Cannabis Operation

8531 High Valley Road
Clearlake Oaks, CA 95423

LIU FARM

PROPERTY MANAGEMENT PLAN (PMP) FOR CANNABIS OPERATIONS

Risk Level: Tier 2, Low Risk

March 31, 2020

BC Engineering Group, Inc.
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Project Number: 1671-19

Project Information and Contacts

PROJECT INFORMATION

Name of Project:	Cannabis Operations Project
Project Location:	8531 High Valley Road, Clearlake Oaks, CA 95423
APN:	006-003-34
Zoning:	RL
Cultivation Area:	546,644 Sq/Ft
Canopy Area:	304,710 Sq/Ft

CULTIVATOR INFORMATION

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Section 1 Air Quality

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's, in Lake County, California.

1.1 PURPOSE

Liu Farm's Air Quality Management Plan (AQMP) is designed to promote health, safety, welfare, environmental quality, and reduce potential for nuisance.

The Air Quality Management Plan includes measures to monitor and evaluate the performance and implementation of the plan, as well as ensure that all data and information is reported to the appropriate local agencies.

1.2 SCOPE

The Liu Farm's Air Quality Management Plan is as follows:

- Identifying equipment and activities which may cause odor, contaminates, or other air quality nuisance;
- Establishing responsible parties and best management practices if nuisance complaints occur;
- Mitigating the amount of air pollution and particulates that are generated and emitted during the build-out and expansion of Liu Farm's cultivation site;
- Minimizing employee exposure to contaminants and particulates that may be harmful to their health, including areas where cannabis plant may be dried, cured, trimmed, packaged or handled;
- All employees are required to follow the procedures outlined in this plan.

1.3 OVERVIEW

Liu Farm will cultivate cannabis using organic methods and preventative pest management strategies along with predator insect defense introduction, and therefore we anticipate generating a minimal amount of air pollution or particulates that may pose any risk of harm to environment and/or any individual working at or near the cultivation site. Liu Farms cultivation site is located in a remote area off of High Valley Road. The cultivation site will comply to all reasonable complaints filed by neighbors within 1,000 feet of the proposed site. Liu Farm's shall plant Mint, Peppermint, Rosemary, Thyme, Basil, and Onions around the perimeter of the proposed cultivation site to counteract the smell during the most fragrant part of the year from September to October. If there is an odor complaint Liu Farms will respond immediately with a phone call and immediate attention to the complaint filed.

1.4 ROLES AND RESPONSIBILITIES

Meili Liu, Director of Cultivation will be personally responsible for responding to any complaints by neighbors.

Liu Farm will supply neighboring landowners with the personal contact information for Meili Liu

1.5 MINIMIZING ODOR, AIR POLLUTION AND PARTICULATES

Liu Farm anticipates the following sources to be the most significant emitters of odor, air pollutants and particulates. However, we do not anticipate any single source or combined sources to be harmful or detrimental to the neighboring residences or the air quality of Lake County.

Sources/Activities:

- Dust from gravel road and cultivation soil from site;
- Emission from gas powered tractor, wood chipper, and other equipment;
- Odor from processing facility and cultivation site;

DUST FROM GRAVEL ROAD (BMPs)

Liu Farm understands that unpaved roads can be a potential source of air pollutants. This problem generally occurs during the dry season from May through October. Liu Farm will have BMPs in place to mitigate particulate matter from entering the air from vehicles of visitors or employees. Mainly, Liu Farms will have traffic signs indicating desired vehicle speed. The property road will be well maintained and monitored regularly for quality of its surfacing. Possible mitigation measures for reducing particulate matter produced by gravel road travel includes, but is not limited to the following:

- Hiring a water truck as needed to wet the road surface and reduce particulate generation;
- Maintaining the surface of the road; or as needed to reduce particulate matter;
- Reducing the amount of travel on dirt roads through efficient management and enforcing strict speed limits on all road on property;
- Consolidate activities like solid waste removal and supply deliveries to as few per possible per week.

DUST GENERATION FROM SITE (BMPs)

Liu Farm understands that there is potential for the generation of particulate matter during soil disturbance activities. The following best management practices will be employed to reduce this risk:

- Establish a full, year-round ground cover within the cultivation site to limit particulate generation during work activities;
- Limit soil disturbance activities to periods when enough moisture is present in the soil to limit particulate generation;
- The actual cultivation site will be mulched or planted into cover crop as soon as possible after any activities that disturb the surface of the soil.

EMMISION FROM TRACTOR AND OTHER EQUIPMENT (BMPs)

Liu Farm expects to use the following equipment, which could impact air quality, for cannabis cultivation related activities:

- Gas powered back-up generator
- Gas powered brush cutter

In order to mitigate potential effects on air quality from the named farm equipment, Liu Farm will ensure that this equipment is used on a minimal basis and all equipment is properly maintained to ensure efficient operation.

ODOR FROM PROCESSING FACILITY(BMPs)

In rooms where cannabis is handled, dried, cured and generally processed, the atmosphere will be scrubbed using in-line fans that have been coupled to filters that contain activated carbon. Activated carbon is the cannabis industry standard for the elimination of cannabis odor. Additional HEPA filters will be installed and used to eliminate harmful bacteria and particulates.

Liu Farm will log and maintain accurate records, repairs and replacements of the ventilation and odor mitigation systems and will retain records.

POINT SOURCE CONTROL MANAGEMENT

No materials will be used such as paints, composite wood, adhesives, and sealants that have the potential for significant emissions. Construction areas, if any, will be isolated to prevent contaminating non-construction areas.

1.6 ODOR COMPLAINT OR NUISANCE MANAGEMENT (BMPS)

Meili Liu will be designated as the responsible party for odor complaints. He will be trained to take the following steps in response to an odor complaint.

- Should an odor complaint be received, he will respond as soon as possible or within 12 hours of receiving the complaint to discuss the issue, recording time, date and person affected, and then will immediately stop all activities that may cause the odor;
- If he believes that the odor drift was caused by the wind, he will stop operations for one hour until the odor dissipates or until the direction of the wind changes, at which point he will restart operations;
- If the complaint occurs for a second time in a period of 8 hours, he will halt operations for the day. In the case that the odor is the result of the receiving or storage of compost, Liu Farm will follow the following

practices:

- Consider blanketing the compost with non-odiferous material;
- Expedite the receiving process.

ADDITIONAL ODOR MITIGATION PRACTICES FOR OUTDOOR CULTIVATION

- Planting hedge rows of native flowering shrubs with coinciding flowering cycles to cannabis, if necessary;
- Development of misting system which serves to increase ambient humidity in the cultivation site and reduce offsite odor drift;

Liu Farm will monitor and document the performance of the Air Quality Management Plan implemented at the premises.

On an annual basis, Liu Farm will review all documentation pertaining to the performance of the Air Quality Management Plan as to determine if the risk of nuisance odors is within acceptable tolerances or ranges, or can be mitigated further by implementing new best management practices.

1.7 REPORTING PERFORMANCE OF AQMP

All data and information will be made available to Lake County Community Development Staff, and the Lake County Air Quality Management District as required or upon request.

1.8 ONGOING REVIEW

Director of Cultivation, Meili Liu, will review all procedures in the AQMP once a year, or as needed; and he will take action to ensure full compliance with local, state, and federal regulations that pertain to air quality.

Section 2 Cultural Resources

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's in Lake County, California and as such will adopt a Cultural Resources Plan.

2.1 PURPOSE

The Cultural Resources Plan (CRP) is intended to protect the cultural, historical, archaeological, and paleontological resources on the lot of record where the permitted activity is located.

In-line with the goals of Lake County, Liu Farm's CRP includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported or available upon request.

2.2 SCOPE

Liu Farm CRP focuses on the following: Description of the procedure if cultural, historical, archaeological, or paleontological resources are found on property. All employees are required to follow the procedures outlined in this plan. Any deviations from this plan must be immediately brought to the attention of Meili Liu, Director of Cultivation.

2.3 OVERVIEW

A cultural resources survey was conducted at 8531 High Valley Road in Clearlake Oaks, on March 7, 2020, by Wolf Creek Archeology. The surveyed area consisted of approximately 20 acres, encompassing the proposed cultivation areas on Liu Farm on the subject parcel. No cultural resources were discovered within the project boundaries. There were also letters sent out to all the local reservations and tribes associated with this location. There was no record of any archeological resources found on the parcel (APN 006-003-34) including the proposed cultivation area.

2.4 IF CULTURAL RESOURCES ARE DISCOVERED (BMPS)

All activities in the vicinity of the find(s) will be temporarily ceased;

- Contact will be made with a qualified archeologist to evaluate the find(s) and to recommend mitigation procedures, if necessary. All evaluation and mitigation procedures to be in accordance with Section 15064.5 of the California Environmental Quality Act per Wolf Creek Archeology recommendations.

Liu Farm does not expect any expansion to the cultivation site; however, before any expansion of current site or development of property is commenced, a revised property management plan and site plan will be submitted to the appropriate jurisdictions by Meili Liu, Director of Cultivation.

Section 3 Energy Usage

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's in Lake County. Upon receiving permits from Lake County, CA, Liu Farm will implement this Energy Plan.

3.1 Purpose

Liu Farm has identified Energy management strategies and technology that will reduce the carbon footprint generated from the cultivation of cannabis. The purpose of the Energy Management Plan (EMP) is to outline objectives and goals for Liu Farm to achieve and identify key strategies and operational procedures that will reduce energy use and consumption.

Liu Farm's Energy Management Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to Lake County and the proper local agencies.

3.2 Scope

The Liu Farm Energy Management Plan focuses on the following:

- Monitoring of energy consumption;
- Establishing a benchmark for performance and efficiency;
- Setting goals for alternative energy and reduction of energy

3.3 Overview

The EMP applies to all operations performed at Liu Farm's cultivation site and that consume energy resources. This includes the usage of all machinery used during the cannabis cultivation process.

The primary goal and objective for the EMP is to establish reliable baseline metrics and benchmark standards for the performance and efficiency of Liu Farm's cultivation site. The Energy Management Plan will track the consumption of:

- Electricity
- Gasoline and Diesel Fuel;
- All employees are required to follow the procedures outlined in this plan. Any deviation from this plan must be immediately brought to the attention of Meili Liu, Director of Cultivation.

3.4 Energy Calculation

The following is Energy Calculation for the proposed permits:

Appliance	Number in Use	Watts/Unit	Hrs./Day	Total Watts/day
Dehumidifier	26	600	12	187,200
Whole Space AC	1	7125	4	28,500
Computers	1	120	5	600
Lighting	52	1050	12	655,200
Fans	169	100	4	67,600
Vacuum	1	650	.5	325
Wireless Router	1	7	24	168
Coffee Maker	1	1500	1500	750
Phone Charger	1	5	10	500
Security System	1	450	24	10,800
Water Pump	9	2000	2	36,000

TOTAL WATTS PER DAY	**996,643**
KWh/DAY	**997**
KWh/MONTH	**29,910**

3.5 Energy (BMPS)

Liu Farm will implement the following best management practices:

- Provide employees with the guidelines for efficient practices;
- Minimize use and turn off lights and unnecessary electronics;
- Conduct annual employee energy efficiency training;
- Use energy efficiency features in all technology;
- Aim for new construction to be net zero energy;
- Non-peak use of pumps, motors, and other energy sources;
- Build shading for buildings and other facilities to reduce load.

ENERGY MANAGEMENT (BMPs)

To develop and implement an effective Energy Management Plan, Liu Farm will:

- Have an energy assessment conducted by local utility service providers;
- Log and maintain electricity and natural gas bills for five years;
- Log and maintain fuel consumption annually;
- Establish goals for energy conservation;
- Maintain accurate recordkeeping as to the cultivation/production;
- Make records and all data available;
- Adjust strategies as needed to meet energy conservation goals.

ALTERNATIVE ENERGY

Liu Farm will install a solar array at its grow site to be the primary source of energy for the cultivation project. The effectiveness of solar energy is dependent on direct sunlight. According to the website Weather Spark, 40% of the days during the winter months are clear or mostly clear in the Clearlake area. Assuming 6 hours per day of energy production on clear or mostly clear days, Liu Farm will require the capacity to produce and store 10 days of energy consumption in a four-day period. This will be accomplished through the instillation of 1,500 300-watt solar panels. The energy produced by the solar panels will charge a bank of batteries which will be used to power the cannabis operations at Liu Farm.

The following is the Energy Production Calculations and their relationship to the previously provided Energy Calculations for the proposed permits:

DAILY ENERGY PRODUCTION (6hr/day)	**2,700 KWh**
ENERGY PRODUCED IN 4 DAYS	**10,800 KWh**
ENERGY CONSUMED IN 10 DAYS	**9,970 KWh**

ENERGY CONSERVATION MEASURES

Due to global climate change increasing the concern for public health and environmental impact, California has enacted laws to offset greenhouse gas emissions. As recommended by the Department's Literature Review on the Impacts of Cannabis Cultivation, the cultivator is required to show evidence of carbon offsets. Liu Farms will be in compliance with the CCR Title 3, Division 8, Chapter 1, Section 8305. This project will be 50% solar powered energy or alternative for cultivation purposes by 2023.

3.6 Monitoring and Benchmarking Performance of EMP

Liu Farm is committed to benchmarking and reducing energy consumption relative to the site's expansion and annual consumption goals. To set a benchmark, analysis will be performed on the following:

- Machinery required for the cultivation of cannabis and their efficiency;
- Energy saving alternatives to machinery;
- Operational procedures

3.7 Reporting Performance of EMP

The Result of energy monitoring readings shall be recorded on standard monitoring data forms. All data and information will be reported to Lake County Community Development (CCD; and other interested licensing or regulatory agencies.)

Section 4 Fertilizer Usage

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's in Lake County, California, and therefore Liu Farm submits this Fertilizer Management Plan.

4.1 PURPOSE

The Fertilizer Management Plan (FMP) provides guidelines for the application of fertilizers, storage of fertilizers during the cultivation and employee training.

Liu Farm Fertilizer Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to Lake County and the proper local agencies.

4.2 SCOPE

The Liu Farm Fertilizer Management Plan focuses the following:

- Proper application and consideration of amount applied;
- The timing of applications based on seasonal and climatic conditions and the growth stage of the cannabis crop;
- Proper storage of fertilizers;
- Proper response to fertilizer spills and cleanup;
- All employees are required to follow the procedures outlined in this plan. Any deviations from this plan must be immediately brought to the attention of Meili Liu, Director of Cultivation.

4.3 OVERVIEW

Liu Farm approaches soil fertility from an organic and biological perspective. The farm shall use only amendments to the soil and only organic fertilizers. Biologically active soil optimizes plant health, reduces the need for fertilizers, increases plants abilities to fight insect infestation, and reduces irrigation rates overall. Liu Farm will require good biologically active compost, and extracts made from compost as the basis for our fertility program. Compost builds healthy soil over time, increasing the infiltration rates of rainwater, and exists in a stable form that produces little runoff. Along with compost, annual soil testing gives a complete view of the mineral balance of the soil. Amendments are added in the spring to adjust mineral balance for the growing season.

To limit infiltration and water quality degradation, Liu Farm will irrigate and apply fertilizer consistent with the proper agronomic rate. All application will be at rates that are reasonable for crop, soil, climate, special local situations, management system and type of fertilizer.

All fertilizers will be stored in their original package and may only be used in strict accordance with the product label requirements including, but not limited to directions pertaining to application, storage and disposal of the fertilizer product. Data safety sheets for all fertilizers will be maintained always.

4.4 FERTILIZER APPLICATION (BMPS)

The following are best management practices used in application:

- Plant cover crop to boost soil fertility and protect from storm events;
- Follow the manufacturer's suggested application rates;
- Contain any spills immediately;
- Prevent off-site drift with hedges or fencing;
- Do not spray directly on surface water to allow fertilizers to
- Drift to surface water spray only when wind is blowing
- Away from surface water;
- Install buffer strips, bio-swales, or vegetation downslope of cultivation site to filter runoff of chemicals from irrigation;
- Implement Integrated Pest Management practices to avoid the need for pest control;
- The use of fertilizer shall not occur within 100 feet of any spring, top of bank of any creek or seasonal stream, edge of lake, delineated wetland or vernal pool.

4.5 FERTILIZER STORAGE (BMPS)

The following are best management practices used in storage:

- Ensure fertilizers are properly labeled and stored to avoid contamination through erosion, leakage, or inadvertent damage from rodents, pests, or wildlife;
- Establish and use a separate storage area for fertilizers;
- Ensure all such storage areas shall comply with the riparian setback requirements, be in a secured location in compliance with label instructions, be located outside of areas of known slope instability, and be protected from accidental ignition, weather, and wildlife;
- Ensure storage areas have appropriate secondary containment structures to protect water quality and prevent spillage, mixing, discharge, or seepage;
- Store any chemicals in a secure building or shed to prevent access by wildlife.
- Store all products that impact water quality in a manner that does not allow for runoff to surface waters;
- Segregate acids from bases; segregate inorganic oxidizing acids (e.g. nitric acid) from organic acids (e.g. acetic acid), flammables, and combustibles;

- Segregate acids from water reactive metals such as sodium, potassium, and magnesium;
- Store corrosives on lower shelves at least below eye level and in compatible secondary containers, and will

not store corrosives on metal shelves;

- Store dry powder and granular fertilizers in moisture-proof plastic tubs or containers

Liu Farm will maintain an accurate log of all fertilizers to be used for the cultivation of cannabis. The log will detail the date, fertilizer type, amounts applied, method, the operator applying, and any additional inputs or amendments to the soil.

4.6 EVALUATING PERFORMANCE OF FMP

We will evaluate the yields for each batch and harvest of cannabis cultivated against the fertilizer inputs, benchmarks will include:

- Overall dry flower yield per strain, per square foot of canopy;
- Potency for each batch of crop of cannabis cultivated;
- The quantity of amendments or additional inputs used during cultivation;
- Environmental conditions during the flowering phase of plant development.

4.7 EMPLOYEE TRAINING

Liu Farm will ensure all employees and managers are trained to adhere to the following best management practices at the cultivation facility. Each employee will be trained on the following:

- Acute, chronic, and delayed effects of fertilizers;
- Routes by which fertilizers can be absorbed by the body;
- Emergency first aid for fertilizer overexposure;
- How to access emergency medical care;
- Decontamination procedures;
- Spill cleanup;
- Importance of showering with soap and warm water;
- Compliant use of fertilizers;
- How to use Personal Protective Equipment;
- Heat illness prevention, recognition, and first aid;
- Safety requirements and procedures for handling, storing, transporting and disposing;
- Warning against taking fertilizers and/or fertilizer containers home;
- Triple Rinsing;
- Proper disposal practices;
- All necessary personal protective equipment will be available, clean, and properly stored;
- Fertilizer application equipment shall be properly calibrated;

- Fertilizer wastes shall not be disposed of on the ground, into or near water, or into storm drains, or septic tanks;
- Fertilizer containers, including empties, will not be left unattended, handled, emptied, stored or disposed of in a way that would create a hazard for people animals including bees, food, feed, crops or property.

FERTILIZERS TO BE USED:

Liu Farm will be Organic Certified. Liu Farm will use soil from American Soil and Stone in Richmond, CA

The Soil Composition:

8 large bags of a high-quality organic potting soil with coco fiber and mycorrhizae
25 to 50 lbs of organic worm castings
5 lbs steamed bone meal
5 lbs Bloom bat guano
5 lbs blood meal
3 lbs rock phosphate
¾ cup Epson salts
½ cup sweet lime (dolomite)
½ cup azomite (trace elements)
2 tbsp powdered humic acid

4.8 REVIEW

Director of Cultivation, Meili Liu, will review all procedures in the Fertilizer Management Plan once a year and will take action to ensure full compliance with local, state, and federal regulations that pertain to the usage of fertilizers.

Section 5 Fish and Wildlife Protection

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's in Lake County, California, and therefore implements the following Fish and Wildlife Management Plan.

5.1 PURPOSE

The Fish and Wildlife Plan has been designed to minimize any adverse impact on fish and wildlife and to ensure that the cultivation site and operations performed on site by Liu Farm is in no way destructive to the local habitat.

5.2 SCOPE

The Liu Farm Fish and Wildlife Management Plan (FWMP) focuses on:

- A description of fish and wildlife that live on, or seasonally inhabit the lot of record;
- A description of the habitats found on the lot of record;
- Description of the watershed found on the lot of record;
- Any potential effects the proposed cannabis cultivation may have on the fish and wildlife
- Methods to minimize adverse impacts on the fish and wildlife;
- All employees are required to follow the procedures outlined in this plan.

5.3 OVERVIEW

The parcel is approximately 158.22 acres of forested land dominated by ponderosa pine with California blue oak also prominent. Numerous additional tree species were observed sharing the canopy including Douglas-fir, knob-cone pine, sugar pine, canyon live oak, interior live oak, and California bay. Liu Farms minimized impacts on fish and wildlife by applying an erosion control plan by hydroseeding with an erosion mix that consists of native species. Our erosion control methods consist of wattles, weed-free rice straw, rip rap rock in all drainage outlets, and rock check dams.

5.4 HABITATS ON LOT OF RECORD

The lot of record includes two prevailing habitat types: (1) Woodland; (2) Mixed Riparian Forest

HABITAT DESCRIPTION FOR SUBJECT REAL PROPERTY

Woodland:

Woodland is a low-density forest forming open habitats with plenty of sunlight and limited shade. Woodlands may support an understory of shrubs and herbaceous plants including grasses. Woodland may form a transition to shrubland under drier conditions or during early stages of primary or secondary succession.

Mixed Riparian Forest:

In mixed riparian forests, very tall oaks are less common, and the frequency of sapling oaks is higher. A mid story canopy of medium sized trees and tall shrubs such as sycamores and box layer are present in mixed riparian forests, composed contains a greater proportion of smaller shrubs than is present in Valley oak elder. The understory woodlands. Mixed riparian forests may be dominated by tall cottonwoods and medium sized arroyo willows and black willows.

5.5 WATERSHED DESCRIPTION

Liu Farms is located in the Lower Sacramento River Watershed. The cultivation site is greater than 50 feet from the class II water courses on the property.

5.6 IMPACT MITIGATION STRATEGIES

Liu Farm will use the following strategies to maintain our current standing and minimize any future impact on fish and wildlife:

- Be aware of wildlife mating, nesting and migration patterns on property and schedule any construction projects accordingly;
- Survey the areas of impact no more than three days prior to impact or removal;
- If work is to be conducted within the breeding season for nesting, a nesting bird survey should take place at least once before any vegetation disturbance or removal take place;
- Protect any active nests with a 50 to 100-foot buffer (species dependent) or exclusion area until the nest is no longer active;
- Perform fueling and maintenance of vehicles and equipment where absorbent spills and clean-up materials as well as spill kits are available, and such materials should be disposed of properly after use;
- Liu Farm shall not disturb aquatic or riparian habitats, such as pools, spawning sites, large wood, or shading vegetation, unless authorized under a CWA section 404 permit, CWA section 401 certification, Regional Water Board WDRs (when applicable), or a CDFW LSA Agreement;
- Liu Farm shall maintain existing, naturally occurring, riparian vegetative cover (e.g., trees, shrubs, and grasses) in aquatic habitat areas to the maximum extent possible to maintain riparian areas for stream bank stabilization, erosion control, stream shading and temperature control, sediment and chemical filtration, aquatic life support, wildlife support, and to minimize waste discharge.

5.7 EVALUATING PERFORMANCE OF FWMP

To evaluate the effectiveness of the FWMP, Liu Farm will monitor and log water quality monthly, and perform a biological assessment of the property every two years or in the case of site expansion. Biological assessment reports and water quality logs will determine if conservation strategies are successful or if changes needed to be applied.

Professional services will be rendered for biological assessments if necessary.

5.8 REPORTING PERFORMANCE OF FWMP

All data collected by Liu Farm for the purposes of conservation will be shared and reported to Lake County officials, as well as to the appropriate agency if requested:

- California Department of Fish and Wildlife
- California State Water Resources Control Board
- California Division of Water Rights;
- Meili Liu will review all procedures in the Fish and Wildlife Plan once a year. In particular, to ensure full compliance with local, state and federal regulations that pertain to the conservation of the habitat and the species of wildlife it sustains. Liu Farm has received the following certification(s):
    - Enrolled in Tier 2 of the Central Valley Regional Water Quality Control Boards Cannabis Waste Water Discharge Program;

Conservational targets, strategies and goals are with those that have been determined by the following conservational acts and programs, but not limited to as follows:

- California Endangered Species Act
- California Environmental Quality Act
- Clean Water Act
- CDFA's CalCannabis Cultivation Licensing Program
- State Water Board's Cannabis General Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation Activities (Cannabis General Order) or any Waste Discharge Requirements addressing cannabis cultivation activities adopted by a Regional Water Quality Control Board (Regional Water Board)
- State Water Board's General Water Quality Certification for Cannabis Cultivation Activities (Cannabis General Water Quality Certification)
- State Water Board's Cannabis Small Irrigation Use Registration (Cannabis SIUR)
- State Water Board's Water Rights Permitting and Licensing Program. The following agencies and policies were consulted in preparation of this Biological Assessment.
- California Department of Fish and Wildlife (CDFW)
- California Department of Forestry and Fire Protection (CALFIRE)

Section 6 Operations Manual

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's in Lake County, California; and as such proposes the following Operational Manual.

6.1 PURPOSE

The Operations Manual is designed to outline the operating procedures of the commercial cannabis cultivation site to ensure compliance with the use permit, protect the public health, safety and welfare, as well as the natural environment of Lake County.

6.2 SCOPE

The Liu Farm Operational Manual focuses on:

- Authorization for the County, its agents and employees to verify all information in the use permit
- A description of staff screening process
- Transportation data
- Hours and day of operations
- Measures taken to minimize carbon footprint
- Chemicals stored and used on site.
- All employees are required to follow the procedures outlined in this plan.

6.3 AUTHORIZATION TO VERIFY

Liu Farm authorizes Lake County agents and employees to seek verification of the information contained within the development permit or use permit applications, the Operations Manual, and the Operating Standards at any time before or after development or use permits are issued.

6.4 STAFF SCREENING

All Liu Farm employees will be required to submit fingerprints for a Live Scan criminal history search to be administered but the Lake County Sheriff's Department. Potential employee's must be approved by the LCSD to submit an application for employment. Prospective employees will be asked to submit a formal resume for review which includes education and work history, a statement as to why the employee would like to work for Liu Farm, three professional references, and three personal references. Prospective employees whose applications and references have been approved will be granted a formal interview by Meili Liu. Meeting will include presentation on general job description, responsibilities, pay scale, schedule, operating procedures, and additional company benefits. Employees will be notified within seven business days as to whether they will be hired. Liu Farm will use an online payroll platform or vendor such as PayChex or Wurk which provides cannabis companies compliance support from the interview to paycheck and taxes. We will use this system to track prospective employees, pay salaries; and save relevant information including background check results.

6.5 FACILITY OPERATION HOURS

Monday-Saturday 5am-4pm. Facility will be open to authorized staff, deliveries, and pickups. Facility will be closed to the public.

6.6 TRANSPORTATION DATA

This project proposes having up to 16 employees during peak cultivation season (May-November). The grow season for employees will range from May till November for outdoor cultivation. Each employee will commute to and from the project site daily. Any deliveries to the project site will be scheduled in advance to minimize daily trips as much as possible. The project has fourteen regular parking spaces and two handicap parking space per Article 46.11. Transportation data will be documented and reviewed annually for performance standards and possible methods to reduce daily trips.

6.7 FACILITY CARBON FOOTPRINT

Liu Farm recognizes that the most sustainable source of power is the sun, and is committed to growing 100% sun grown cannabis, with as little supplemental lighting as possible. Efforts will be made to minimize the use of fossil fuels through adaptation of green technologies, and equipment used that produce emissions will be regularly maintained and adhere to all applicable emissions standards.

6.8 CHEMICAL STORAGE AND EFFLUENT

Liu Farm uses Organic farming practices by only amending the soil. Organic farming means that no chemical products are allowed for use in the cannabis facility, and no such chemicals will be stored on site. Nontoxic alternatives to conventional cleaning products and building materials will be sourced and used whenever possible. The facility may use small volumes of chemical sanitation products to maintain a sterile work environment inside the facility. These chemicals will be stored in the manner and location described in the Hazardous Waste Plan. No effluent is expected to be produced at the facility.

6.9 SITE MAINTENANCE PROTOCOL

When not in use, all Liu Farm equipment, will be stored in the proper designated area upon completion of the task required. Employees will conduct a daily scan of the site to ensure all materials used during the workday have been return to designated storage area in an organized fashion. Any refuse created during the workday will be placed in the proper waste disposal receptacle at the end of each shift, or at a minimum at the completion of the assigned task. Any refuse which poses a risk for contamination or personal injury shall be disposed of immediately. While Liu Farm allows grasses and cover crops to grow tall during the rainy season as a soil building technique, when spring seasonal work begins, site will be mowed and trimmed to ensure safe and sanitary working conditions.

Roads, parking areas, and yards shall be maintained at all times to prevent particulate generation and potential illicit discharges of storm water. Adequate drainage features will be installed at the time of construction and dirt surface

will be maintained as needed. Rolling dips, out sloping and vegetated swales will be used as potential drainage features if the cultivate site shows signs of poor drainage. If swales are used, infiltration basins will be added to avoid storm water discharge.

The gradual slope of the proposed cultivation site makes it unlikely that the site will require specialized drainage features. Vegetated ground cover will be established over the entire site as soon as possible, and the site will be surrounded on all sides by a densely vegetated buffer strip capable of absorbing any sheet flow or runoff from the site. If the site exhibits poor drainage, techniques mentioned above will be developed. If the site requires a wastewater treatment facility, the facility will be designed, constructed, and maintained to ensure sanitary working conditions, eliminate the possibility of contamination, and protect working and consumer safety.

6.10 PLANTING/CULTIVATION PLAN

The cannabis cultivation plan will include planting for seven acres of outdoor cultivation. For early activation all planting will be in above ground planters to avoid soil disturbance. Upon approval of the major use permit, raised planter beds will continue to be utilized. Outdoor planting will occur once early activation is granted. For the following years, outdoor cultivation planting will begin in June and harvesting will commence in November. For early activation and regular cultivation season (upon approval of Use Permit), outdoor cultivation will occur on 7 acres with a total canopy of 304,640 square feet.

6.11 EVALUATING PERFORMANCE - REPORTING OF PMP TO LAKE COUNTY PLANNING COMMISSION AND REGIONAL WATER BOARD

Liu Farm Director of Cultivation, Meili Liu, will perform a weekly inspection of the cultivation site to ensure the guidelines of the Operations Manual/PMP are being carried out successfully, and the notes shall be logged in the Operations Manual, which is to be kept on site. Any poorly performing elements of the system or improper employee conduct will be corrected. If construction of drainage features or construction is required, all necessary permits and approvals will be acquired from the appropriate agency.

Reporting Requirements

According to Lake County Ordinance and the Cannabis General Order, Liu Farm shall preform annual compliance monitoring and prepare annual reports as follows:

- **Compliance Monitoring**
  1) A compliance monitoring inspection of the cultivation site shall be conducted annually during the growing season.
  2) Liu Farm shall pay a compliance monitoring fee established by resolution of the Board of Supervisors prior to the

inspection.

3) If there are no violations of the permit or state license during the first five years, the inspection frequency may be reduced by the Director to not less than once every five years.

- **Performance Review**

1) Liu Farm shall submit a "Performance Review Report" on an annual basis from their initial date of operation for review and approval by the Planning Commission. The Planning Commission may delegate review of the annual "Performance Review Report" to the Director at the time of the initial hearing or at any time thereafter. This annual "Performance Review Report" is intended to identify the effectiveness of the approved development permit, use permit, Operations Manual, Operating Standards, and conditions of approval, as well as the identification and implementation of additional procedures as deemed necessary. In the event the planning commission identifies problems with specifics of the "Performance Review Report" that could potentially lead to revocation of the associated development or use permit, the Planning Commission may require the submittal of more frequent "Performance Review Reports."
2) As previously mentioned, Lake County shall conduct an annual compliance monitoring inspection, or less frequently if approved by the Director. A copy of the results from this inspection shall be given to Liu Farm and be included in this "Performance Review Report".
3) Compliance monitoring fees pursuant to the County's adopted master fee schedule shall be paid by Liu Farm and accompany the "Performance Review Report" for costs associated with the inspection and the review of the report by County staff.
4) Non-compliance by Liu Farm in allowing the inspection by the Department, or refusal to pay the required fees, of noncompliance in submitting the annual "Performance Review Report" for review by the Planning Commission shall be deemed grounds for a revocation of the development permit or use permit and subject the Liu Farm to penalties outlined in Lake County Code of Regulations.

- **Annual Report pursuant to the Cannabis General Order**

Annual Reports shall be submitted to the Regional Water Board by March 1 following the year being monitored. For example, the monitoring report for activities conducted in the year 2022 is due on March 1, 2023. The Annual Report shall include the following:

1) Facility Status, Site Maintenance Status, Stormwater Runoff Monitoring.
2) The name and Contact information for the person responsible for operation, maintenance, and monitoring.

A letter transmitting the annual report shall accompany each report. The letter shall summarize the numbers and severity of violations found during the reporting period, and actions taken or planned to correct the violations and prevent future violations. The transmittal letter shall contain the penalty of perjury statement and shall be signed by the Discharger or the Discharger's authorized agent.

Section 7 Pest Management

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's in Lake County, California. Liu Farm will implement the following Pest Management Plan.

7.1 PURPOSE

The Pest Management Plan (PMP) is designed to ensure that in the use of pesticides, they are used only after monitoring indicates they are needed and used with the goal of removing only the target organism, safely.

Liu Farm Pest Management Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to Lake County and the proper local agencies.

7.2 SCOPE

The Liu Farm Pest Management Plan focuses on the following:

- Pest prevention, deterrence and organic techniques;
- Employee training and safety;
- Storage of pesticides;
- Monitoring the effectiveness of the plan as well as reporting data to Lake County officials and the appropriate local agencies All employees are required to follow the procedures outlined in this plan.

7.3 OVERVIEW

Liu Farm will be a pesticide-free farm. We use an integrated ecosystem focused strategy that focuses on long-term prevention of pests and damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Instead of utilizing chemical pesticides, Liu Farm will implement proactive systems using beneficial insects to target specifically selected species as well as daily pest scouting to ensure production of the cleanest, purest, high-quality cannabis.

7.4 PEST DETERRENCE

Liu Farm practices the following techniques to minimize pest infestations:

- Minimizing dust
- Releasing predatory mites
- Hanging yellow sticky cards
- Removing any infested plant material
- The use of companion plants and other trap crops
- Using reflective mulches if necessary

Liu Farm will use organic pesticides including but not limited to:

- Neem oil
- Horticultural oil
- Sulfur
- Insecticidal soaps

PESTICIDE USAGE (BMPs) In the case, all preferred methods of pesticide prevention and eradication have proven unsuccessful, the following are best management practices for pesticide use at Liu Farm:

- Pesticides shall be applied only when pollinators are not present;
- Follow all labels and directions before, during and after the use of pesticides;
- Do not over apply pesticides;
- Pesticides are prepared and loaded on an impermeable pad at least 100 feet away from surface water bodies;
- Do not apply pesticides when pollinators are present;
- Do not spray directly into surface water and only spray when wind is blowing away from surface water bodies;
- When possible, use naturally insecticidal plants around or throughout a grow to repel a variety of flying insects and pests;
- The use of pesticides shall not be located within 100 feet of any spring, top of bank of any creek or seasonal stream, edge of lake, delineated wetland or vernal pool.
- If there is a spill or accidental discharge in or on any waters of the site, immediately notify the Office of Emergency Services so that the local health officer can decide what actions, if any, may need to be taken to protect public safety - HAZMAT SPILL NOTIFICATIONS 1 (800) 852-7550 or (916) 845-8911

7.5 WORKER PROTECTION (BMPS)

In the case of pesticide use, Liu Farm shall follow the EPA's Agricultural Workers Protection Standard by:

- Providing protections to workers and handlers from potential pesticide exposure;
- Providing training on the safe use of pesticides;
- Providing training on how to avoid exposures to pesticides;
- Training to identify pesticides exposure symptoms and how to respond and manage exposures to pesticides if they occur

Section 8 Security

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's in Lake County, California. Upon receiving receipt of this permit Liu Farm will implement the following Security Management Plan.

8.1 PURPOSE

The purpose of the Security Management Plan (SMP) is to minimize criminal activity, provide for safe and secure working environments, protect private property, and prevent damage to the environment.

Liu Farm's Security Management Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to Lake County and the proper local agencies.

8.2 SCOPE

Liu Farm Security Management Plan focuses on the following: A description of security measures to prevent access to unauthorized personnel and protect employees including fences, sign-in/sign-out procedures, locks and alarms. A description of security measures to prevent theft or loss of cannabis and cannabis products.

All employees are required to follow the procedures outlined in this plan.

8.3 OVERVIEW

Liu Farm's Security Management Plan includes best management practices that have been established in the cannabis industry and that pertain specifically to the safe and secure operation of a cultivation site, as well as the secure storage of all cannabis and cannabis products.

The Security Management Plan is also compliant with the Emergency Regulations for Cannabis Cultivation, authored by CalCannabis, as well as the regulations established by the California Department of Public Health for state-licensed cannabis businesses.

Liu Farm will have security to minimize criminal activity, provide for safe and secure working environments, protect private property, and to prevent damage to the environment. The applicant shall provide adequate security on the premises, as approved by the Sheriff and pursuant to this section, including lighting and alarms, to ensure the safety of persons and to protect the premises from theft.

8.4 SECURITY (BMPS)

The driveway to the property has a locked gate at the entrance and there are other lockable gates at the site.

There will be no signage with the business name or signage that could otherwise be discerned by the public to indicate cannabis cultivation activities. The security camera system will record activities within the cultivation site

and immediately outside of the site 24 hours per day, 7 days per week.

The security camera system will allow for remote monitoring and maintains records for 30 days minimum. All cultivation operations are performed within an enclosed site, secured with commercial grade locks. The site is located on a property with permanent residence and will be occupied by a designated employee daily and nightly.

8.5 ONSITE SECURITY

The Cultivation Site will be protected by an 6' wire perimeter fence, with metal posts at 6' intervals. The site will be screened from public view by 90% sunblock mesh. The entrance to the site will be secured by a metal gate and remained locked by a commercial lock, at all times when no staff is present.

The site will also feature a video monitoring system with full view of the cultivation area, infrared capability, motion sensors to alert management of intruders, and the ability to address potential intruders via loud speakers built into the video monitoring equipment.

8.6 SUSPICIONS ACTIVITY PROTOCOL

All suspicious activity will be recorded via security cameras. In the event that law enforcement is required, the designated Liu Farm employee will notify the Lake County Sheriff's Department, and other agencies as appropriate and quickly as possible. The designated employee will then file a suspicious activity report, noting the time and date of the activity and keep record in a secured room on site.

If suspicious activity could result in injury or death of employee or employees, all employees will be evacuated from the premise until activity is controlled or intruder is captured.

If the suspicious activity is believed to be from an employee of Liu Farm, Meili Liu will review all security tapes which record areas where suspicious activity may have occurred. If tapes show suspicious activity was perpetrated by an employee, the employee will be asked to leave the premise and relinquish badge and access to the property. If security personnel are necessary on site for the removal of the employee, they will be notified.

If suspicious activity is believed to be conducted by a visitor, designated employee(s) will review the tapes and notify the visitor of our findings. Depending on the severity of the activity, law enforcement will be notified, and charges will be filed against the individual or party. The person or party will no longer be allowed on property.

Breach Procedures (BMPs): Property Breach: if an unauthorized individual gains access to the property, local law enforcement will be notified immediately. Meili Liu or the designated employee will determine if it is necessary to cease operations; and if necessary, notifications will be sent to all employees whom will enter nearest operational room and will lock doors and turn off lights; when determined safe, Meili Liu or the designated employee will notify all employees.

Digital Breach: Meili Liu will immediately assess any damages and losses incurred from the event and will determine an operational recovery timeline; and will investigate all digital records, data and systems to ensure that no cyber-theft or damage has occurred and investigate all cloud-based backups to ensure that no damage has occurred.

8.7 VISITOR LOG REQUIREMENTS

Liu Farm will maintain an employee and visitor arrival and departure log, which contains, the name of the visitor, date and time of arrival and departure, and the purpose of the visit. All logs will be kept in a secured office only accessible by Liu Farm management team, in particular Meili Liu.

8.8 THEFT AND LOSS PREVENTION (BMPS)

Liu Farm employees and visitors will be under video surveillance at all times. All cannabis will be stored in a locked, secure room, accessible only to farm management. Other anti-diversion methods include:

Supervising tasks or processes with high potential for diversion (including the loading and unloading of cannabis transportation vehicles). Providing designated areas in which personnel may store and access personal items. No visitors will be allowed to the facility, with the exception of local and state agency representatives authorized to act on their behalf. Only employees with scheduled shifts may enter the property; and each employee will be required to check-in properly.

Additional surveillance cameras will, additionally, be installed in areas used for employee parking in or around the cultivation site. All employees will be trained to identify suspicious activity and suspect individuals loitering around the property.

Only Liu Farm management team will be allowed to access the vault or storage for any harvested cannabis. Surveillance cameras will be installed throughout the secure storage areas, including each point of ingress/egress as to capture facial details, and allow for facial recognition as well as in all rooms where cannabis is handled.

All cannabis will be weighed, documented and logged at each stage of the processing phase, which includes drying, trimming and curing. Each plant and batch of cannabis cultivated will be properly tagged and assigned a unique identification number (UID). In addition to Track-and-Trace, an inventory tracking system will be established to prevent diversion. At the end of each day, Director of Cultivation, Meili Liu will inspect secured rooms and record inventory on a log. All in/outs of inventory will be recorded on a log, as well. These logs will be kept in secured room with extremely limited access.

EMPLOYEE VETTING – LOSS PREVENTION

Liu Farm will conduct extensive background checks of all employees hired on a full- time or seasonal basis to ensure they are in good standing with the law and do not have a previous history of theft, violence or major offenses. All employees and managers are provided a badge or ID issued by Liu Farm with required information to be worn when in restricted on areas on the farm. Information includes Liu Farm's name and license numbers, employees first and last name, and a color 2 inch by 2-inch photograph that shows the employees face.

All employees must wear their approved Employee Photo ID Badge at all times while at the cultivation site. No access to operational areas of the facility will be allowed to any employee not in possession of or wearing their ID Badge. The badge must be worn above the waist and be visible at all times.

Any employee who forgets his/her badge should immediately notify a manager to have the shift rescheduled. Only Liu Farm management team will be granted access to the secure storage rooms and secure storage vaults located on-site.

RESTRICTED AREAS – LOSS PREVENTION

The restricted areas include the cultivation site, the processing facilities, on-site office and any area with company records, access to security cameras or information related to Liu Farm. All restricted areas and point of entry and exit on the premises are securely locked using commercial-grade locks.

Liu Farm prevents the unauthorized entrance into restricted areas within the farm by controlling access to those areas by:

Limiting access to only certain personnel and for the sole purpose of executing their specific job function and duties.

Any person on the premises, except for employees and contractors of the licensee, are escorted at all times by the licensee or at least one employee of the licensee when in the limited-access areas of the premises.

CHAIN OF CUSTODY (BMPs) – LOSS PREVENTION

While in transit, raw materials and cannabis products are the most vulnerable. In particular, shipping, receiving and finalizing cannabis transactions present a security threat to Liu Farm cultivation facility.

The following practices, therefore, shall be employed:

- All shipments—incoming and/or outgoing—will occur on a scheduled basis. No unscheduled shipments

will be received or sent out for delivery.

- Liu Farm management team will verify the vendor's identity by requesting government-issued ID and checking information against a manifest of vendor drivers. Liu Farm management team will inform site supervisor that a vendor is present and escort the vendor into the facility. All shipments will take place in areas that are covered by video surveillance.
- All outgoing products will be tracked and documented using the Track-And- Trace system.
- All shipments will be verified against the shipping manifest to ensure the accuracy of the items received/being distributed - any discrepancy will result in a cancelled transaction.
- All discrepancies will be reported immediately to a member of Liu Farm management team.
- All discrepancies are to be reported to the appropriate law enforcement, local and state agencies.
- In the case of any theft, Liu Farm will notify the local law enforcement and/or the state bureau.

8.9 VIDEO SURVEILLANCE

The facility will be protected by a Lorex 4K DVR system that will monitor the entire perimeter and inside of the cultivation site, inside processing facility, the security fence, and all gates and rights-of-way in order to capture all activity in areas where cannabis is handled, tested, cured, processed or stored.

Surveillance will be conducted 24 hours a day, 365 days a year, without interruption. All video surveillance recordings will include a date and time stamp for every recorded frame and are designed to record images in high quality and high resolution to clearly capture revealing facial detail.

Video Surveillance: The site will have a complete digital video surveillance system capable at a minimum of 4K pixel resolution. The surveillance-system storage device or the cameras are transmission control protocol/ TCP/capable of being accessed through the internet for remote access 24/7. All areas recorded by the video surveillance system have adequate lighting to allow the surveillance cameras to effectively record images.

Cameras are immobile and will be installed in a manner to prevent tampering Cameras are placed in a location that allows the camera to clearly record activity occurring within 20 or more feet of all points of entry and exit on the licensed premises and allows for the clear and certain identification of any person and activities in all areas required to be filmed under subsection.

The following areas are recorded:

- Areas where cannabis goods are weighed, packed, stored, quarantined, loaded and unloaded for transportation, prepared, or moved within the premises;
- Areas where cannabis is destroyed;

- Security rooms;
- Areas storing a surveillance-system storage device with at least one camera recording the access points to the secured surveillance recording area;
- Interiors and exteriors of all entry points of the site and buildings. Cameras record continuously 24 hours per day at 30 frames per second. All interior cameras (if any) will be moisture proof and all exterior cameras will be water- proof. Cameras with infrared capabilities will be used for the perimeter fencing;
- All cameras will include motion activated sensors. All cameras will have color capability, record digitally and be capable of integrating with door alarms.

In areas with inadequate lighting for the cameras being used, sufficient lighting shall be provided to illuminate the camera's field of vision or night or infrared cameras will be utilized. The physical media or storage device on which surveillance recordings is stored and is secured in a manner to protect the recording from tampering or theft. Surveillance recordings are kept for a minimum of 30 days and recordings will be kept in a secured room in a controlled environment, separate from the rooms where the computers and monitor system are located.

Videos will be available for inspection by local law enforcement or state bureau employee(s) and can be copied and sent or transferred upon request.

8.10 INFORMATION TECHNOLOGY SECURITY (BMPS)

Liu Farm has developed the following contingency measures to ensure the security of digital records and systems that are vital to the operation of the facility. In the event of flood, fire or theft, these contingencies will allow us to resume operations as soon as operationally possible. All digital records and systems that are vital to Liu Farm will be backed-up on a weekly basis. The data backup will be stored off-site, on a cloud-based server accessible only to management level employees.

Access to digital records and systems will be highly regulated. No visitors will be allowed in the secure storage areas, operational areas, or any area where digital recordkeeping takes place. Employees will be trained on the importance of maintaining the security of all digital records and systems and will be required to sign a form of acknowledgment testifying that they have been trained, understand and are aware of all digital security measures and all access control policies.

8.11 SECURITY PERSONNEL

If Meili Liu and management deem that outside security personnel are necessary, Liu Farm will engage a local security company for security personnel to provide security services on the premises when an emergency response is necessary. All security personnel hired or contracted by Liu Farm comply with Chapters 11.4 and 11.5 of Division 3 of the Business and Professions Code.

8.12 REVIEW

Liu Farm will commission an independent annual inspection to evaluate whether the installed equipment should be updated and to review maintenance routines.

Emergency Contact Personnel: *Meili Liu (510) 468-7657; email meililiu369@gmail.com*

Section 9: Stormwater Management

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's in Lake County, California, and accordingly is implementing the following Storm Water Management Plan.

9.1 PURPOSE

The purpose of the Storm Water Management Plan is to protect the water quality of the Lower Sacramento River Watershed and the storm water management systems managed by Lake County Department of Water Resources.

Liu Farm Storm Water Management Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to Lake County and the proper local agencies.

9.2 SCOPE

The Liu Farm Storm Water Management Plan focuses on the following: Protecting its water bodies (Class II & III water courses) from water quality degradation from activities and uses associated with cannabis cultivation such as use of topsoil, fertilizer, etc.

Liu Farm Storm Water will not discharge to adjacent water bodies or properties. Liu Farm will be in compliance with the Lake County Storm Water Management Ordinance; and Grading Ordinance. Liu Farm shall utilize best management practices for construction and post-construction activities.

All employees are required to follow the procedures outlined in this plan.

9.3 OVERVIEW

Liu Farm prepared an outdoor cultivation site in the least possible impact area for stormwater runoff. All diffused stormwater is dispersed with a large enough vegetated buffer to treat runoff. Each site and area of disturbed surface will be seeded, strawed, and have straw wattles in place. The seed protects and stabilizes the soil, the straw slows the water and the wattles filter out any unwanted contaminants. All diffused surface water shall be slowed by the mulch from the hydroseed and the straw and wattles protecting any receiving water bodies. To protect the diffused surface water in compliance with section 122.26 the stormwater system of Lake County.

Liu Farm recognizes that the protection of surface waters is paramount to the operation of an environmentally friendly cannabis farm. Surface contamination from roads is a problem in Lake County, and other rural communities.

The Liu Farm property contains existing roads for the purpose of ingress and egress to the cultivation site. The storm

water management plan will address some of the remaining smaller issues that may, under extreme precipitation events, result in distribution of sediment to waterways, to further address chronic issues associated with the existence of roads through best management practices; and to ensure that there is no risk of contamination via fertilizer or chemicals. Liu Farm has already eliminated direct storm water impacts from the road system we will continue to reduce potential risk of impacts to surface waters.

9.4 PROTECTING DOWNSTREAM WATER BODIES FROM WATER QUALITY DEGRADATION

Liu Farm will manage storm water by continuing to upgrade the road system, implement measures to prevent potential of contamination from fertilizers and chemicals, implement best management practices, and train personnel about best management practices and emergency waste discharge response.

9.5 TOPSOIL, FERTILIZERS, AND PESTICIDE RISKS

The cultivation site will include agricultural BMPs, as well as storm water BMPs that help create a healthy, and clean agricultural system. The implementation of an Integrated Pest Management creates an environment where pesticides, herbicides, and fungicides can usually be avoided and so these chemicals are not used on the farm. Not having them present is the first step in ensuring that they cannot contaminate any waterways. Well maintained biologically alive soils aid in plant nutrient uptake. All fertilizers applied are biologically based and organic in nature. Liquid fertilizer, the kind that is most likely to contaminate waterways, will not be used on site. With regard to top soil, the agricultural BMPs that insure it remains on site include, cover crops, 100% ground cover and mulches, and avoidance of mechanical compaction of the soil.

9.6 ILLIXIT NON-POINT SOURCE DISCHARGE WILL BE ELIMINATED

Liu Farm recognizes that the greatest risk of storm water discharge and potential sediment delivery to receiving waters is often from the dirt surfaced interior road system. The property road system will be maintained to reduce this risk. Liu Farm will ensure that drainage features on the existing roads are designed to avoid possible connection to receiving waters, and instead to discharge to wooded areas for infiltration. If necessary, water bars and rolling dips were installed at appropriate locations to slow the surface flow of storm water runoff and reduce flow to any culverts located on the road system. Liu Farm will consider installing 4-6 inches of 1.25 diameter rock to the surface of the road system to further slow road runoff, and capture sediment contained in the runoff.

For activities related to the cultivation of cannabis, Liu Farm intends to cultivate on areas of the property with gradual slope <30%. A year-round groundcover of native and pasture grasses will be maintained over the entire site. Disturbance activities will not be conducted during the wet season, Oct 15 to April 15, and cover crops will be used in the canopy area during the winter.

9.7 PUBLIC ROADS

High Valley Road is a county dedicated public road. The use of this public road to and from the Liu Farm property

will not result in an impact to downstream hydrologic structures nor the geomorphological features of waters of the state. This is due to the fact that discharge will not increase and the turbidity of waters that are turbid will decrease do to monitoring, maintenance and systematic implementation of BMPs. This will result in a net positive impact on downstream hydrologic features, both natural and manmade.

There is no risk of increase in stream discharge from the property because soil infiltration capacity is not being decreased, storm water drainage systems such as ditches release water onto hill slopes where it infiltrates, rather than directly into streams, and there are no stream diversions.

9.8 COMPLIANCE WITH THE REQUIREMENTS OF CHAPTER 29, STORMWATER MANAGEMENT ORDINANCE OF THE LAKE COUNTY ORDINANCE

Liu Farm has reviewed the Lake County Storm Water Management Ordinance and finds the project to be in compliance with the ordinance. This project minimizes development, meets Regional Water Quality Control Board requirements, as has been enrolled in the general discharge waiver program since April 2018, and does not require an NPDES storm water management plan or SWPPP.

9.9 PROPOSED GRADING

Any proposed grading at the cultivation site will be done on an area with an average slope of less than 10%. This location is more than 100 feet from surface waters and has a native vegetative buffer strip intact for over 100 feet surrounding the entire garden. Any project grading will utilize all available and required BMP's and commence only once all applicable permits have been acquired.

9.10 STORMWATER (BMPS)

Liu Farm will implement a storm water management plan to protect waterways and water bodies from runoff and erosion. The property uses the following design measures and operational tactics to minimize harmful run off from reaching any water ways or water bodies.

Site Design Measures (BPMs): Locate cultivation site more than 100 feet from any spring or top bank. Locate covered storage areas more than 100 feet from any spring or top bank.

Minimize compaction of highly permeable soil and use of impervious surfaces. Limit clearing and grading of native vegetation at the site to the minimum area needed to build the project, allow access and provide fire protection. Minimize use of impervious surfaces by concentrating development on the least- sensitive portions of the site, while leaving the remaining land in a natural, undisturbed state.

Erosion and Sentiment Prevention Methods (BMPs) Hire an experienced, reputable, and licensed operator to conduct operations if heavy equipment is required to develop roads and the grow site. Minimize grading and soil disturbance during grow site development. Native grass seed will be applied outside of the cultivation area to

disturbed areas before installation of mats/blankets and wattles. Storm water drainage structures should not discharge onto unstable slopes, earthen fills, or directly to a watercourse. Drainage structures should discharge onto stable areas with straw bales, slash, vegetation, and/or rock riprap. Liu Farm will check and maintain erosion control/drainage structures and keep culverts clear of debris. Remove excess soil and other debris and place used material in safe and dry environment. All necessary control structures should be in place and functioning, and all areas of exposed soil because of grading should be stabilized as soon as possible after grading is complete and before any precipitation event that could cause erosion and/or deliver storm water runoff to a water body. Riparian zones will be avoided, and vegetation will be maintained to protect water courses from growing operations.

