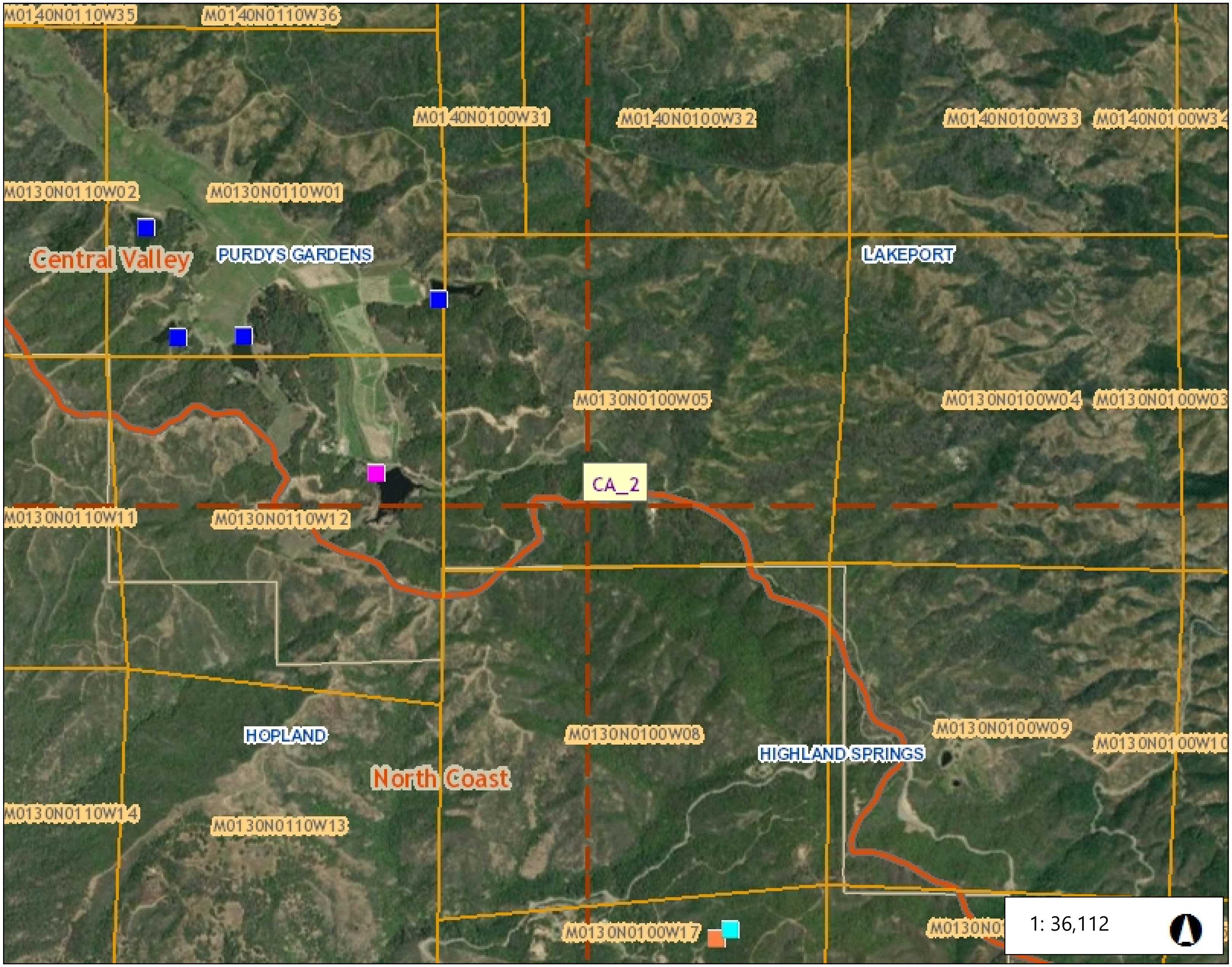
SHEET:
2.0
2 OF 9

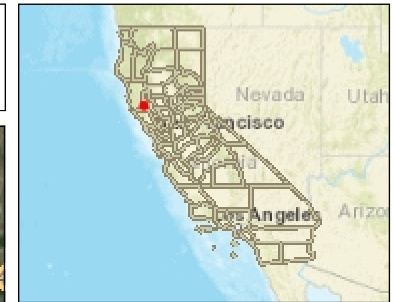


0 0.1 0.2mi Datum: WGS 1984 Projection: Mercator Auxiliary Zone: Units: Mile Source:	**Watershed Area Map** **Project Location:** 3681 Benmore Valley Road Lakeport, CA 95453	NORTH BAY CIVIL CONSULTING Prepared MK — Figure: 2 Job No.: 20-033 — Date: 07/05/22 File:

eWRIMS GIS

California State Water Resources Control Board





Legend

Points of Diversion

- Active
- Adjudicated
- Cancelled
- Certified
- Claimed
- Claimed - Local Oversight
- Inactive
- Licensed
- Pending
- Permitted
- Registered
- Revoked
- State Filing
- Temporary

PLSS

Quad Map Outlines (1:24k)

Regional Board Boundaries

State Plane Zones

Counties

Notes

1.1 0 0.57 1.1 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION