NORTHPOINT
CONSULTING GROUP, INC.

TECHNICAL MEMORANDUM

To: Lake County Community Development Department

From: Annjanette Dodd, PhD, CA PE #77756

Date: Original Date: April 26, 2023
Revised: January 26, 2026

Subject: Osprey Farms - Ordinance 3106 Hydrology Report
7255 Boggs Lane, Kelseyville, California (Cultivation APN: 007-021-21, Non-Cultivation APN: 007-021-16)

INTRODUCTION AND PURPOSE

On July 27, 2021, the Lake County Board of Supervisors passed an Urgency Ordinance (Ordinance 3106) requiring land use applicants to provide enhanced water analysis during a declared drought emergency. Ordinance 3106 requires 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. Ordinance 3106 also requires a Drought Management Plan depicting how the applicant proposes to reduce water use during a declared drought emergency, this plan is included as part of this TM.

This TM was revised in January 2026 to update the author's engineering license information, updated details regarding water demand, and update evaluation of impacts to nearby wells to include long term recharge.

PROJECT LOCATION

The project is located at 7255 Boggs Lane, Kelseyville, California (APN: 007-021-21 and 007-021-16). The total property area is approximately 46.5 acres. The cultivation area is located approximately 3.5 miles southwest of Kelseyville.

PROPOSED PROJECT

The applicant proposes to permit commercial cannabis cultivation in accordance with the Lake County Zoning Ordinance (Article 27). The proposal is for a Type 13 Distribution License, (2) two Type 3 outdoor licenses and (1) one Type 1C outdoor license for a total 89,620 sq. ft. (2.06 acres) within a cultivation area of 112,000 sq. ft. (2.6 acres). The application includes the development of facilities appurtenant to cultivation, storage sheds, irrigation water storage and irrigation infrastructure.

SITE DESCRIPTION AND EXISTING CONDITIONS

The property is designated as 'Agricultural' zoning, with a General Plan land use designated the same and is comprised of two parcels totaling 46.5 acres with an active farm currently cultivating approximately 34 acres of irrigated vineyards, comprised primarily of cabernet sauvignon varieties. There are multiple existing buildings, wells (irrigation and domestic), a residence, roads, and irrigation infrastructure. The Biological Resources Assessment classifies the area as a relatively flat agricultural field with rural residential and vineyard land uses and elevations ranging from 1,276 to 1,476 feet above mean sea level (Natural Investigations Co, 2022). The property drains to the west, towards Adobe Creek (HUC12-180201160304), tributary to Clear Lake. Refer to Attachment 1 – Site Map and Figure 1.

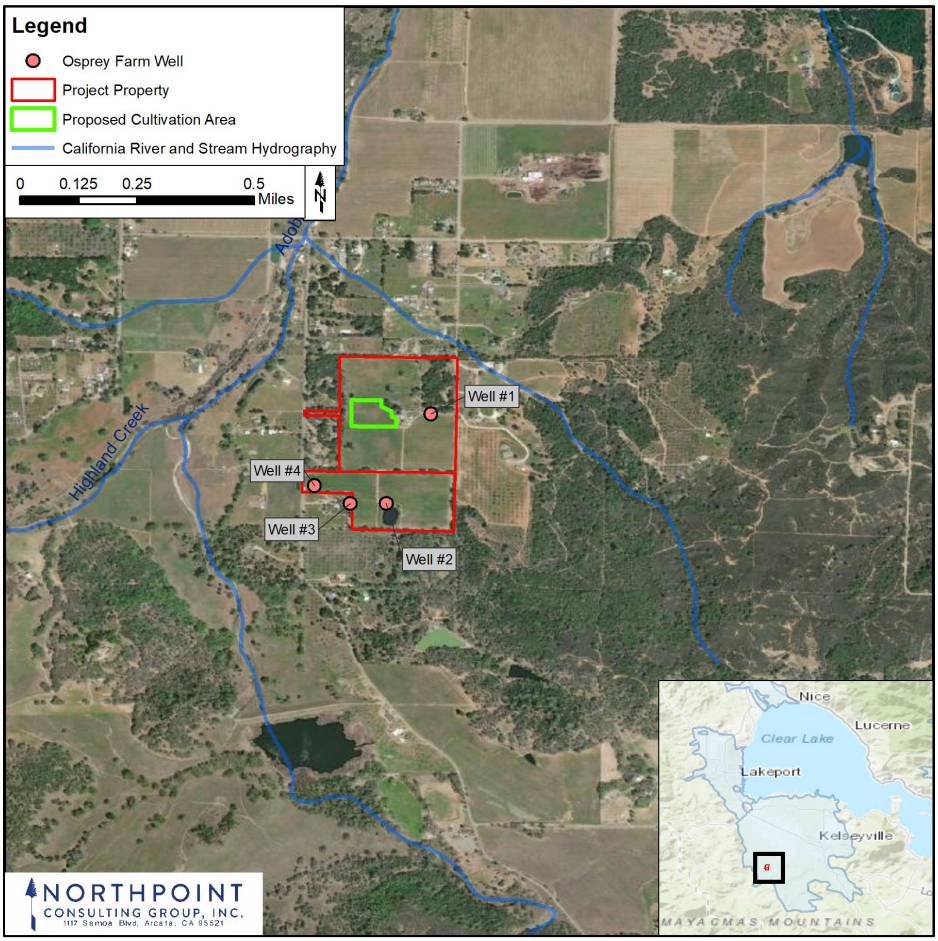

Figure 1. Project site map. The extent of the larger map is depicted by the black box in the inset map.

WATER DEMAND

Existing water demand

A study conducted by McGourty et al. (2014) reported an average annual water demand of 0.9 AFY per acre of vineyards in Big Valley, Lake County, which equates to an approximate existing annual water demand is 24.8 AFY for 34 acres of vineyard (Table 1).

Proposed water demand

The CalCannabis Environmental Impact Report (CDFA, 2017) uses 6.0 gallons per day per plant as an estimated water demand for cannabis cultivation. This is 1.0 gallon (gpd) per plant more than reported by Bauer et. el. (2015), who reported up to 5.0 (gpd) per plant (18.9 Liters/day/plant). Using the more conservative estimate of 6.0 gpd (CDFA, 2017), the demand is 3,000 gpd (2.1 gallons per minute [gpm]) per acre of canopy.

The estimate of 6.0 gpd is a largely conservative estimate for a large outdoor plant, measured in the driest period of the season. Another estimate that is used for outdoor cultivation is 1.2 to 14.7 gallons per canopy square foot per year (Ascent, 2017) which equates to 290-3,560 gpd per acre. Using the upper end of this range, and assuming 65% of the time the cultivation is in the vegetative state and 35% it is in the flowering state and the water use during the flowering period is about 1.7 times the water used during the vegetative state, the total estimated irrigation water demand, is summarized below. The cumulative demand, including continued vineyard cultivation of 31.4 acres (note that a portion of the existing vineyard will be replaced by the 2.6-acre cultivation area), is summarized in (Table 1).

Cannabis Irrigation Demand:

- Average Daily: 7,333 gpd
- Maximum Daily (Flowering Period): 10,071 gpd
- Yearly (cultivation will be a 120-day outdoor season):
    - 2.7 acre-feet per year (AFY) or 880,017 gallons per year

The estimated irrigation water demand reported above is an average daily rate over the course of the growing season for both cannabis and vineyards; however, seasonal water demand likely varies in response to temporal and environmental variables (e.g., temperature, relative humidity, wind, plant age and size, etc.).

Table 1: Estimated irrigation demand for the existing and proposed cultivation activities.

Canopy Type	Area Acres	Irrigation Demand		
		AFY	1,000 Gallons/ year	Average Gallons/day
Existing Vineyard	**34**	**30.6**	**9,971**	**27,318**
Proposed Vineyard	*31.4*	*28.8*	*9,388*	*25,720*
Proposed Cannabis	*2.06*	*2.7*	*880*	*7,333*
Cumulative Proposed	**33.5**	**31.5**	**10,268**	**33,053**
Difference	**-0.5**	**+0.9**	**+297**	**+5,735**

WATER SOURCE AND SUPPLY

The irrigation water source is an existing, permitted groundwater well (Well #4). There are five existing wells on the project property drilled into alluvial sands, gravels, and clays (Attachment 1, Figure 1, and Table 2). Well #5 is a domestic well located just north of Well #1 (Attachment 1) that does not have a Well Completion Report (WCR).

The geologic logs of the WCRs for Well #1 through #4 are consistent with the mapped Quaternary alluvium in the Geologic Map for the Big Valley Basin Groundwater Sustainability Plan (GSP, 2022) and the Kelseyville Quadrangle (McNitt et al., 1968). Wells #1 and #5 are domestic wells and would not be used for cannabis cultivation. Well #2 is an existing agricultural well used to irrigate the existing vineyard. Well #3 is an agricultural well that is not currently in use. Well #4 is also an existing agricultural well. Well #4 will be the primary well to supply water for cannabis irrigation. Wells #2 and #3 will be used as backup water supply in the case of emergency.

In addition to vineyard irrigation Well #2, there is an existing water storage pond, with a surface area of approximately 30,300 sq. ft. on APN 007-021-16. This pond is used to store water to irrigate the existing vineyard and is not proposed to be utilized for cannabis cultivation purposes. The water storage volume of the pond is approximately 4.5 acre-feet (gallons). There is approximately 1,465,000 gallons of water storage for the vineyards or at least 50 days of water storage for the vineyards .

Details and parameters for from the WCRs for Well #1 through #4, are summarized in Table 2.

Table 2: Permitted groundwater wells and well parameters at Osprey Farm.