9.11 CONSTRUCTION STORM WATER MANAGEMENT PLAN

Liu Farm does not anticipate any new construction at the cultivation site or on property other than the construction and use of prefabricated storage facilities; fencing the and installation of water tanks. However, Liu Farm will implement a Low Impact Development (LID) strategy when possible.

Liu Farm will implement construction (BMPs)by scheduling construction activities during dry weather and keep grading operations to a minimum during the rainy season.

Protect and establish vegetation to prevent dislodging and transporting of soil. Train and educate construction crews and personnel to better understand the effects of storm water pollution from construction projects and learn ways to prevent or minimize pollution on the job.

Stabilize construction entrances and exits to prevent tracking onto roadways. Protect exposed slopes from erosion through preventative measures such as covering the slopes to avoid contact with storm water by hydroseeding, applying mulch and/or using plastic sheeting. Use brooms and shovels whenever possible to maintain a clean site instead of a hose.

Establish a vehicle storage, maintenance and refueling area to minimize the spread of oil, gas and engine fluids. The use of oil pans under stationary vehicles will take place. Liu Farm will protect drainage inlets from receiving polluted storm water using filters such as fabrics, gravel bags or straw wattles, and so doing check on a regular basis the weather forecast and be prepared for rain by having necessary materials onsite before the rainy season.

9.12 PARAMETERS AND METHODS OF MONITORING

Liu Farm will report annually to either the Central Valley Regional Water Quality Control Board or the California State Water Resources Control Board as required, and reporting forms will be made available to the Lake County Community Development Department (CDD).

Storm water Management plan and notes will be kept on areas needing improvement. Any failing elements within the system that could result in the illicit discharge of storm water will be addressed immediately. Ongoing storm

water reporting logs will be made available to the County and/or other regulatory agencies.

9.13 REVIEW

Liu Farm will review the Storm Water Management Plan on an annual basis, in conjunction with the review of the Water Uses Management Plan.

Section 10 Waste Management

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's in Lake County, California. Accordingly, Liu Farms will implement the following Waste Management Plan.

10.1 PURPOSE

The Waste Management Plan (WMP) provides guidelines to minimize the generation of waste and for the proper disposal of waste produced during the cultivation and processing of cannabis at Liu Farm. The primary objective is to prevent the release of hazardous waste into the environment, minimize the generation of cannabis vegetative waste and dispose of cannabis vegetative waste properly, and manage growing medium and dispose of growing medium properly.

Liu Farm's WMP includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to Lake County and the proper local agencies.

10.2 SOLID WASTE

OVERVIEW

Liu Farm's Solid Waste Management Plan (SWMP) is implemented from seed to storage to sale. In each stage of the business cycle Liu Farm will carefully consider the lifecycle and environmental impact of all materials brought on property and used in cultivation and packaging. Reusable, compostable or recycled materials are preferred and Liu Farm will seek to continuously improve efficiencies and reduce volume each year in business.

SCOPE

The Liu Farm Solid Waste Management Plan focuses on the following: The reduction of solid waste in accordance with the County of Lake and the State of California's conservational goals, in particular bearing in mind the demand that has been placed on the County's local landfill due to the event of recent catastrophic wild fires and residential and commercial structure losses.

The operations of a sustainable solid waste management system to ensure the protection of the environment, streams, riverbeds, wetlands and all habitats surrounding the cultivation premises. Mitigating the amount of solid waste diverted to a landfill. Properly monitoring, evaluating of effectiveness of the plan, and reporting of data to Lake County and the appropriate local agencies

All employees are required to follow the procedures outlined in this plan.

SOURCES OF SOLID WASTE

We have identified the following items as sources of potential solid waste generated at our facility:

WASTE TYPE	ANNUAL ESTIMATE	PEAK - DAILY ESTIMATE
Paper	183 LBS	1/2 LBS
Glass	183 LBS	1/2 LBS
Metal	40 LBS	0.11 LBS
Electronics	37 LBS	0.10 LBS
Plastic	365 LBS	1 LBS
Organics	0 LBS	0 LBS
Inerts	183 LBS	0.5 LBS
Household hazardous waste	73 LBS	0.20 LBS
Special waste	37 LBS	0.10 LBS
Mixed residue	NONE	NONE

SOLID WASTE REDUCTION PLAN

Liu Farm intends to decrease waste by 25% over the first three years of operations and will continue to make efforts to reduce waste a priority. Total volumes are recorded and logged each month as benchmarks for next year's goals.

SOLID WASTE REDUCTION PLAN (BMPs)

Liu Farm will: Achieve annual rate of waste diversion with a target goal of 90%. Assign and train staff on waste reduction and discuss waste and recycling strategies once per quarter and at the beginning of each phase of the cultivation process with subcontractors and vendors with the goal of reducing solid waste generation. Designate multiple spaces on the property to collect recyclable materials and sort materials into biodegradable, recyclable and non-recyclable receptacles Reuse and recycle materials to divert waste from landfill; and promote conscientious purchasing with the following:

- Consider lifespan of the purchase, utilize warranties and servicing options
- Consider purchases with replaceable parts so they are easy to repair

- Look for products that can easily be reused or recycled or are made from recycled materials
- Check that the products do not contains toxic materials
- Consider products with minimal packaging

Liu Farm will purchase farm inputs and materials in bulk using reusable totes and containers and looks for companies that use reusable, compostable; or recyclable packaging while working with logistics vendors to maximize transportation and logistics efficiencies.

Work with packaging vendors who share our waste reduction goals and offer recyclable materials; Design packaging with eco-friendly, reusable and/or recyclable materials; and budget financial resources to waste reduction.

Evaluate waste reduction programs with professionals, annually, and modify as needed to achieve our goal. Manage, track and analyze information for actionable insights and cost savings.

SOLID WASTE COLLECTION

Liu Farm will maintain separate trash enclosures and storage areas for organics, recyclable waste and non-recyclable waste in compliance with Lake County Ordinances. All compostable waste will be composted on site. All non- compostable solid waste will be hauled to a solid waste facility, obtaining record from solid waste facility showing the acceptance of all solid waste, address of facility, the date, the volume or weight.

For onsite collection of waste, Liu Farm will place portable waste bins designated for green waste, recyclables and non-recyclables in the most convenient and highly trafficked areas for easy disposal. At the end of each day, all solid waste will be brought to the respective solid waste collection area and stored in a secured bin to prevent wildlife from entering.

Two to four times per month, designated employees will gather all non-compostable solid waste and haul to the Clearlake Landfill and Quakenbush Facilities in Clearlake, CA., using a company truck. Recycling waste will be placed into reusable bins for transport. Non-recyclable waste will be placed in bags. All solid waste will be secured under tarps in transit.

ON PREMISES COMPOSTING

All organic waste created by Liu Farm related to the cultivation operation located at 8531 High Valley Rd., Clear Lake Oaks, CA 95423 will be collected and transferred to a designated cannabis waste area on the premises. Within the boundaries of the cannabis waste area will be an area designated for composting. All organic waste will be composted and used as a soil amendment at such time as it has sufficiently decomposed.

The process by which organic cannabis waste is reintroduced back into the cultivation operation shall be determined by the Cultivation Manager. The Cultivation Manager shall be responsible for creating and maintaining written standard operating procedures for reference by cultivation personnel. Before changes to the process by which organic cannabis waste is reintroduced into the cultivation operation can be implemented, a review shall be conducted by the Director of Compliance who must sign off on the proposed changes.

NON-ORGANIC WASTE

All non-organic waste created by Liu Farm related to the cultivation operation located at 8531 High Valley Rd, Clearlake Oaks, CA 95423 will be collected and transferred to a designated cannabis waste area on the premises. Within the boundaries of the cannabis waste area will be an area designated for non-organic waste.

Non-organic waste will be hauled to licensed facility to handle such waste within Lake County. All cultivation personnel will be trained in the standard operating procedure related to hauling and disposing of cannabis waste. Including but not limited to the required records and receipts to be submitted to the Records Manager of Liu Farm.

MONITORING AND DOCUMENTING THE GENERATION AND REDUCTION OF SOLID WASTE

Liu Farm will track and calculate, in tons, total waste leaving the property and waste diversion rate monthly. Meili Liu, Director of Cultivation is responsible for recording total weight of recyclable and non-recyclable solid waste removed from the property and records are be kept for inspection and review in a locked office.

We will benchmark annual ratio of retail-ready flower products to solid waste generated.

DATA REPORTING

Liu Farm will share all data pertaining to the cost of implementation, success/failure rates of the solid waste plan and any effort taken to mitigate the generation of solid waste to Lake County on a quarterly basis or as requested.

REVIEW

Meili Liu, Director of Cultivation, will review all procedures in the Solid Waste Management Plan once a year and will take action to ensure full compliance with local, state and federal regulations that pertain to solid waste management.

10.3 HAZARDOUS WASTE MANAGEMENT PLAN

OVERVIEW

Liu Farm's Hazardous Waste Management Plan (HWMP) is designed to identify and evaluate hazards associate with cannabis cultivation at Liu Farm. This includes analysis of cultivation, processing, storing and packaging as well as all other activities associated with the production of cannabis on site. The goal of the plan is to determine whether there are existing hazards which require preventative control. Hazards include biological, chemical or physical.

Liu Farm does not intend to use or produce any hazardous waste on site.

SCOPE

The Liu Farm Hazardous Waste Management Plan focuses on the following: The identification of any and all hazards associated with cannabis cultivation, processing and packaging on site. The management, storage and recordkeeping of hazardous materials. Proper clean up and disposal and emergency spill response procedures.

All employees are required to follow the procedures outlined in this plan. Any deviations from this plan must be immediately brought to the attention of Meili Liu, Director of Cultivation at Liu Farm.

HAZARD ANALYSIS

The analysis includes the following: Biological hazards, including microbiological hazards; chemical hazards, including radiological hazards, pesticide(s) contamination, solvent or other residue, natural toxins, decomposition, unapproved additives, or food allergens. Physical hazards, such as stone, glass, metal fragments, hair or insects.

In the case the preventative controls are recommended, Liu Farm will implement those measures before each season.

IDENTIFICATION OF POTENTIAL HAZARDS

Biological Hazards:

Cultivation activities may require the use biologically active fertilizers. Application of these products will follow all rules for safe pesticide and fertilizer storage and application. All Liu Farm employees will be trained in the safe handling of potential biological hazards.

Chemical Hazards:

While Liu Farm utilizes organic farming, and prioritizes the use of non-hazardous products and materials, there may be a potential for chemical hazards with the use of cleaning products, fuels, and various construction materials.

Should Liu Farm employees use these products, all will be trained in safe handling and application procedures. All potentially hazardous materials will be stored in a manner to minimize the risk of spillage and contamination, in a secure and clearly marked area.

Physical Hazards:

An analysis of the cultivation site produced no evidence of physical hazards. To limit potential future risk, the site will be kept free of rubbish and debris, and employees will wear appropriate protective clothing while working on site.

Evaluation:

The most effective strategy to reduce the potential for illness and injury from hazardous wastes is to reduce their use and presence onsite. In the case that hazardous material is stored and used, the following best management practices are followed to reduce risk:

All hazardous materials will be clearly labeled as hazardous and stored in a manner which reduces the risk of spillage and contamination. All employees will be trained in the safe handling and storage protocols for hazardous materials.

All employees will be briefed on the emergency response plan for possible spillage of, or exposure, to hazardous waste, and the location of emergency contacts and response procedures. All hazardous waste will be disposed of properly.

In regard to the end product and the cannabis consumer, we will evaluate the following:

- The sanitation conditions of the processing site;
- The operation's transportation and transfer practices;
- Processing procedures;
- Packaging and labelling activities;
- The storage of packaging and/or the finished cannabis;
- Any other relevant factors product

Liu Farm intends to only produce pure cannabis flower products for the medical and adult use (commercial) consumer market. No additional ingredients or additives will be used in the processing or packaging process. Licensed distribution companies involved in the transport of Liu Farm products

will be assessed for the safe and sanitary conditions of their company vehicles used for transport. Products, at the time of transfer and transport will be placed in compliant packaging, and completely sealed from the outside environment in airtight containers.

Liu Farm's storage, processing, and packing facility will follow the guidelines set for the in the USDA's Sanitation Performance Standards Compliance Guide, in order to ensure the highest standards for employee and consumer safety.

MANAGEMENT OF HAZARDOUS WASTE

Currently there are no RCRA or Non-RCRA hazardous waste located on the premises. Clear plastic totes will be used for the storage of potentially hazardous waste and clearly labeled to display the volume and type of material stored. Containers will be stored in a locked storage area and will only be accessible to authorized staff.

The type of material, date, and time will be entered into a hazardous waste manifest located within the secure storage area and will be stored for five years. When returning material into storage, the type of material, volume used, name of employee, date and time will be entered into the manifest. Storage areas containing hazardous waste will be inspected weekly by Liu Farm staff to ensure accurate record keeping and safe storage conditions.

EMERGECY PROTOCOL – FOR SPILL OR CLEAN UP

In the case of a spill, the employee shall:

Perform an initial risk assessment from a safe distance, first considering the type of material spilled, volume of spill, potential for fire or airborne vapor; and then immediately make contact with Meili Liu and give an initial risk assessment. In the risk of fire, call 911 or the Lower Lake Fire Department, and locate the nearest posted fire extinguisher. If no immediate fire risk is present, employee shall change into appropriate safety gear/equipment and clean up spill immediately. After spill has been cleaned, place material in a secure storage bin to be taken to a hazardous waste recovery facility along with all clothing worn during clean up. If an immediate risk is perceived, all staff will evacuate the premises, contact the appropriate response authorities, and log as the nature of the spill for reporting to emergency response authorities.

EMPLOYEE TRAINING

All Liu Farm staff will be responsible for the safe handling, storage, and disposal of hazardous materials. An introductory training on company procedures will be conducted before any employees can

begin working. Training will include:

- Procedures for the safe disposal of hazardous materials. Storage locations containing hazardous materials and the labeling system for materials.
- How to appropriately log and track the movement and use of hazardous materials onsite; and required safety gear and appropriate clothing to wear while handling hazardous materials;
- Use of hazard grade Personal Protection Equipment according to the specific requirements of the hazardous material including: rubber gloves, rubber boots, glasses or eye protectant, ear protectant, apron or skin protector, air filter face mask, chemical spill UL grade filter, proper wash and storage are of PPE materials;
- Chemical bins and storage will be separate from all other material and handled accordingly;
- Emergency spill response procedure, the location of emergency response contact information, locations first aid stations and the location of fire extinguishers on the premises

RECORD KEEPING AND STORAGE

Liu Farm does not intend to utilize or generate hazardous waste as part of the cannabis cultivation program. However, data will be logged into the hazardous waste manifest located in storage where hazardous materials are stored, in the case of use or incidental generation.

The storage room shall be maintained with the materials safety data sheets (MSDS) appropriate to the contents of the room. All employees shall be trained for competency on how to read and understand these documents:

- Name of chemical;
- Manufacturer's information;
- Hazardous ingredients/identity information;
- Physical/chemical characteristics;
- Fire and explosion hazard data;
- Reactivity data;
- Health hazard data;
- Precautions for safe handling and use

- Control measures: Duplicate copies of the MSDS shall be maintained in a separate location on-site, along with records of the locations of volatile or

restricted substances.

10.4 CANNABIS VEGETATIVE MATERIAL WASTE MANAGEMENT PLAN OVERVIEW

Liu Farm's Cannabis Vegetative Material Waste Management Plan (CVMWMP) provides compliant guidelines for on-site composting and removal of all cannabis waste, organics and green waste.

Liu Farm's CVMWMP includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to Lake County and the proper local and/or state agencies.

SCOPE

The Liu Farm Cannabis Vegetative Material Waste Management Plan focuses on the following:

The recording and benchmarking of the amount of cannabis vegetative waste generated on site on an annual basis. The reduction of cannabis vegetative waste generation; and the processing, storage and disposal of cannabis vegetative waste

All employees are required to follow the procedures outlined in this plan.

ESTIMATES FOR CANNABIS VEGETATIVE WASTE

We estimate that the seven A-Type 3's cannabis crops could produce 1,900 lbs of cannabis vegetative waste which will consist of stems, branches, trunks, roots and other organic materials from the plant rendered useless in the harvesting process. Cannabis vegetative waste will be disposed of using an onsite composter.

CANNABIS VEGETATIVE WASTE REDUCTION PLAN

Liu Farm's reduction plan hinges on healthy plants and the composting of all clean unusable cannabis vegetative waste on site.

PROCESSING, STORAGE AND DISPOSAL (BMPs)

Liu Farms shall recycle all vegetative wastes and store the waste properly in the designated storage waste shed. The stored waste will be disposed of properly by a professional disposal company at the owner Meili Liu's discretion. All green waste is held in designated holding area for 72-hour period with affixed batch information and weight before beginning the composting process to render unusable, cannabis vegetative waste will be shredded and made unrecognizable and added to a ground

mixture of at least 50% non-cannabis material, tracking each batch from disposal to compost through track and trace once the system is live at the State level.

Green waste that is unable to be composted for any reason will disposed of in a secure receptacle and brought to a solid waste facility, obtaining record from solid waste facility showing the acceptance of the green waste material, address of facility, the date, the volume or weight of cannabis accepted.

Detailed records of cannabis vegetative waste will be logged and benchmarked for the Clearlake Landfill and/or Quakenbush Facilities.

STORAGE

The facility will feature a secure cannabis waste area for cannabis plants that have been marked for disposal. At the close of each day, cannabis plant waste from the property will be removed and placed in the secured cannabis waste area and held for a minimum of 72 hours. The secure waste area will remain locked and only authorized personnel will have access. At the end of each week, all cannabis products that have been marked for disposal shall be rendered unusable by grinding and incorporating them with other ground organic materials (e.g., food, coffee grounds, shredded paper), yielding a mixture that is at minimum 51 percent non-cannabis waste by volume. The mixture will then be transferred to the composting site. Once a month, on a regular basis, the compost will be turned to encourage proper rates of decomposition.

MONITORING AND DOCUMENTING

Liu Farm is committed to monitoring and documenting the amount of cannabis vegetative waste that is generated by the facility on a monthly basis. These processes will include:

Weighing and logging the total amount of organics and cannabis waste generated. Weighing and documenting the total amount of retail-ready cannabis flower products against cannabis vegetative waste generated.

DATA REPORTING

Liu Farm will share with the County of Lake, Department of Public Services on a quarterly basis or as requested, all data pertaining to the cost of implementation and success/failure rates of the reduction plan, and any effort taken to mitigate the generation of organic waste.

COMPLIANCE

Liu Farm's Cannabis Vegetative Material Waste Management Plan has been developed in compliance with the appropriate local, county and state laws that pertain to the composting and recycling of organic and green waste produced by our cultivation process, including:

Cannabis, Non DAA qualified, AB 2490; State Reduction Goals, AB 341 (organics out of landfills goal); State Reduction Goals, California 70-percent reduction plan; Cannabis Cultivation Policy, California State Water Resources Board; California Code of Regulations, Title 3 Food and Agriculture, Division 8 Medical Cannabis Cultivation, Section 8108 Cannabis Waste Management.

REVIEW

Director of cultivation, Meili Liu, will review all procedures in the Cannabis Vegetative Waste Management Plan once a year and will take action to ensure full compliance with local, state and federal regulations that pertain to the usage of organic soils, mediums, amendments, and inputs.

All employees are required to follow the procedures outlined in this plan. Any deviations from this plan must be immediately brought to the attention of Meili Liu, Director of Cultivation of Liu Farm.

10.5 ESTIMATED MEDIUM USAGE

Projected 2018 Growing Medium: 5 Yards Projected 2019 Growing Medium: 5 Yards Projected 2020 Growing Medium: 5 Yards.

Type of Growing Medium: Compost-based organic potting soil. Our soils are mixed with compost at a 2:1 ratio respectively and mixed into the natural beds. We prefer to grow in planters as it reduces waste and the need to replenish soils annually. This technique drastically reduces our growing medium waste. Unless the soil is compromised, the soil will never be removed from the property or disposed of.

WASTE REDUCTION (BMPs)

The following are best management practices used to reduce growing medium waste and disposal:

Plant cover crop to boost soil fertility and protect from storm events Implement Integrated Pest Management practices to avoid the need for pest control, contamination and new grow medium No agrochemicals, Genetic Modified Organisms (GMO), or synthetic additives will be used during the cultivation of cannabis.

CULTIVATION (BMPs)

Liu Farm only uses organic potting soil with coco fiber and mycorrhizae to combat pests and grow healthy plants.

The Soil Composition:

8 large bags of a high-quality organic potting soil with coco fiber and mycorrhizae
25 to 50 lbs of organic worm castings
5 lbs steamed bone meal 5 lbs Bloom bat guano
5 lbs blood meal
3 lbs rock phosphate
¾ cup Epson salts
½ cup sweet lime (dolomite)
½ cup azomite (trace elements) 2 tbsp powdered humic acid

PESTS (BMPs)

We also reduce growing medium waste through pest control, applying an integrated ecosystem-based strategy that focuses on long-term prevention of pests through a combination of techniques such including:

Biological control habitat manipulation modification of cultural practice uses of resistant varieties.

MONITORING PERFORMANCE OF GMP AND WASTE GENERATION

In monitoring Growing Medium waste, Liu Farm will measure waste in tons. As referenced above, we reuse and recycle all growing medium that is brought onto our site. The only time we remove growing medium is if the soils are compromised. We will measure growing medium waste in tons when deposited at the Clearlake Landfill or Quakenbush facilities.

SOIL REMOVAL GUIDELINES

In the case that soil is compromised and needs to be removed from the property, the following guidelines are followed:

Excavated soil will be loaded directly onto trucks for off-hauling to the appropriate waste disposal facility. After the soil is loaded into the transport truck, the soil will be covered with secured tarps according to all applicable CA. Department of Transportation regulations to prevent soil from spilling during transport to the disposal facility.

If excavated impacted soil is stockpiled on-site prior to off-hauling, it will be placed on a paved surface and covered with plastic tarp and held down by weights. Stockpiled soil, if any, will be covered with plastic sheeting, or other similar material, at the end of each workday. A stockpile that is not being actively worked on for more than 60 minutes will be covered with plastic sheeting to prevent dust from leaving the site.

REPORTING TO LAKE COUNTY

All testing result will be recorded in logs managed by our Director of Cultivation, Meili Liu. Data collected during the cultivation of cannabis will be shared and reported to County of Lake, and the following agencies upon request:

The CA. Department of Food and Agriculture; and the Department of Health.

REVIEW

Director of Cultivation, Meili Liu, will review all procedures in the Growing Medium Management Plan once a year and will take action to ensure full compliance with local, state and federal regulations that pertain to the usage of organic soils, mediums, amendments, and inputs.

Section 11 Water Resources

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's in Lake County, California. Upon receiving this permit, Liu Farm will implement the following Water Resources Management Plan.

11.1 PURPOSE

Liu Farm's Water Resources Management Plan (WRMP) has been designed to minimize adverse impacts on surface and groundwater resources and to ensure that on site water resources and management is in full compliance with applicable local, county and state regulations.

The WRMP, in conjunction with the Water Use Plan, identifies best management practices and evaluates these strategies to reduce water demand, increase water supply, reduce potential sediment delivery to waterways, improve water quality, and enhance environmental and resource stewardship.

Liu Farm's Water Resources Management Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to County of Lake and the proper local agencies.

11.2 SCOPE

The Liu Farm's WRMP focuses on:

- Identifying property water resources and provide description of watershed on lot of record;
- Best management practices to limit adverse impacts to water resources;
- Monitoring and reporting methodology of water resources;

All employees are required to follow the procedures outlined in this plan. Any deviations from this plan must be immediately brought to the attention of Meili Liu, Director of Cultivation.

11.3 OVERVIEW

Liu Farm is proposing to use one wells for cultivation. The primary well was completed April 23rd, 1922. The well will supply all the water for cultivation and purchasing water trucks will be used as backup or in any unforeseen emergency.

The main water source will be a groundwater well located on the subject parcel at 38.8680984393, -122.561131828. This well has an estimated yield of 20 GPM. The water will be pumped and stored in water tanks located near the cultivation site. From the well, water is delivered approximately 650 feet to a water tank collection system. Water is then pumped from the water tanks to the cultivation areas. When all proposed tanks are full a mechanical float switch shuts off system.

Water is delivered to irrigation system via a 1hp jet pump pressure tank system. Liu Farms shall use a drip irrigation system to water plants. Our projected monthly water usage is 135,000 gallons for cultivation. In addition to cultivation we shall use 100 gallons of water for livestock located on the parcel.

The well is sealed to the outside environment and is contained within a well house annotated on the site exhibit shown in Appendix D.

11.4 WATERSHED DESCRIPTION

Liu Farm is located in the Lower Sacramento River Watershed. The parcel is approximately 158.22 acres of forested land dominated by ponderosa pine with California blue oak also prominent. Numerous additional tree species were observed sharing the canopy including Douglas-fir, knobcone pine, sugar pine, canyon live oak, interior live oak, and California bay.

11.5 WATER CONSERVATION (BMPS)

Liu Farm will draw our best management practices from Central Valley Regional Water Quality Control Board BMP for Cannabis Cultivation. All employees and managers will practice the following:

- Do not obstruct, alter, dam or divert all or a portion of a natural watercourse without notification and approval from CDFW under the Lake and Streambed Alteration Program;
- Regularly inspect the entire water delivery system for leaks and repair leaky faucets and connectors;
- Line water conveyance ditches/canals to reduce waste and the unreasonable use of water;
- Use rainwater catchment systems to collect and store storm water during the rainy season in tanks, bladders, or engineered ponds to reduce the need for water diversions and/or pumping of groundwater during low flow periods (late summer to fall);
- Install float valves on all water storage systems to keep them from overflowing onto the ground;
- Hand water or use drip/trickle Irrigation systems, and limit watering;
- Use mulch to conserve soil moisture in cultivated areas, pots and bins;
- Water pump intakes should be screened to prevent the entrainment of threatened or endangered aquatic species - consult Fish and Game Code sections 6020-6028;
- Base layout and site development on a qualified expert's recommendations with respect to any listed species protected under California or federal law - avoid any action that constitutes a "taking" under the Federal Endangered Species Act or California Endangered Species Act, unless accompanied by an Incidental Take Statement or Incidental Take Permit issued by the appropriate agency.