Well	Lat/Long	Date Drilled	Depth Drilled (ft bgs)	Depth to Static Water Level (ft bgs)	Well Test Yield (gpm)	Drawdown (ft bgs)	Water-Bearing Geologic Unit
Well #1 - Domestic	38.952043, -122.886509	9/21/2017	100	Not reported	10	100	Quaternary alluvium
Well #2 - Agricultural Vineyard	38.949238, -122.887986	9/20/2017	100	23	60	98	Quaternary alluvium
Well #3 - Agricultural Backup	38.949252, -122.889074	4/13/2018	100	26	45	98	Quaternary alluvium
Well #4 - Agricultural Cannabis	38.949600, -122.890418	4/24/2018	120	10	50	120	Quaternary alluvium

IRRIGATION METHOD AND WATER STORAGE

The project proposes to use Well #4 to fill four water storage tanks, dedicated to cannabis irrigation water storage, adjacent to the proposed cultivation area, amounting to a total of 20,500 gallons of water storage, or 2-4 days' worth of storage. Water would be pumped to the storage tanks by a 1 hp to 1.5 hp solar pump. Water from the storage tanks will be piped to drip irrigation systems within each of the greenhouses. Drip lines will be sized to irrigate the cultivation areas at a slow rate to maximize absorption and prevent runoff. Drip irrigation systems, when implemented properly, conserve water compared to other irrigation techniques.

Typically, irrigation would occur over about a 2 to 6 hour period at least every other day. The storage tanks would be filled slowly using a 1 hp to 1.5 hp solar pump. At 5 to 10 gpm, it would take approximately 12 to 24 hours to refill the average daily demand of 7,333 gallons.

GROUNDWATER BASIN INFORMATION AND HYDROGEOLOGY

The project well is located in the western Big Valley Groundwater Basin (California Bulletin 118 Basin #5-15). The Big Valley Groundwater Basin includes the watersheds of Manning Creek, Adobe Creek, Hill Creek, Kelsey Creek, Cole Creek, and Highland Creek. The project well is located within the Adobe Creek watershed, which drains the western sector of the Big Valley Groundwater Basin.

According to the Big Valley Groundwater Sustainability Plan (Big Valley GSP, 2022), the Big Valley Basin is comprised of two distinct hydrogeologic regimes - Quaternary alluvial and lacustrine basin fill deposits in the northern portion of the basin and raised uplands of the Kelseyville Formation in the southern portion of the basin. Other identified water-bearing formations include a thin 'Volcanic Ash' aquifer overlying the central portion of the basin, and fractured bedrock primarily found in upland areas. The structural boundaries of the Big Valley Groundwater Basin are formed by two major strike-slip faults – the Collayomi fault on the east and the Scotts Valley fault on the west. The Big Valley Fault intersects the Big Valley basin along a NW-SE trajectory, marking a structural boundary between the northern and southern hydrogeologic regimes. The basin borders Mesozoic volcanic and metavolcanic rock to the west, Jurassic-Cretaceous Franciscan Formation units to the south and west (which also constitute the basin basement rock), Clear Lake to the north, and Clear Lake Volcanics to the east.

According to Big Valley GSP, groundwater flow in the Big Valley Basin generally flows northward and is driven by topographic gradients into Clear Lake. Recharge in the northern portion of the Big Valley Basin is primarily infiltration from precipitation and underflow from the Kelsey Creek and Adobe Creek-Manning Creek Subbasins. The annual water budget is generally balanced, with some annual fluctuation dependent upon hydrologic conditions. The estimated storage capacity across the basin is 105,000 AF, with a usable storage capacity of 60,000 AF. The sustainable yield is 29,000 AFY which is equal to the volume of groundwater extracted annually in the Big Valley Groundwater Basin minus the simulated annual decrease in storage under the projected dry-extreme warming climate scenario. The Big Valley GSP concludes that additional measures are not necessary to operate within the sustainable yield, the sustainability goal is currently reached through existing local management of groundwater resources and maintained through proactive monitoring and management.

Depth to the water table in the northern part of the basin is generally much shallower than those of the southern part of the basin. Average winter/spring groundwater levels in the northern Big Valley Basin range between 5- and 20-feet regime, with seasonal low water levels (summer/fall) up to 25 ft lower than winter/spring levels. Groundwater levels have remained generally stable over the past three decades. In general, the magnitude of seasonal groundwater level fluctuations between wet and dry climatic periods are smaller than seasonal fluctuations. In addition, observed groundwater level conditions and simulated water budget results suggest there has been little or no historical long-term change in groundwater storage in the basin.

According to the Big Valley GSP, crop changes over the last twenty years (e.g., pear crops replaced by wine grapes) has resulted in a reduction of overall groundwater demand in the Big Valley Groundwater Basin. The three primary water users in the Big Valley Groundwater Basin are agriculture, municipal, and rural domestic users; mostly supplied from groundwater sources. Total water use reported in the GSP is an estimated 12,944 AFY. Most of the water is used for agricultural purposes (11,928 AFY in 2013), with the remainder used by municipal and domestic water uses (622 AFY and 340 AFY, respectively in 2020). Irrigation/Municipal wells range in depth between 48-feet and 524-feet. Irrigation/Municipal well yields

range between 30 and 1,470 gpm (CDM, 2006; California DWR, 2003 and 2021).

The project well is located in the southwestern portion of the northern hydrogeologic regime of the Big Valley Groundwater Basin, situated in Quaternary alluvium associated with Adobe Creek. The depth of groundwater and well geologic information reported in the well logs is consistent with the Quaternary alluvium geologic units mapped in the 7.5-Minute Kelseyville Quadrangle (McNitt et al., 1968). According to the California DWR Water Data Library Station Map (Map (ca.gov)), there are four monitoring wells that have logged historic groundwater conditions within a half-mile of the Project property. With the exception of the extreme drought in 1977 and 1978, groundwater conditions in all four wells have been historically stable, with +/- 10 ft seasonal fluctuations, and consistent levels and conditions as described in the northern hydrogeologic regime of the Big Valley Groundwater Basin.

The Big 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 to 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 Big Valley Groundwater Basin was ranked as a medium priority basin by the CASGEM ranking system (DWR, 2021), requiring the preparation of a Groundwater Sustainability Plan that was completed in January 2022 (Big Valley GSP, 2022).

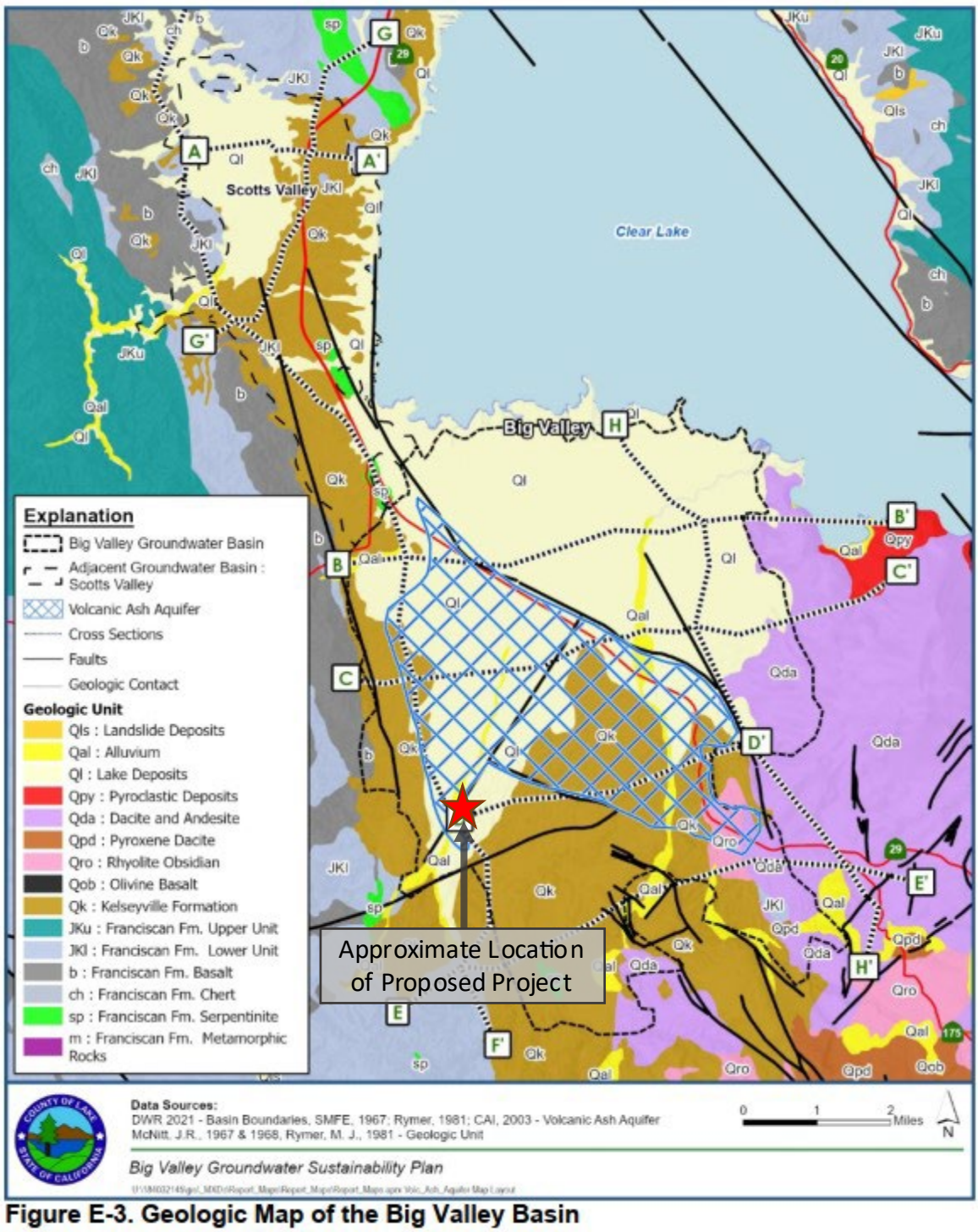

Figure E-3. Geologic Map of the Big Valley Basin

Figure 2: Big Valley Basin Geologic Map, published in the big Valley Basin Groundwater Sustainability Plan (2022). The approximate project location is noted with the red star and corresponds with Quaternary alluvium.