11.6 EROSION, SEDIMENT, ROADS, AND STORMWATER (BMPS)

We draw our best management practices for erosion, sediment, roads and storm water from Central Valley Regional Water Quality Control Board BMP for Cannabis Cultivation. All employees and managers will practice the

following:

- A licensed timber operator (LTO) must be utilized if any commercial tree species are to be removed from the site;
- Grow site development and road construction will be conducted in a manner that minimizes grading and soil disturbance;
- Avoid cultivating on steep slopes (greater than 30% grade) and disturbing any areas with landslides, gullies, and slips;
- Avoid construction and soil disturbance in the winter and/or during periods of wet weather;
- Seed, mulch, and/or rock areas that have been disturbed by grading, excavation, and/or road construction activities;
- Erosion control mats/blankets and wattles should be used to protect disturbed areas on steep slopes. Native grass seed will be applied to disturbed areas before installation of mats/blankets and wattles. Wattles will be installed on contour to prevent concentrating runoff and mats/blankets will be installed per manufacturer's guidelines if necessary;
- Storm water drainage structures will not discharge onto unstable slopes, earthen fills, or directly to a watercourse. Drainage structures will discharge onto stable areas with straw bales, slash, vegetation, and/or rock riprap;
- All drainage and storm water infiltrations features will be assessed for their ability to withstand a 2-year storm event;
- Regularly check and maintain erosion control/drainage structures and keep culverts clear of debris;
- Haul away excess soil and other debris and locate any stockpiled materials in areas where they can be protected from erosion and will not discharge to a watercourse or lake;
- Compact and contour stored soil/spoils to mimic natural slope contours and drainage patterns to reduce the potential for fill saturation and failure, or erosion;
- Rip compacted soils prior to placing stored soil/spoils to prevent the potential for ponding which could lead to stored soil/spoil site failure and subsequent sedimentation;
- All necessary drainage/erosion control structures will be in place and functioning, and all areas of exposed soil as a result of grading will be stabilized as soon as possible after grading is complete and before any precipitation event that could cause erosion and/or deliver storm water runoff to a water body;
- Riparian zones will be avoided and vegetation should be maintained to protect watercourses from growing operations;
- Do not service, fuel, or store equipment within 100 feet of surface water bodies;
- Store petroleum products in a covered building with secondary containment at least 200 feet away from surface water bodies;

- New roads will be planned and designed to stay as far away from watercourses as possible and to minimize the number of watercourse crossings;
- Decommission or relocate existing roads away from riparian zones whenever possible;
- Blade existing roads in dry weather, but while moisture is still present in soil to minimize dust and maximize compaction to prevent fine sediments from discharging from the road surface;
- Do not side cast bladed material to areas where it can enter a water body directly or be delivered to a water body during a storm event;
- Out-slope roads wherever possible to prevent the concentration of storm water flow within an inboard/inside ditch, to promote even drainage of the road surface, and to minimize disruption of the natural sheet flow pattern off a hill slope to a stream;
- If unable to eliminate inboard/inside ditches, line them with geotextile fabric and/or rock and ensure adequate ditch relief culverts to prevent down-cutting of the ditch and to reduce water runoff concentration and velocity;
- Neither in-sloped nor out-sloped roads will be allowed to develop or show evidence of surface rutting or gullying. Use water bars and rolling dips to break- up slope length, diverting water to well-vegetated or armored areas. The distance between water bars and/or rolling dips should not exceed 150 feet, and that distance should be shortened for roads with steep grades (greater than 15%) or with an easily erodible surface;
- Use gravel to “weatherproof” roads used during the winter or wet weather periods;
- All road watercourse crossing structures will allow for the unrestricted passage of water and should be designed to accommodate the 100-year flood flow - consult CAL FIRE 100-year Watercourse Crossings document for examples and calculations (minimum of 18” diameter for all culverts);
- Road watercourse crossing structures on watercourses that support fish will be constructed for the unrestricted passage of fish at all life stages, and require permitting from CDFW;
- Culverts used at watercourse crossings will be of sufficient length to extend beyond fill/sidecast material, and will be installed at the same level and gradient of the stream bed in which they are being placed;
- Culverts used at watercourse crossings will be designed to direct flow and debris toward the inlet using wing-walls, beveling of the pipe, rock armoring, etc.;
- Low-water or ford style watercourse crossings will be armored along the bed and banks with clean durable rock of a sufficient size as not to move downstream during high flow periods, yet without creating a damming effect on the flow - rock will be placed on either side to the break in slope to prevent water from diverting around the material;
- Stream crossing structures should be designed, constructed, and maintained to prevent stream diversion in the event that the crossing becomes plugged.

11.7 WETLAND/RIPARIAN PROTECTION AND MANAGEMENT

- Liu Farm shall not disturb aquatic or riparian habitat, such as vernal pools, spawning sites, large wood, or shading vegetation unless authorized under a CWA section 404 permit, CWA section 401 certification, Regional Water Board WDRs (when applicable), or a CDFW LSA Agreement.

- Liu Farm will maintain existing, naturally occurring, riparian vegetative cover (e.g., trees, shrubs, and grasses) in aquatic habitat areas to the maximum extent possible to maintain riparian areas for stream bank stabilization, erosion control, stream shading and temperature control, sediment and chemical filtration, aquatic life support, wildlife support, and to minimize waste discharge.

11.8 WASTEWATER AND SEWAGE MANAGEMENT

The wastewater created by Liu Farm related to the cultivation operation located at 8531 High Valley Rd., Clearlake Oaks, CA 95423 will be collected and disposed of though Perkins Septic, a Lake County business licensed to handle such waste. Liu Farm ensures:

- All human or animal waste is disposed of properly
- Onsite wastewater treatment systems (e.g., septic system) are permitted by the local agency;
- We will not use a cesspool for domestic or industrial wastewater disposal;
- We will not install or continue use of an outhouse, pit-privy, pit-toilet, or similar device without approval from the County of Lake;
- Liu Farm will not dispose of domestic wastewater unless it meets applicable local agency requirements.

11.9 MONITORING PERFORMANCE AND MANAGEMENT

Liu Farm will conduct biannual monitoring inspections of the cultivation site, all associated facilities, all roadways associated with cannabis cultivation, and any water bodies potentially impacted by cultivation related activities. The first monitoring will occur annually by November 1st of each calendar, and will ensure the following criteria are met:

- All stockpiles, soil amendments, pesticides, and fertilizers have been properly stored and/or protected;
- Erosion and sediment controls have been properly installed and are functioning, and all areas of exposed soil have been stabilized in preparation for the winter wet weather period;
- Drainage structures (water bars/rolling dips) have been installed and are functioning on all access roads, and all access roads intended for use during the winter wet weather period have been weatherproofed;
- All trash/refuse has been cleaned up where it cannot pass into or be transported into any water body and empty/used containers have been properly disposed of per manufacturer's instructions;
- All water containment/storage ponds/dams have been inspected and appear to be in good, and stable condition;

The second monitoring inspection will occur annually after April 1st and before June 15th of each calendar year, and will ensure the following criteria are met:

- All stockpiles, soil amendments, pesticides, and fertilizers have remained properly stored and/or contained;
- Erosion/sediment controls implemented on bare soils have remained effective in preventing discharge of earthen materials and sediments off site;
- All access roads appear in good condition and erosion/sediment control has been effective in preventing discharge of earthen materials and sediment off- site;
- All permitted water containment structure/ponds/dams have remained effective and in good condition;

11.10 WRMP EVALUATION AND PERFORMANCE REPORTS

Based on the findings of the biannual monitoring inspections, Liu Farm will assess the efficacy of the WRMP. If monitoring shows that measures implemented have proven effective, we will report the findings continue to inspect the site biannually. If the measures implemented on site have proven ineffective, we will submit a remediation plan to the CVRWQCB as well as a timeline for work to be accomplished. The remediation plan will include proof that any permits required to complete the intended work will be obtained in a timely fashion to the appropriate regulatory agency. All data collected by site inspection will be shared with all concerned Lake County agencies.

11.11 REVIEW

Liu Farm will review the Water Resources Management Plan on an annual basis, in conjunction with the review of the Water Uses Management Plan.

11.12 COMPLIANCE

Liu Farm applied to the Regional State Water Board in 2018. Liu Farm was granted a notice of applicability on June 4th, 2018. The WDID number is 5S17CC402153.

A copy of the Central Valley Regional Water Quality Control Board BMP for Cannabis Cultivation will be kept on site at all times.

As of the date of this application, we hold the following permits:

- No permits at this time.

Section 12 Water Use

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's in Lake County, California. Accordingly, Liu Farm proposes to implement the following Water Use Management Plan.

12.1 PURPOSE

The Water Use Management Plan (WUMP) has been designed to conserve the County's water resources and establish best management practices to ensure the plan is always followed, as well as in full compliance with applicable local, county, and state regulations.

Liu Farm's Water Use Management Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to the County of Lake and appropriate local agencies.

12.2 SCOPE

The Liu Farm Water Use Management Plan focuses on the following:

- Develop and maintaining a safe, clean, and reliable water supply;
- Meeting all legal requirements for the use of water resources located on the property and providing documentation of legal compliance;
- Monitoring the quantity of water used for the cultivation of cannabis;
- Design a water efficient delivery system and irrigation system for cannabis cultivation. All employees are required to follow the procedures outlined in this plan;

12.3 OVERVIEW

Liu Farm's well was drilled on April 22nd, 2020. A well draw down test was conducted on May 26th, 2021 and indicated the well to be capable of producing 40 GPM continuously.

The well is sealed to the outside environment and is contained within a well house. Liu Farm's well is located towards the southwesterly corner of the parcel, east of a natural spring. The Storage tanks are located adjacent to the cultivation site.

From the well, water will be pumped to 15 separate tanks, stored directly adjacent to each cultivation site. When all 15 tanks are full, a mechanical float switch shuts off the system.

Water is delivered to an irrigation system via a 1hp jet pump pressure tank system. Liu Farms shall use a drip irrigation system to water plants. The projected monthly usage during peak use (July, August, and September) is 675,000 gallons per month. This represents a usage of 3,000 gallons per day per acer.

Liu Farm will not engage in any unlawful drawing of surface water. Liu Farm will not use water provided by a public water supply, unlawful water diversions, bottled water, a water vending machine, or a retail water facility.

The property is outside any County Water District "Exclusion Areas." Liu Farm will use water transportation trucks if needed or in an extreme emergency.

12.4 WATER STORAGE (BPM'S)

Liu Farm will install vertical storage tanks according to manufacturer's specifications and place the tanks on properly compacted soil that is free of rocks and sharp objects capable of bearing the weight of the tank and its maximum contents with minimal settlement. Water will be stored in polyethylene water tanks with a total of 30,000 gallons of water stored close to the cultivation site.

New storage tanks will be in areas with great slope stability at the cultivation site. To prevent rupture of overflow and runoff, Liu Farm will only use water storage tanks and bladders equipped with a float valve, or equivalent device, to shut off diversion when storage systems are full. All vents and other openings on water storage tanks will be designed to prevent the entry and/or entrapment of wildlife. Liu Farm will also monitor the well meter on a regular basis to ensure excess water is not being used.

12.5 IRRIGATION SYSTEM

Daily Watering of cannabis will be achieved via a drip irrigation system feed from water storage tanks. The watering will be administered by a timed irrigation controller, set to irrigate during the nighttime when the evaporation rates will be the lowest. Drip lines will be sized to irrigate large areas slowly, to maximize absorption, and will be placed under a layer of straw mulch. Hose bibs will be positioned throughout the cultivation area for spot watering.

IRRIGATION & SPRINKLERS (BMP'S)

The following are irrigation best management practices implemented by Liu Farm:

- The site will utilize a drip irrigation system with a schedule that requires the use of as little water as possible;
- Regularly inspect the entire water delivery system for leaks and immediately repair any leaky faucets, pipes, connectors, or other leaks;
- Replace worn, outdated, or inefficient irrigation system components and equipment to ensure a properly functioning, leak-free irrigation system at all times;
- Install according to the irrigation design specifications, locally applied codes and standards, and manufacturers' product requirements;
- Actively manage the system and adherence to all applicable watering limitations;
- Ensure sprinkler heads and nozzles will apply water uniformly to the target areas;
- Match the precipitation/application rate of the sprinklers for each zone (+/- 5 percent)
- Design to reduce overspray of impervious surfaces or adjust planting areas, and prevent runoff of water;
- Avoid of low head drainage;
- Drip irrigation will be utilized instead of spray sprinklers in narrow or complex shape areas;

12.6 MONITORING PERFORMANCE OF WATER

Liu Farm will maintain records of diversion with separate records that document the amount of water used for cannabis cultivation separated out from the amount of water used for other irrigation purposes and other beneficial uses of water (e.g., domestic, fire protection, etc.). These records will be available upon request from the Water Boards or any other authorized representatives of the state.

Liu Farm will share date relating to the cost of implementing the water management plan with the County as requested.

12.7 EVALUATING PERFORMANCE OF THE WATER USE MANAGEMENT PLAN

Annually, Liu Farm will review the Water Use Management Plan and record logs in conjunction with the reviews of all management plans. Upon review, Liu Farm will address any outstanding issues immediately. Additionally, a professional evaluation of the water plan will occur annually with the goal of improving water management practices.

12.8 CALIFORNIA DROUGHT DECLARATIONS

Liu Farm recognizes that on occasions, the Governor of California and the Lake County Board of Supervisors has and likely will continue to periodically issue a proclamation of a local or state emergency based on drought conditions in any give year. In the event of such a Declaration, Liu Farm will abide by all emergency regulations adopted in response to drought conditions.

12.9 EMERGENCY USE PLAN

In the case of an emergency that retail water is needed, Liu Farm will work with a licensed retail water supplier as defined by Section 13575 of the Water Code and provide the following information to the Department in 7 days:

- A description of the emergency;
- Identification of the retail water supplier including license number;
- Volume of water supplied;
- Actions taken to prevent the emergency in the future.

12.10 WATER AVAILABILITY ANALYSIS

This Water Use Plan has been developed in compliance with the appropriate local, and state laws that pertain to water use. These include:

- Cannabis Cultivation Policy & California State Water Resources Board;
- California Code of Regulations, Title 3 Food and Agriculture, Division 8 Medical Cannabis Cultivation, Section 8107;
- County of Lake Ordinance 3703;
- Division of Water Rights, Principals and Guidelines for Cannabis Cultivation.

Water Usage Calculation

Description	Use	Amount of Water Needed
Well Production	40 GPM Continuous	9.375 hours of pumping per day
Existing Usage (AG/Live Stock)	Vacant	No current use
Proposed (Cannabis Cultivation)	7 acres of outdoor	3,000 gallons per day per acre 22,500 gallons per day total 675,000 gallons per month (30 days) @ peak use (July, August, September)

Water Usage Per Month

January	0
February	0
March	0
April	0
May	106,500 gallons (Early Outdoor)
June	211,500 gallons (Early Outdoor)
July	675,000 gallons (Mature Outdoor)
August	675,000 gallons (Mature Outdoor)
September	675,000 gallons (Mature Outdoor)
October	211,500 gallons (Harvest Outdoor)
November	0
December	0
Total Annual Usage	**2,554,500 gallons**

12.11 REVIEW

Director of Cultivation, Meili Liu, will review the Water Use Plan on an annual basis and will share data related to the cost of implementing this plan with the County as requested. The well will be monitored through well draw down tests as requested by the County of Lake. Liu Farm will monitor and log the well meter at a minimum twice per week and will provide said logs upon request by the County.