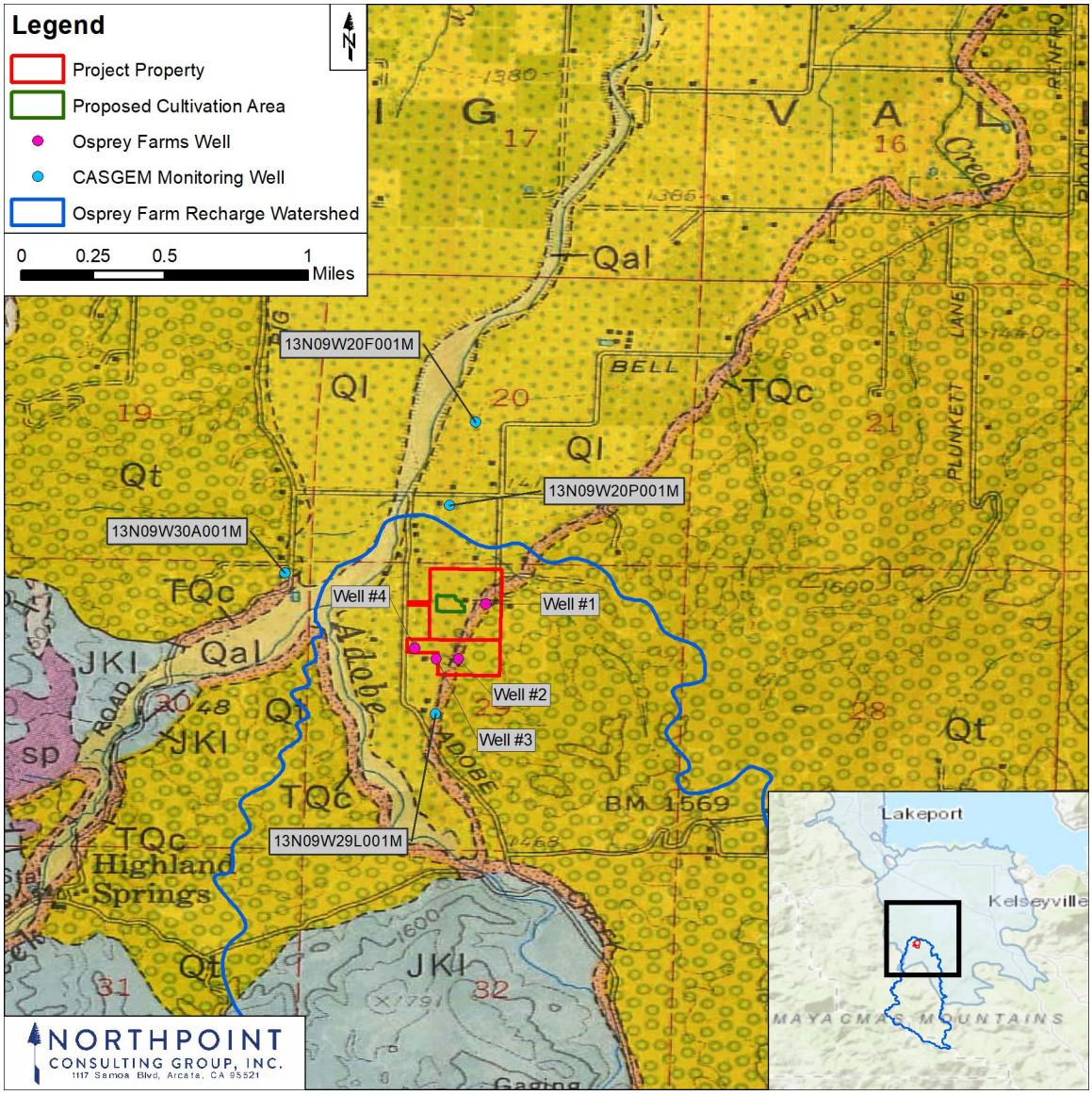

***Figure 3: Geologic Map of the Kelseyville Quadrangle (McNitt et al, 1968). 'Ql'* is lake deposits, *'Qt'* is terrace deposits, and *'TQc'* Cache Formation lacustrine clays, silts, and gravels. Wells #1 through #4 on the project property are drilled into varieties of Quaternary Alluvium.**

GROUNDWATER SOURCE RECHARGE RATE

Annual groundwater 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, that uses readily available data, is the Natural Resources Conservation Service (NRCS) Curve Number (CN) Method (NRCS, 1986). The CN is an empirical parameter used to predict runoff or infiltration from excess rainfall. 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 watershed contributing to the wells. The drainage area upstream of the project wells is approximately 5,657 acres (Figure 1), of this, approximately 356 acres drain to the project area. To estimate the project's share of groundwater recharge, the recharge area was estimated as 356 acres.

Soils are classified into four HSGs (A, B, C, and D) according to the soils ability 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 are determined from the NRCS Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm).

The recharge area is comprised of three HSGs: HSG A, C, and D (Attachment 3). The cover types are a combination of vineyards, orchards, trees, and shrubs. All land cover types were considered in 'fair' condition. The CNs and areas are summarized in Table 3. The weighted CN for the recharge area is 71.

Table 3. Land Use, Soil Group, and Curve Numbers.

Land Use	Soil Group	Area (acres)	Curve Number
Vineyard	A	95.3	62
	C	35.6	82
Orchard/Trees	C	22.8	76
	D	43.7	82
Shrub	C	158.2	70
		Weighted CN	**71**

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 2024, as predicted by PRISM, the annual average precipitation over this period is 31.4 inches and the minimum precipitation over this period is 7.5 inches (Attachment 4).

Using the above information, and assuming that 100% of the initial abstraction is evapotranspiration, the

estimated annual recharge over the recharge area of 356 acres is 120.4 AF during an average year and 88.9 AF during a dry year (Table 4).

Table 4. Estimated annual recharge.

Recharge Area (acres)	P (inches)	CN	S (inches)	I_a (inches)	Q (inches)	Recharge = $P - Q - *I_a$ (inches)	Recharge (AFY)
356	7.5	71	4.08	0.82	4.1	2.9	87.2
356	31.4	71	4.08	0.82	27.0	4.0	119.0

The estimated recharge in Table 4 is based on the assumption that recharge is primarily from precipitation percolating or infiltrating down from the ground surface within the recharge area, however, confined aquifers are generally recharged where the aquifer materials are exposed at the surface (e.g. rock outcrop areas). Another method for estimating recharge is based on estimates determined by the USGS (USGS Fact Sheet 2007-3007). Although determined for humid basins in the east, the USGS estimated long-term average groundwater recharge to be between 10 and 66 percent of precipitation. Over the 356-acre recharge area this would equate to 22.2 – 146.3 AFY during a dry year and 93.3-615.7 AFY during an average year. The recharge estimates in Table 4 fall within these ranges for a dry year and on the lower end for an average year. Using the PRISM Climate Group Precipitation records from 2000 through 2024, the long-term average recharge as 10 percent of precipitation (to be conservative), the recharge was greater than the cumulative demand over the 25-year period, except for the extreme drought year of 2013. However, the average recharge over a two-year period exceeds the cumulative demand over the entire 25-year period from 2000 through 2024 (Figure 4).

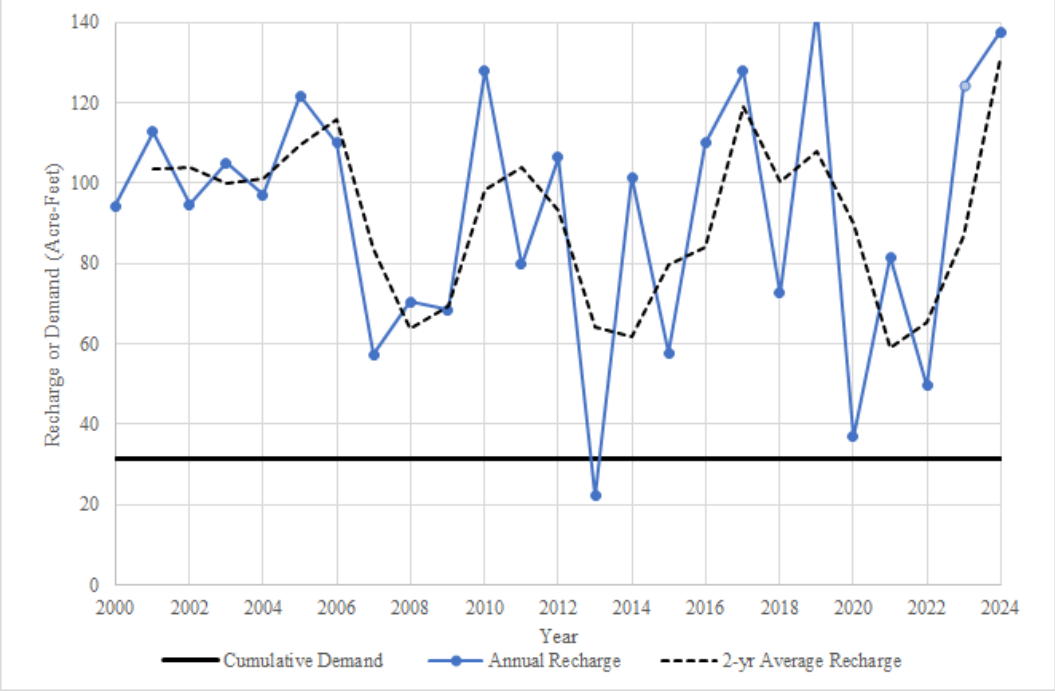

Figure 4. Annual recharge based on 10% of annual precipitation and 2-year average recharge.

CUMULATIVE IMPACT TO SURROUNDING AREAS

The estimated cumulative annual irrigation water demand is approximately 31.5 AFY. The net increase due to cannabis is approximately 0.9 AFY, an approximately 3% increase in water use.

The estimated annual recharge over a 356-acre recharge area during a dry year and an average year is 87.2 AFY and 119.0 AFY, respectively (Table 4). Although determined for humid basins in the east, the USGS (USGS Fact Sheet 2007-3007) estimated long-term average recharge to be between 10 and 66 percent of precipitation. This would equate to 22.2 – 146.3 AFY during a dry year and 93.3-615.7 AFY during an average year, over the 356-acre recharge area. The estimates in Table 4 fall within these ranges. To be conservative, the lowest estimates of recharge, based on 10 percent of precipitation, are used here to estimate long-term average groundwater recharge (Figure 4). The recharge was greater than the cumulative demand from 2000 through 2024, except for the extreme drought year of 2013. However, the average recharge over a two-year period exceeds the cumulative demand over the entire 25-year period of record, indicating sufficient recharge to meet the project's demand along with the existing vineyard demand.

Recharge in the Big Valley Groundwater Basin in the area of the project's water source is primarily infiltration into alluvial geologic units from precipitation, which is estimated to exceed the annual project water demand; thus, there is sufficient recharge to meet the project's demand during both average and dry years.

The usable capacity of the Big Valley Groundwater Basin is 60,000 AF. The projected increase in water use due to the proposed project demand represents less than 0.01% of the storage capacity. Total water use reported in the Big Valley GSP was reported as 12,944 AFY. Over the GSP historical water budget period, the GSP reported an average annual groundwater pumping volume of 13,700 AFY; the proposed project demand represents a maximum of 0.02% of the average annual pumping volume. According to the Big Valley Basin GSP, the sustainable yield in the basin in a dry climate (conservative) scenario is 29,000 AFY. The estimated increase in proposed project water demand represents only 0.01% of the sustained yield and according to the Big Valley GSP, the basin is being operated within the sustainable yield.

Since there is sufficient recharge and supply to meet the project's additional water demand during average and dry years; the project's demand is insignificant, 0.02% or less, of the Big Valley Groundwater Basin usable storage capacity and average annual pumping volume, respectively; the basin is being operated within its sustainable yield; the cannabis is replacing an existing vineyard; and with implementation of water conservation measures (refer to the project's Drought Management Measures, below), the proposed project water use would not have a cumulative impact on the surrounding area.

OPERATIONAL WATER MONITORING, CONSERVATION MEASURES, DROUGHT MANAGEMENT

Standard Operational Measures

Standard operational procedures are recommended, regardless of whether the project is in an area experiencing drought conditions, including ongoing water monitoring and conservation measures that would reduce the overall use of water. These measures should be incorporated into the Water Use Management section of the project's Property Management Plan. The Water Use Management Plan should include information on water sources and metering, estimated water use, water conservation, and the irrigation system. Recommended on-going water conservation measures include, but may not be limited

to, the following:

- No surface water diversion;
- Selection of plant varieties that are suitable for the climate of the region;
- The use of drip irrigation (instead of spray irrigation);
- Cover drip lines with straw mulch or similar to reduce evaporation;
- Water application rates modified from data from soil moisture meters and weather monitoring;
- Shutoff valves on hoses and water pipes;
- Daily visual inspections of irrigation systems;
- Immediate repair of leaking or malfunctioning equipment; and
- Water use metering and budgeting – a water budget will be created every year and water use efficiency from the previous year will be analyzed.

In addition to water use metering, water level monitoring is also required by the Lake County Zoning Ordinance. Ordinance Article 27 Section 27.11(at) 3.v.e. requires the wells to have a meter to measure the amount of water pumped as well as a water level monitor. In addition to the above measures, well water level monitoring and reporting shall be performed as follows:

Seasonal Static Water Level Monitoring: The purpose of seasonal monitoring of the water level in the well(s) is to provide information regarding long-term groundwater elevation trends. It is recommended that the water level in the well(s) be measured and recorded once in the Spring (March/April), before cultivation activities begin, and once in the fall (October) after cultivation is complete. (note: The California Statewide Groundwater Monitoring Program (CASGEM) monitors semi-annually around April 15 and October 15). Records shall be kept, and elevations reported to the County as part of the project's annual reporting requirements. Reporting shall include a hydrograph plot of all seasonal water level measurements to-date, beginning with the initial measurement. Seasonal water level trends will aid in the evaluation of the recharge rate of the well(S). For example, if the water level measured during the Spring remains relatively constant from year to year, then the water source is recharging each year.

Water Level Monitoring During Extraction: The purpose of monitoring the water level in the project's cannabis irrigation well during extraction is to evaluate the performance of the well(s) to determine the effect of the pumping rate on the water source during each cultivation season. This information shall be used to determine the capacity and yield of the well to aid the cultivators in determining pump rates and the need for water storage. The frequency of water level monitoring will depend on the source, the source's capacity, and the pumping rate. It is recommended that initially the water level be monitored twice per week or more, and that the frequency be adjusted as needed depending on the impact the pumping rate has on well water levels. Records shall be kept, and elevations reported to the County as part of the project's annual reporting requirements. Reporting shall include a hydrograph plot of the water level measurements during the cultivation season and compared to prior seasons.

Measuring a water level in a well can be difficult and the level of difficulty will depend on site-specific conditions. As part of the well monitoring program, the well owner/operator shall work with a well expert to determine the appropriate methodology and equipment to measure the water level in their well(s) as well as who will conduct the monitoring and recording of the well level data. The methodology of the well monitoring program shall be described and provided in the project's annual report to the County.

The groundwater level monitoring protocol is recommended to provide a framework for the early detection and response if there is groundwater depletion or inadequate recharge. Thus, in addition to

monitoring and reporting, an analysis of the water level monitoring data shall be provided and included in the project's annual report, demonstrating whether use of the well is causing significant drawdown and/or impacts to the surrounding area and what measures were taken to reduce impacts. If there are impacts, a revised Water Management Plan, including a revised water budget, shall be prepared and submitted to the County, for review and approval, demonstrating how the project will operate and mitigate the impacts in the future, including changes in operation, if necessary.

Drought Management Plan / Drought Emergency Water Conservation Measures

Drought can reduce both water availability and water quality necessary for productive farming, ranches, and grazing lands, resulting in significant negative direct and indirect economic impacts to the farm. As discussed above, recommended project monitoring will help detect if seasonal groundwater depletion is occurring, which is especially important during periods of drought. In addition, project reporting requires a revised Water Management Plan that demonstrates how the project will operate to address groundwater depletion.

To plan and prepare for drought conditions, the project will follow recommendations for monitoring, planning, and preparedness provided by the National Integrated Drought Information System - https://www.drought.gov/sectors/agriculture.

In addition to the above ongoing conservation measures, water metering, and reporting, during times of drought emergencies or water scarcity, the project will implement the following additional measures, as needed or appropriate to the site, to reduce water use and ensure both success and decreased impacts to surrounding areas:

- Install additional water storage and/or implement a rainwater catchment system;
- Install moisture meters to monitor how much water is in the soil at the root level and reduce watering to only what is needed to avoid excess;
- Cover the soil and drip-lines with removable plastic covers or similar to reduce evaporation;
- Irrigate only in the early morning hours or before sunset;
- Cover plants with shaded meshes during peak summer heat to reduce plant water needs; and/or
- Use a growing medium that retains water in a way to conserve water and aid plant growth. Organic soil ingredients like peat moss, coco coir, compost and other substances like perlite and vermiculite retain water and provide a good environment for cannabis to grow.

In the event the wells cannot supply the water needed for the project, the following measures may be taken:

- Reduce the amount of cultivation and/or length of cultivation season;
    - The amount of cultivation would be determined based on available water
    - Early crop harvest, if water becomes limited
- Install additional storage and/or implement a rainwater catchment system; and/or
- If possible, develop an alternative, legal, water source that meets the requirements of Lake County Codes and Ordinances.

QUALIFICATIONS OF AUTHOR

Dr. Dodd has a PhD in Water Resources Engineering. In addition, Dr. Dodd is 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. Site Map
2. Well Completion Reports
3. NRCS Soil Survey Results
4. PRISM Climate Precipitation

REFERENCES

Ascent. 2017. Draft Environmental Impact Report for the Amendments to Humboldt County Code Regulating Commercial Cannabis Activities. SCH# 2017042022 Commercial-Cannabis-Draft-EIR-20mb-PDF (humboldtgov.org)

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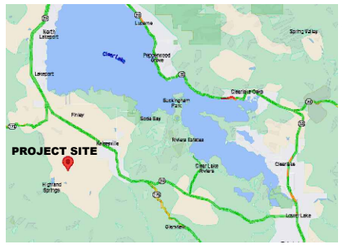
Attachment 1:
Site Plans

OSPREY FARM
MAJOR USE PERMIT
APN: 007-021-21 & 007-021-16



VICINITY MAP
NOT TO SCALE

DIRECTIONS TO SITE:
FROM LOWER LAKE, CA
-HEAD WEST ON MAIN ST TOWARD CA-29 S (APPROX. 0.1 MILES)
-CONTINUE ONTO CA-29 N (APPROX. 14.9 MILES)
-TURN LEFT ONTO BELL HILL RD (APPROX. 0.8 MILES)
-TURN LEFT TO STAY ON BELL HILL RD (APPROX. 2.4 MILES)
-CONTINUE STRAIGHT ONTO BOGGS LN (APPROX. 0.4 MILES)
-TAKE A RIGHT ONTO PRIVATE DRIVEWAY (APPROX. 489 FEET)
-DESTINATION WILL BE STRAIGHT AHEAD

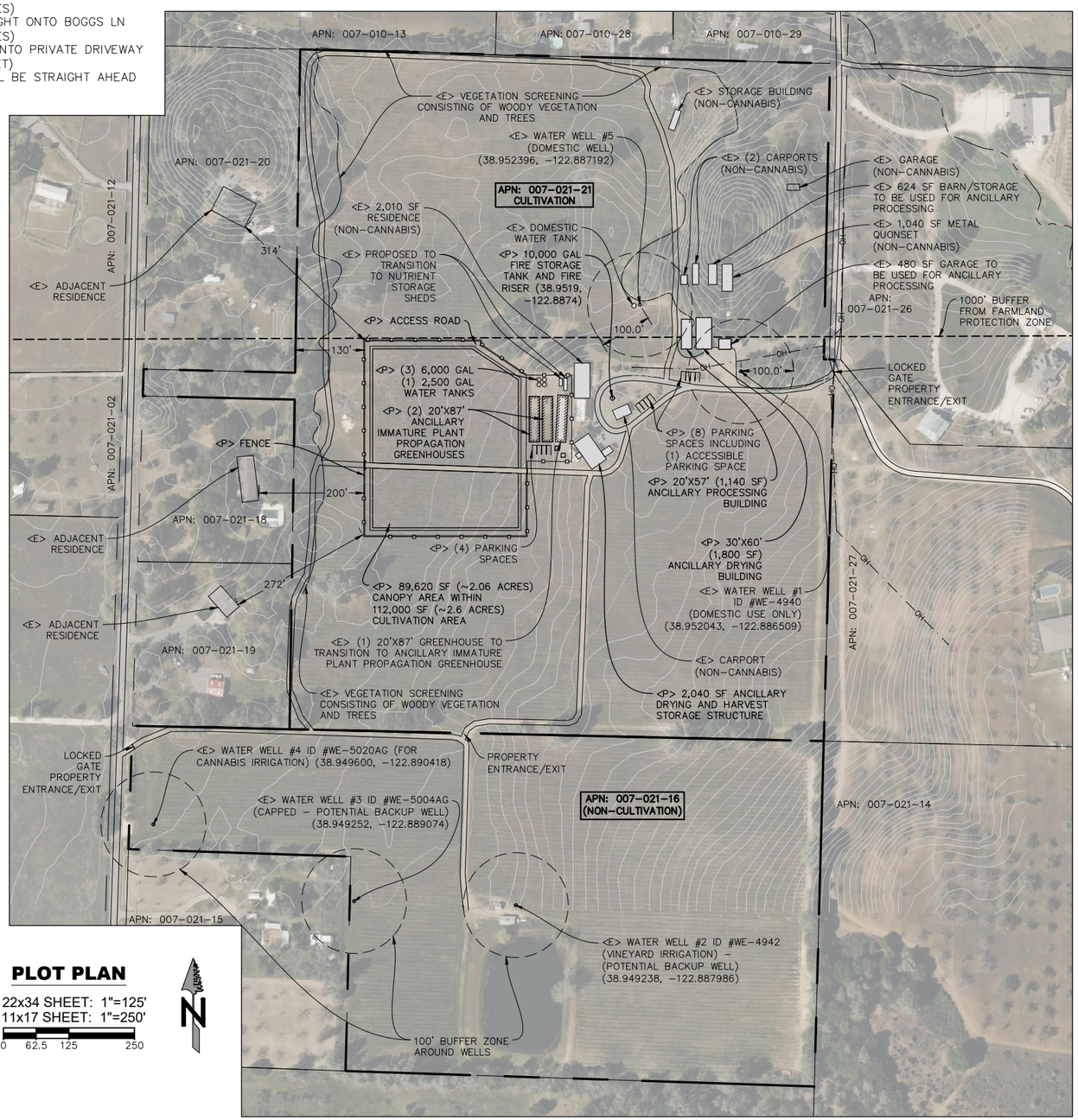
PROJECT DESCRIPTION:

OSPREY FARM IS PROPOSING TO PERMIT COMMERCIAL CANNABIS IN ACCORDANCE WITH THE LAKE COUNTY USE ORDINANCE (ARTICLE 27). THE PROPOSAL IS FOR TWO (2) TYPE 3 OUTDOOR LICENSES AND ONE (1) TYPE 1C OUTDOOR LICENSE, FOR A TOTAL OF UP TO 2.06 ACRES (89,620 SF) OF OUTDOOR CANOPY WITHIN A CULTIVATION AREA OF APPROXIMATELY 2.6 ACRES (112,000 SF), AND A TYPE 13 SELF-DISTRIBUTION LICENSE. THE PROPOSAL INCLUDES THE DEVELOPMENT OF FACILITIES APPURTENANT TO OUTDOOR CANNABIS CULTIVATION, INCLUDING TEMPORARY HOOP HOUSES, ANCILLARY IMMATURE PLANT PROPAGATION GREENHOUSES, ANCILLARY PROCESSING AND TEMPORARY CANNABIS PROCESSING STRUCTURES, FACILITIES FOR DRYING AND CURING OF HARVESTED CANNABIS, STORAGE SHEDS, AND IRRIGATION INFRASTRUCTURE.

OUTDOOR CULTIVATION CANOPY WILL BE FULL-SUN OUTDOOR OR IF TEMPORARY HOOP HOUSES ARE USED, TEMPORARY AGRICULTURAL EXEMPT HOOP STRUCTURES WILL BE INSTALLED PER THE REQUIREMENTS OF ORDINANCE NO. 3132. TEMPORARY AG-EXEMPT CANNABIS PROCESSING STRUCTURES SUCH AS SHIPPING CONTAINERS WOULD BE INSTALLED PER THE REQUIREMENTS OF ORDINANCE NO. 3135 UNTIL THE 1,140 SF ANCILLARY PROCESSING BUILDING AND 1,800 SF ANCILLARY DRYING BUILDING ARE CONSTRUCTED.

GENERAL NOTES:

1. DRAWING SCALE AS NOTED. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.
2. THIS IS NOT A BOUNDARY SURVEY. BOUNDARY INFORMATION DEPICTED HAS BEEN OBTAINED FROM LAKE COUNTY 2015 GIS DATA. NORTHPOINT CONSULTING GROUP, INC. HAS NOT VERIFIED THIS PROPERTY BOUNDARY.
3. THERE ARE NO NEARBY SCHOOLS, SCHOOL BUS STOPS, PLACES OF WORSHIP, PUBLIC PARKS OR TRIBAL RESOURCES WITHIN 1,000 FEET OF THE PROPOSED CULTIVATION AREA.
4. THERE ARE NO RESIDENCES ON ADJOINING PARCELS WITHIN 200 FEET OF THE PROPOSED CULTIVATION AREAS.
5. ANY EXISTING DEVELOPMENT CONSTRUCTED WITHOUT THE BENEFIT OF COUNTY REVIEW WILL BE SUBJECT TO THE LAKE COUNTY BUILDING DEPARTMENT UPON APPROVAL OF THE USE PERMIT.
6. SINCE EXISTING VINEYARD WILL BE TRANSITIONED INTO CANNABIS CANOPY, NO GRADING IS PROPOSED.



PLOT PLAN
22x34 SHEET: 1"=125'
11x17 SHEET: 1"=250'
0 62.5 125 250

PROJECT INFORMATION:

APPLICANT:
ALFRED FONTANA IV
7255 BOGGS LANE
KELSEYVILLE, CA 95451

PROPERTY OWNER:
OSPREY VINEYARDS, LLC
416 DIXON DRIVE
LAKEPORT, CA 95453

APPLICANTS AGENT:
NORTHPOINT CONSULTING GROUP, INC
1117 SAMOA BLVD.
ARCATA, CA 95521
(707) 798-6438

SITE ADDRESS:
APN: 007-021-21 & 007-021-16
7255 BOGGS LN & 7314 ADOBE CREEK RD
KELSEYVILLE, CA 95451

ZONING = A (AGRICULTURAL)
A-SC (AGRICULTURAL SCENIC COMBINED NON-CULTIVATION)

OUTDOOR CANOPY AREA = 89,620 SF

FARMLAND PROTECTION ZONE = NO

WATER	= PRIVATE
SEWER	= PRIVATE

PROPERTY SIZE

APN: 007-021-21	= ±30.61 ACRES
APN: 007-021-16	= ±15.89 ACRES
TOTAL ACREAGE	= ±46.5 ACRES
GRADING	= NONE

SHEET INDEX:

DRAWN BY | REVISIONS | DATE

NORTHPOINT CONSULTING GROUP, INC.
1117 Samoa Blvd., Arcata, CA 95521

OSPREY FARM MAJOR USE PERMIT
7255 BOGGS LN KELSEYVILLE, CA 95451
PLOT PLAN, VICINITY MAP, & PROJECT NOTES

PROJ. MGR.: AD
DRAWN BY: CJG
DATE: 04/07/25
SCALE: AS SHOWN

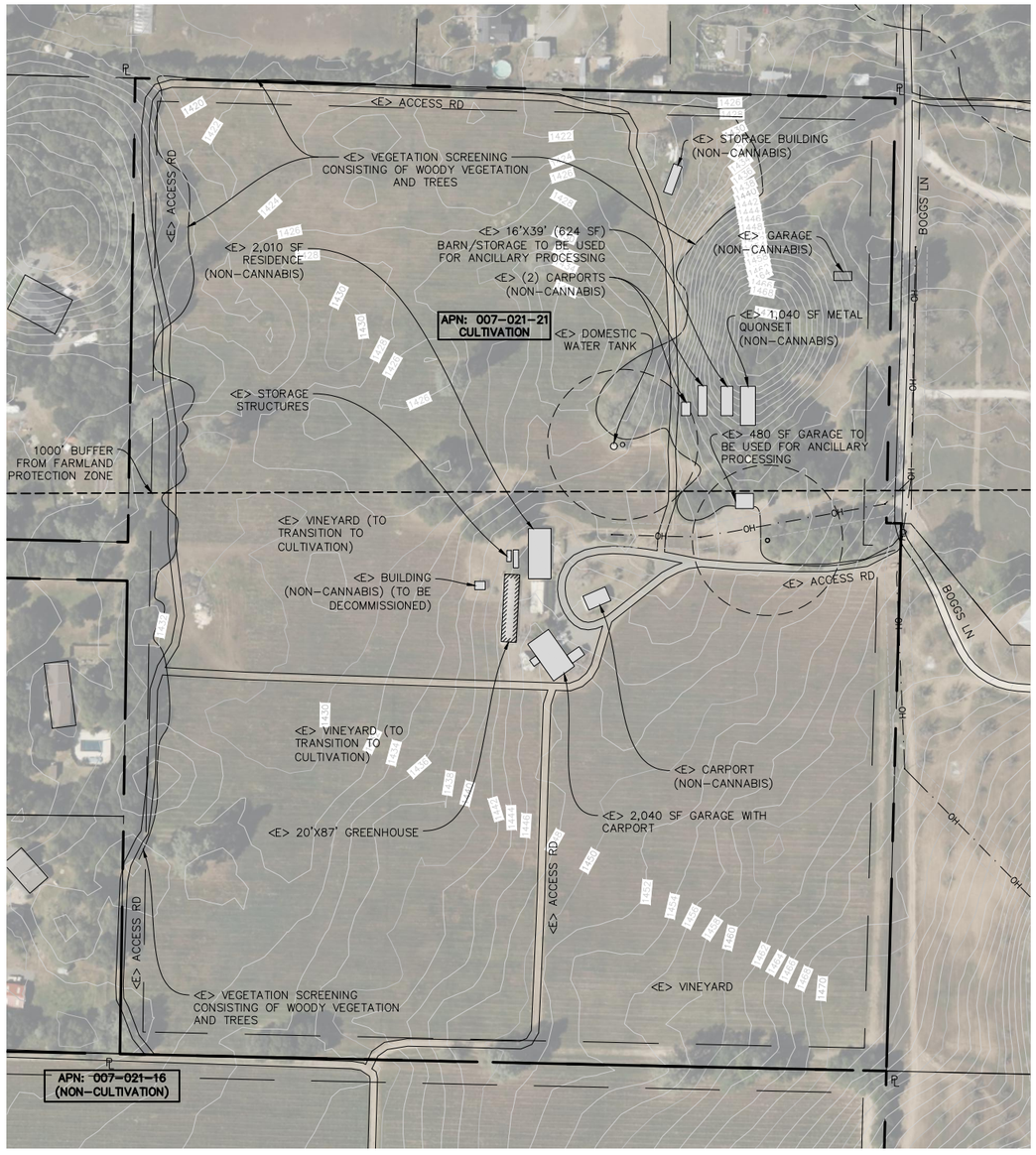
SHEET
C0
22-040

April 7, 2025 - 12:41 Dwg Name: p:\Osprey Farm - 22-040\CAD\Osprey Farms - CUP.dwg Updated By: CodyGarrison

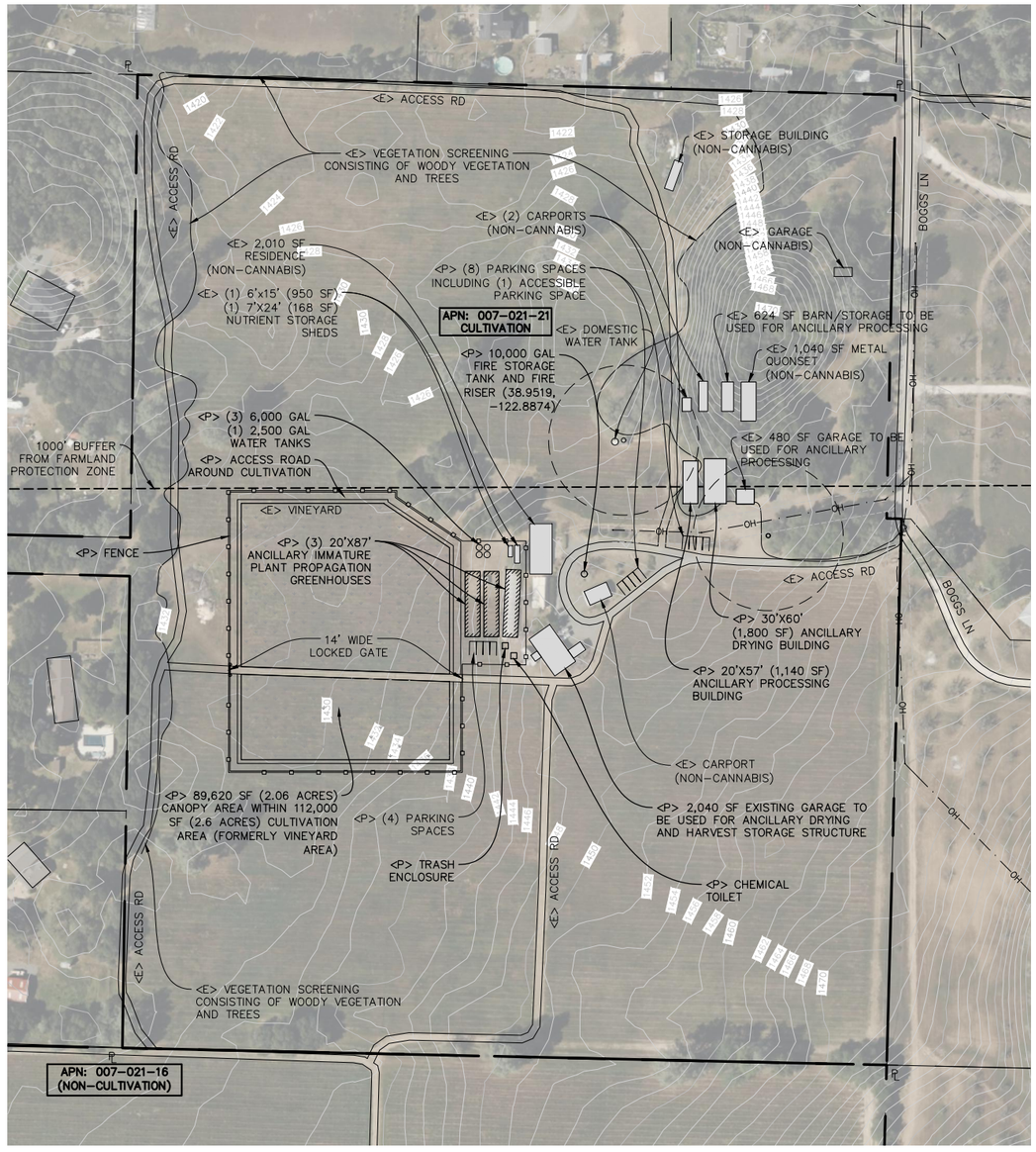
OSPREY FARM

EXISTING AND PROPOSED SITE PLAN

APN: 007-021-21



EXISTING SITE PLAN



PROPOSED SITE PLAN

22x34 SHEET: 1"=100'
11x17 SHEET: 1"=200'

0 50 100 200

N

REVISIONS	DATE	DRAWN BY

NORTHPOINT CONSULTING GROUP, INC.
1117 Samoa Blvd., Arcata, CA 95521

OSPREY FARM MAJOR USE PERMIT
7255 BOGGS LN KELSEYVILLE, CA 95451
EXISTING AND PROPOSED SITE PLAN

PROJ. MGR.: AD
DRAWN BY: CJG
DATE: 04/07/25
SCALE: AS SHOWN

SHEET
C1
22-040

April 7, 2025 - 12:41 Dwg Name: p:\Osprey farm - 22-040\CAD\Osprey Farms - CUP.dwg Updated By: tcoyl

Attachment 2:
Well Completion Reports

OSPREY VINEYARDS

I have been asked to provide data that outlines the water availability at Osprey Vineyards. Attached are four well logs for all the wells dug in 2017 and 2018 for use at Osprey Vineyards. These logs provide all pertinent data related to each well and their output.

Two of the three irrigation wells have been in service for the past two growing seasons. I dug a third well that is not currently needed, but is available for future use.

The fourth well is a domestic well that was dug near the buildings for use at the primary residence, the studio, the shop, and the RV rental site. It is currently capped but can be put into service at any time.

One only has to look and see that the growing season is almost over with the vineyard having been appropriately irrigated and the pond is still full with the strategy we are currently using.

With the third ag well, please note that there is a significant unused supply of available water that has been developed as a RESERVE FOR OSPREY VINEYARDS!

Finally, we have a series of underground drainage collection pipes that fill up the pond during the winter months. This is free water that gravity feeds into the pond.

Surface Feet	to Feet	Diameter (inches)			Thickness (inches)	Diameter (inches)	Type	if Any (inches)
0	100	12 1/4						
0	78		Blank	PVC Sch. 40	SDR21	6		
78	98		Screen	PVC Sch. 40	SDR21	6	Milled Slot	0.032
98	100		Blank	PVC Sch. 40	SDR21	6		

Surface Feet	to Feet	Fill	Description
0	23	Bentonite	
23	100	Filter Pack	#6 Sand

Attachments

- ☐ Geologic Log
- ☐ Well Construction Diagram
- ☐ Geophysical Log(s)
- ☐ Soil/Water Chemical Analyses
- ☑ Other Site Map

Attach additional information, if more space is needed.

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 Company (Person, Firm or Corporation)

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

Signed _____ (C-57 Licensed Water Well Contractor) 11/1/17 (Date Signed) 177681 (C-57 License Number)

DWR 188 REV. 1/2016

Reset Form

File Original with DWR

Page 1 of 1

Owner's Well Number Well #2

State of California
Well Completion Report

No. 6U3566835

Well #1

Click to Get a New Log Number

Date Work Began 09/20/2017 Date Work Ended 9/21/2017

Local Permit Agency Lake County Environmental Health Division

Permit Number WE-4940 Permit Date 9/19/17

Geologic Log

Orientation ◉ Vertical ○ Horizontal ○ Angle Specify _____

Drilling Method Direct Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc.)
0	12	Brown rocky soil
12	26	Gravel sand
26	38	Sandy clay brown
38	57	Sandy cinders
57	70	Sandy clay gray
70	80	Gravel
80	100	Stiff black clay

9-29-17
Domestic 10GPM

Total Depth of Boring 100 Feet

Total Depth of Completed Well 100 Feet

Well Owner

Name Mark Welch

Mailing Address 683 Leslie Street

City Ukiah State Ca Zip 95482

Well Location

Address 7255 Boggs Lane

City Kelseyville County Lake

Latitude 38 (Deg) 57 (Min) 7 (Sec) N Longitude 122 (Deg) 53 (Min) 12 (Sec) W

Datum _____ Decimal Lat. _____ Decimal Long. _____

APN Book 007 Page 021 Parcel 21

Township 13N Range 9W Section 29

Location Sketch

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

North

West

East

South

Indicate distance of well from roads, buildings, fences, rivers, etc. Indicate nearest cross streets.

Please be accurate and complete.

Activity

◉ New Well
○ Modification/Repair
○ Deepen
○ Other _____
○ Destroy
Describe procedures and materials in "Planned Uses" below.

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 _____ (Feet below surface)

Depth to Static Water Level _____ (Feet) Date Measured 09/21/2017

Estimated Yield* 10 (GPM) Test Type Air Lift

Test Length 2.0 (Hours) Total Drawdown 100 (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	100	12							
0	35		Blank		PVC Sch. 40	SDR21	6		
35	55		Screen		PVC Sch. 40	SDR21	6	Milled Slot	0.032
55	75		Blank		PVC Sch. 40	SDR21	6		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	23	Bentonite	
23	100	Filter Pack	#6 Sand

From: **June Angiolini** june@weeksdrilling.com
Subject: Well Completion Reports
Date: October 18, 2019 at 8:54 AM
To: markwelch52@gmail.com

JA

Mark,

Attached are copies of all five holes drilled in 2017/18 just in case. Let me know if you need anything else.

June Angiolini
Weeks Drilling & Pump Co.
Drilling Assistant
(707) 837-3666
june@weeksdrilling.com

File Original with DWR

State of California
Well Completion Report
No. 80355b355

Well #2
Click to Get a New Log Number

Page 1 of 1
Owner's Well Number Well #2
Date Work Began 09/15/2017 Date Work Ended 9/20/2017
Local Permit Agency Lake County Environmental Health Division
Permit Number WE-4942 Permit Date 9/18/17

Geologic Log

Orientation ◉ Vertical ○ Horizontal ○ Angle Specify
Drilling Method Direct Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc.
0	8	Brown rocky and sandy soil
8	25	Green and gray sandy soil
25	83	Sandy gravel
83	100	Black stiff clay

9-18-17
60 gpm
Ag well

Total Depth of Boring 100 Feet
Total Depth of Completed Well 100 Feet

Well Owner
Name Mark Welch
Mailing Address 683 Leslie Street
City Ukiah State Ca Zip 95482

Well Location
Address 7314 Adobe Creek Road
City Kelseyville County Lake
Latitude 38 Deg 56 Min 57 Sec N Longitude 122 Deg 53 Min 17 Sec W
Datum Decimal Lat Decimal Long
APN Book 007 Page 021 Parcel 16
Township 13N Range 9W Section 29

Location Sketch
(Sketch must be drawn by hand after form is printed.)
North
West
East
South

Activity
◉ New Well
○ Modification/Repair
○ Deepen
○ Other
○ Destroy

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 (Feet below surface)
Depth to Static Water Level 23 (Feet) Date Measured 09/20/2017
Estimated Yield * 60 (GPM) Test Type Air Lift
Test Length 2.0 (Hours) Total Drawdown 98 (Feet)
* May not be representative of a well's long term yield

Casings							Annular Material
Depth from	Borehole	Type	Material	Wall	Outside	Screen	Slot Size	Depth from

☐ Soil/Water Chemical Analyses
☑ Other Site Map

Signed _____ 5/3/18 Date Signed | 177681 C-57 License Number

Reset Form

File Original with DWR

State of California
Well Completion Report

No. 6U366597

Page 1 of 1

Owner's Well Number Well #3 - Site 2

Date Work Began 04/06/2018 Date Work Ended 4/13/2018

Local Permit Agency Lake County Environmental Health Division

Permit Number WE-5004AG Permit Date 3/2/18

Well #3

Click to Get a New Log Number

Geologic Log

Orientation ◉ Vertical ○ Horizontal ○ Angle Specify

Drilling Method Direct Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc.)
0	8	Brown rocky soil
8	32	Gray sandy clay
32	38	Sandy gravels
38	67	Gray sandy clay
67	70	Sandy blue green gravel
70	93	Sandy gray clay
93	100	Black clay

4-13-18
45 gpm
Ag Well

Total Depth of Boring 100 Feet

Total Depth of Completed Well 98 Feet

Well Owner

Name Mark Welch

Mailing Address 683 Leslie Street

City Ukiah State Ca Zip 95482

Well Location

Address 7314 Adobe Creek Road

City Kelseyville County Lake

Latitude 38 Deg 56 Min 57 Sec N Longitude 122 Deg 53 Min 21 Sec W

Datum _____ Decimal Lat _____ Decimal Long _____

APN Book 007 Page 021 Parcel 16

Township 13N Range 9W Section 29

Location Sketch

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

North

West East

South

Please provide any additional information that helps locate the well on the property. Please be accurate and complete.

Activity

◉ New Well
○ Modification/Repair
○ Deepen
○ Other
○ Destroy
Describe procedures and materials under SEAL and 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 33 (Feet below surface)

Depth to Static Water Level 26 (Feet) Date Measured 04/24/2018

Estimated Yield * 45 (GPM) Test Type Air Lift

Test Length 2.0 (Hours) Total Drawdown 98 (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	100	10						
0	30		Blank	PVC Sch. 40	SDR21	6		
30	90		Screen	PVC Sch. 40	SDR21	6	Mill Slot	0.032
90	98		Blank	PVC Sch. 40	SDR21	6		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	22	Bentonite	
22	98	Filter Pack	8x16 Sand
98	100	Fill	Native

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☑ Other Site Map

Attach additional information, if more space is needed.

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 Company (Person, Firm or Corporation)

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

Signed _____ (C-57 Licensed Water Well Contractor) 5/3/18 (Date Signed) | 177681 (C-57 License Number)

DWR 188 REV. 1/2018

Reset Form

File Original with DWR

State of California

Well Completion Report

No. 6U3bbbU3

Well #4

Click to Get a New Log Number

Page 1 of 1

Owner's Well Number Well #4 - Site 3

Date Work Began 04/18/2018 Date Work Ended 4/25/2018

Local Permit Agency Lake County Environmental Health Division

Permit Number WE-5020AG Permit Date 4/24/18

Geologic Log

Orientation ◉ Vertical ○ Horizontal ○ Angle Specify

Drilling Method Direct Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc
0	22	Brown rocky soil
22	58	Sandy blue gray clay
58	72	Sandy gravels
72	82	Sandy blue gray clay
82	90	Gray clay with gravel
90	106	Gray sandy clay
106	120	Gray and black clay

4-24-18
Ag well
CAPPED
50gpm

Total Depth of Boring 120 Feet

Total Depth of Completed Well 120 Feet

Well Owner

Name Mark Welch

Mailing Address 683 Leslie Street

City Ukiah State Ca Zip 95482

Well Location

Address 7314 Adobe Creek Road

City Kelseyville County Lake

Latitude 38 Deg 56 Min 59 Sec N Longitude 122 Deg 53 Min 25 Sec W

Datum Decimal Lat. Decimal Long.

APN Book 007 Page 021 Parcel 16

Township 13N Range 9W Section 29

Location Sketch

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

North

West East

South

Illustrate & describe distance of well from roads, buildings, fences, rivers, etc. Indicate north. 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 58 (Feet below surface)

Depth to Static Water Level 10 (Feet) Date Measured 04/24/2018

Estimated Yield * 50 (GPM) Test Type Air Lift

Test Length 2.0 (Hours) Total Drawdown 120 (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	120	10						
0	50		Blank	PVC Sch. 40	SDR21	6		
50	110		Screen	PVC Sch. 40	SDR21	6	Milled Slot	0.032
110	120		Blank	PVC Sch. 40	SDR21	6		

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	24	Bentonite	
24	120	Filter Pack	8x16 Sand

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☑ Other Site Map

Attach additional information if needed.

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 Company
Person, Firm or Corporation

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

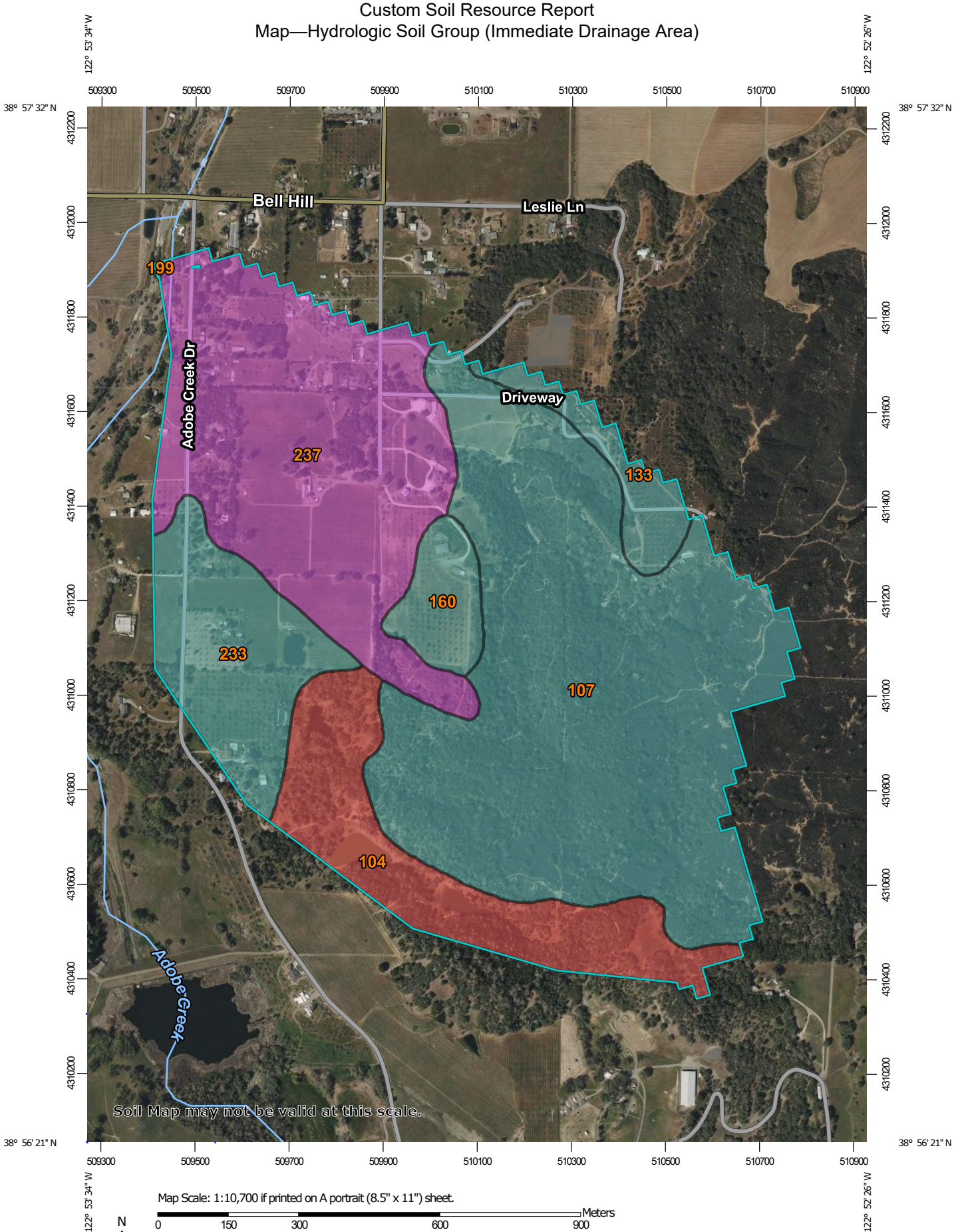
Signed C-57 Licensed Water Well Contractor 5/3/18 Date Signed 177681 C-57 License Number

DWR 188 REV. 2/2016

Reset Form

Attachment 3:
NRCS Soil Survey Results

Custom Soil Resource Report
Map—Hydrologic Soil Group (Immediate Drainage Area)



Map Scale: 1:10,700 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 150 300 600 900

Feet: 0 500 1000 2000 3000

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 19, Sep 1, 2022

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

Date(s) aerial images were photographed: Mar 26, 2022—Apr 25, 2022

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

Table—Hydrologic Soil Group (Immediate Drainage Area)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
104	Asbill clay loam, 8 to 15 percent slopes	D	43.7	12.3%
107	Bally-Phipps complex, 15 to 30 percent slopes	C	158.2	44.5%
133	Forbesville loam, 5 to 15 percent slopes	C	11.1	3.1%
160	Manzanita loam, 5 to 15 percent slopes	C	11.7	3.3%
199	Riverwash		0.1	0.0%
233	Still loam, stratified substratum	C	35.6	10.0%
237	Talmage very gravelly sandy loam	A	95.3	26.8%
Totals for Area of Interest			**355.8**	**100.0%**

Rating Options—Hydrologic Soil Group (Immediate Drainage Area)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Attachment 4:
PRISM Climate Precipitation

	A	B	C	D	E	F	G
1	PRISM Time Series Data						
2	Location: Lat: 38.9180 Lon: -122.8870 Elev: 1719ft						
3	Climate variable: ppt						
4	Spatial resolution: 4km						
5	Period: 1895 - 2021						
6	Dataset: AN81m						
7	PRISM day definition: 24 hours ending at 1200 UTC on the day shown						
8	Grid Cell Interpolation: On						
9	Time series generated: 2022-Aug-08						
10	Details: http://www.prism.oregonstate.edu/documents/PRISM_datasets.pdf						
11	Date	ppt (inches)					
12	1895	43.11	**Average**	**35.4**			
13	1896	48.54	**Minimum**	**7.9**			
14	1897	31.35					
15	1898	20.7					
16	1899	43.93					
17	1900	30.24					
18	1901	32.88					
19	1902	50.23					
20	1903	31.83					
21	1904	54.19					
22	1905	29.22					
23	1906	49.25					
24	1907	43.31					
25	1908	24.42					
26	1909	59.22					
27	1910	21.69					
28	1911	37.65					
29	1912	27.62					
30	1913	33.83					
31	1914	41.58					
32	1915	50.25					
33	1916	35.68					
34	1917	19.32					
35	1918	26.57					
36	1919	30.6					
37	1920	37.36					
38	1921	30.41					
39	1922	34.15					
40	1923	17.19					
41	1924	27.31					
42	1925	35.84					
43	1926	42.95					
44	1927	38.23					
45	1928	27.55					
46	1929	19.63					

	A	B	C	D	E	F	G
47	1930	20.4					
48	1931	31.25					
49	1932	16.12					
50	1933	27.82					
51	1934	24.18					
52	1935	30.4					
53	1936	30.31					
54	1937	43.74					
55	1938	38.37					
56	1939	16.84					
57	1940	57.7					
58	1941	55.37					
59	1942	42.22					
60	1943	27.17					
61	1944	34.74					
62	1945	39.11					
63	1946	18.96					
64	1947	22.15					
65	1948	30.49					
66	1949	22.41					
67	1950	43.58					
68	1951	38.35					
69	1952	42.14					
70	1953	28.81					
71	1954	39.31					
72	1955	34.88					
73	1956	34.19					
74	1957	42.99					
75	1958	45.88					
76	1959	27.92					
77	1960	38.71					
78	1961	27.84					
79	1962	38.88					
80	1963	38.92					
81	1964	36.71					
82	1965	33.18					
83	1966	33.56					
84	1967	38.04					
85	1968	40.71					
86	1969	48.17					
87	1970	51.56					
88	1971	25.01					
89	1972	28					
90	1973	54.8					
91	1974	33.9					
92	1975	36.14					

	A	B	C	D	E	F	G
93	1976	14.45					
94	1977	27.77					
95	1978	39.26					
96	1979	46.3					
97	1980	34.57					
98	1981	45.95					
99	1982	49.38					
100	1983	78.59					
101	1984	26.72					
102	1985	22.53					
103	1986	45.77					
104	1987	33.67					
105	1988	22.92					
106	1989	23.95					
107	1990	21.84					
108	1991	28.51					
109	1992	37.33					
110	1993	41.05					
111	1994	27.16					
112	1995	61.75					
113	1996	51.6					
114	1997	35.12					
115	1998	61.75					
116	1999	31.68					
117	2000	35.12					
118	2001	41.62					
119	2002	35.35					
120	2003	37.54					
121	2004	35.56					
122	2005	45.72					
123	2006	41.36					
124	2007	22.24					
125	2008	26.57					
126	2009	26.1					
127	2010	49.12					
128	2011	29.13					
129	2012	41.41					
130	2013	7.9					
131	2014	37.53					
132	2015	20.8					
133	2016	41.77					
134	2017	48.08					
135	2018	27.45					
136	2019	53.35					
137	2020	13.19					
138	2021	30.59					