Appendix A: Fertilizer Information

AMERICAN SOIL & STONE

Soil Blends

The Soil Composition:

8 large bags of a high-quality organic potting soil with coco fiber and mycorrhizae

25 to 50 lbs of organic worm castings (2% Nitrogen, 0% Phosphorus, 0% Potassium)

5 lbs steamed bone meal (3% Nitrogen, 15% Phosphorus, 0% Potassium)

5 lbs Bloom bat guano (10% Nitrogen, 3% Phosphorus, 1% Potassium)

5 lbs blood meal (12% Nitrogen, 0% Phosphorus, 0% Potassium)

3 lbs rock phosphate (0% Nitrogen, 30% Phosphorus, 0% Potassium)

¾ cup Epsom salts (0% Nitrogen, 0% Phosphorus, 0% Potassium)

½ cup sweet lime (dolomite) (0% Nitrogen, 0% Phosphorus, 0% Potassium)

½ cup azomite (trace elements) (0% Nitrogen, 0% Phosphorus, 0% Potassium)

2 tbsp powdered humic acid (0% Nitrogen, 0% Phosphorus, 0% Potassium)

Appendix B: Lighting Information

Gavita **Pro** 1000e DE US 208-240 SL

General product information

Product name:	Gavita Pro 1000e DE US 208-240 SL
Manufacturer:	Gavita International bv
Version:	US 208 - 240 V SL
Part number:	18.30.14.24.20

Compatible products and accessories

	Product name	Gavita part number
Controllers:	Gavita Master Controller EL1	41.00.12.20
	Gavita Master Controller EL2	41.00.13.20
Reflectors:	Gavita Pro HR 96 DE reflector	30.46.13.00
	Gavita Pro W 150 DE reflector	31.26.13.00
	Gavita Pro MD 135 DE HC	30.07.13.00
Lamps:	Gavita Pro Plus 1000W EL DE HPS	26.10.16.12
Power cord:	Power cord US 240 V, 8.2 ft / 2,5 meter	44.30.41.10
Interconnect cables:	Interconnect cable RJ	43.50.00.17
	Repeater Bus connection kit	43.50.10.00

S.0277

Technical specifications

Product name:	Gavita Pro 1000e DE US 208 - 240 SL	
Input voltage +/-10%:	208 volt AC	240 Volt AC
Frequency:	50 - 60 Hz	
Input current at 100%:	5.2 Amps	4.5 Amps
Input current at 115%:	5.9 Amps	5.1 Amps
Input power at 100%	1050 Watt	1050 Watt
Input power at 115%	1236 Watt	1236 Watt
Inrush current:	< 40 Amps	
Power factor:	0.97 - 0.99	
Product weight:	8.4 lbs (3,8 kg)	
Dimensions (LxWxH):	22.2"x9.7"x7.8" (56,5x24,5x19,5cm)	
Temperature ambient:	32-95 °F (0 - 35°C)	
Relative humidity:	<70%	
Total Harmonic Distortion:	<10%	
Power inlet:	IEC C14	
External dim connector	RJ connector built in (6p6c)	

Legislation

This device complies with c CSA us

Included accessories

User manual, power cord, Interconnect cable RJ14 5 ft and a T-splitter for plug and play installation, Gavita Pro 1000 lamp.

Appendix C: Security Camera Information

16
CHANNELS

10
CAMERAS

HARD DRIVE

Lorex 16CH 4K DVR 4TB 10 UHD 4K Bullet Camera Security System

tt** 4.0 (54)

Item 1220974 | Model LHV516410B

Your Price **$1,299.99**

Shipping & Handling Included'

Features:

- 10 UHD 4K Bullet Cameras with Color Night Vision™
- 16-channel 4K DVR
- RG-59 Cabling
- Remote Viewing Available Via Free App

Qty [2J Add to Cart

Arrives approximately 3 - 5 business days from time of order.

0 Compare Product

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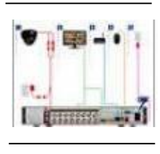

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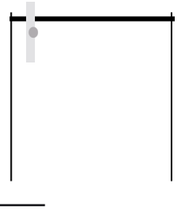
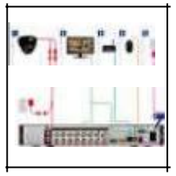




Product Details

Product details have been supplied by the Manufacturer, and are hosted by a third party.

System Overview

Introducing the evolution of High Definition analog security with the advanced Lorex Ultra HD 4K (8MP) solution. Experience professional grade quality, outstanding video and reliable recording. This expandable 16 channel 4K (8MP) Ultra HD DVR comes with 10 weatherproof 4K (8MP) Ultra HD bullet security cameras featuring 4x the detail of 1080p See more with Color Night Visionn, for low light conditions and up to 135ft (41m) with long-range IRnight vision so important events are captured in exceptionally high definition day or night

View live in clear highdefinition and watch recorded video later with the pre-installed 4TB security-grade 100% duty cycle hard drive, allowing you to digitally zoom in on fine details. Secure more video data with up to 30 days of continuous recording, and up to 2 months of motion recording Connecting to your system with your smartphone or tablet has never been easier than with the Lorex Cloud app- connect in 3 simple steps so you never miss a moment from anywhere life takes you

For more information, call Lorex toll-free at 1-888-425-6739 (Pre-Sales & Sales Support from 8:30am - 7:00pm EST Monday - Friday, and Customer Service from 9:00am - 5:00pm EST. Support available in English & Spanish)

System Specifications

- **Channels**: 16
- **Included Cameras:** 10><4K (8MP) Ultra HD Security Cameras
- **Hard Drive:** 4TB security-grade 100% duty cycle hard drive
- **Resolution:** 4K (8MP - 3840x2160) Ultra High Definition (HD)

., Free Technical Support

Learn About Costco Concierge Services

Appendix D: Waterboard Notice of Applicability

Central Valley Regional Water Quality Control Board

2 March 2020

WDID: 5S17CC423622

DISCHARGER
Meili Liu
Intangible Paradise
8531 High Valley Road
Clearlake Oaks, CA 95423

LANDOWNER
Meili Liu
2014 Central Avenue
Alameda, CA 94501

NOTICE OF APPLICABILITY, WATER QUALITY ORDER WQ-2019-0001-DWQ, MEILI LIU, APN 006-003-340-000, 006-005-200-000, 006-032-370-000, 006-033-040-000, LAKE COUNTY

Meili Liu for Intangible Paradise (hereafter "Discharger and Landowner") submitted information through the State Water Resources Control Board's (State Water Board's) online portal on 25 January 2020, for discharges of waste associated with cannabis cultivation related activities. Based on the information provided, the Discharger self-certifies the cannabis cultivation activities are consistent with the requirements of the State Water Board *Cannabis Cultivation Policy- Principles and Guidelines for Cannabis Cultivation* (Policy), and the *General Waste Discharge Requirements and Waiver of Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation Activities,* Order No. WQ-2019-0001-DWQ (General Order). This letter provides notice that the Policy and General Order are applicable to the site as described below. You are hereby assigned waste discharge identification (WDID) number **5517CC423622.**

The Discharger is responsible for all applicable requirements in the Policy, General Order, and this Notice of Applicability (NOA), including submittal of all required reports. The Discharger is the sole person with legal authority to, among other things, change information submitted to obtain regulatory coverage under the General Order; request changes to enrollment status, including risk designation; and terminate regulatory coverage. The Central Valley Regional Water Quality Control Board (Central Valley Water Board) will hold the Discharger liable for any noncompliance with the Policy, General Order, and this **NOA,** including non-payment of annual fees.

Pursuant to the General Order and Policy, Meili Lu (hereafter "Landowner") is ultimately responsible for any water quality degradation that occurs on or emanates from the property and for unauthorized water diversions. Accordingly, the Landowner, in addition to the Discharger, may be held responsible for correcting non-compliance.

1. FACILITY AND DISCHARGE DESCRIPTION

The information submitted by the Discharger states the disturbed area is equal to or greater than 1 acre (43,560 square feet), no portion of the disturbed area is within the setback requirements, no portion of the disturbed area is located on a slope greater than 30 percent, and the cannabis cultivation area is greater than 1 acre.

Based on the information submitted by the Discharger, the cannabis cultivation activities are classified as Tier 2, low risk.

2. SITE-SPECIFIC REQUIREMENTS

The Policy and General Order are available on the Internet at http://www.waterboards.ca.gov/cannabis. The Discharger shall ensure that all site operating personnel know, understand, and comply with the requirements contained in the Policy, General Order, this NOA, and the Monitoring and Reporting Program (MRP, Attachment B of the General Order). Note that the General Order contains standard provisions, general requirements, and prohibitions that apply to all cannabis cultivation activities.

The application requires the Discharger to self-certify that all applicable Best Practicable Treatment or Control (BPTC) measures are being implemented, or will be implemented by the onset of the winter period (November 15 - April 1), following the enrollment date.

3. TECHNICAL REPORT REQUIREMENTS

The following technical report(s) shall be submitted by the Discharger as described below:

1. A *Site Management Plan* must be submitted by **24 April 2020.** For more information on the requirements to submit a *Site Management Plan,* see General Order Provision C.1.a, and Attachment A, Section 5. Attachment D of the General Order provides guidance on the contents of a *Site Management Plan.* Dischargers that cannot implement all applicable BPTC measures by the onset of the winter period, following their enrollment date, shall submit to the appropriate Central Valley Water Board a *Site Management Plan* that includes a time schedule and scope of work for use by the Central Valley Water Board in developing a compliance schedule as described in Attachment A of the General Order. You are not required to use a Qualified Professional for developing the Site Management Plan. However, you are required to submit the Site Management Plan to Central Valley Water Board staff for approval prior to any site development.
2. A *Nitrogen Management Plan* must be submitted by **24 April 2020,** consistent with the requirements of General Order Provision C.1.d., and Attachment A, Section 5. Attachment D of the General Order provides guidance on the contents of the *Nitrogen Management Plan.*
3. *A Site Closure Report* must be submitted 90 days prior to permanently ending

cannabis cultivation activities and seeking to rescind coverage under the Conditional Waiver. The *Site Closure Report* must be consistent with the requirements of General Order Provision C.1.e., and Attachment A, Section 5. Attachment D of the General Order provides guidance on the contents of the *Site Closure Report.*

4. MONITORING AND REPORTING PROGRAM

The Discharger shall comply with the Monitoring and Reporting Program (MRP). Attachment B of the General Order provides guidance on the contents for the annual reporting requirement. Annual reports shall be submitted to the Central Valley Water Board by March 1 following the year being monitored. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Central Valley Water Board's Executive Officer or the State Water Board's Chief Deputy Director, or Deputy Director.

5. ANNUAL FEE

According to the information submitted, the discharge is classified as Tier 2, low risk with the current annual fee assessed at $1,000. The fee is due and payable on an annual basis until coverage under this General Order is formally rescinded. To rescind coverage, the Discharger must submit a Notice of Termination, including a *Site Closure Report* at least 90 days prior to termination of activities and include a final MRP report.

6. TERMINATION OF COVERAGE UNDER THE GENERAL ORDER & REGIONAL WATER BOARD CONTACT INFORMATION

Cannabis cultivators that propose to terminate coverage under the Conditional Waiver or General Order must submit a Notice of Termination (NOT). The NOT must include a *Site Closure Report* (see Technical Report Requirements above), and Dischargers enrolled under the General Order must also submit a final monitoring report. The Central Valley Water Board reserves the right to inspect the site before approving a NOT. Attachment C includes the NOT form and Attachment D of the General Order provides guidance on the contents of the *Site Closure Report.*

If the Discharger cannot comply with the General Order, or will be unable to implement an applicable BPTC measure contained in Attachment A by the onset of the winter period each year, the Discharger shall notify Central Valley Water Board staff by telephone at 530-224-4845 so that a site-specific compliance schedule can be developed.

All monitoring reports, submittals, discharge notifications, and questions regarding compliance and enforcement should be directed to centralvalleyredding@waterboards.ca.gov or 530-224-4845.

(for) Patrick Pulupa
Executive Officer

JF:ch

cc via email: Kevin Porzio, State Water Resources Control Board, Sacramento Mark Roberts, Lake County Planning Department, Lakeport

Appendix E: Well Permit Application and Draw Down

LAKE COUNTY HEALTH SERVICES DEPARTMENT
ENVIRONMENTAL HEALTH DIVISION
922 BEVINS COURT, LAKEPORT, CA 95453
PHONE: (707) 263-1164 FAX: (707) 263-1681

WELL PERMIT APPLICATION

SEE LAKE COUNTY ORDINANCE NO. 1823 FOR WELL CONSTRUCTION, DESTRUCTION & REPAIR REQUIREMENTS

JOB LOCATION ADDRESS: 8531 High Valley Rd. Clearlake Oaks, CA
Assessor's Parcel Number: 010-003-34 Phone: (510) 468-7657
Property Owner: Meili Liu City: Alameda
Mailing Address: 2014 Central Ave. State/Zip: CA 94501

WELL DRILLER: Will Peterson Well Drilling
Mailing Address: P.O. Box 695 City/State/Zip: Kelseyville CA 95451
CA C-57 License Number: 1009053 Phone: (707) 277-0103
Well Driller Print Name: Will Peterson I HEREBY AFFIRM UNDER PENALTY OF PERJURY that I am licensed under the provisions of Chapter 9 of Division 3 of the Business and Professions Code, and my license is in full force and effect.
WELL DRILLER'S SIGNATURE: Will Peterson Date: 3-10-20

TYPE OF WORK: [X] New Well [ ] Reconstruction [ ] Destruction [ ] Test Well [ ] Soil Boring/Hydropunch [ ] Other:

PROPOSED USE: [X] Domestic [ ] Public [ ] Monitoring [ ] Agriculture [ ] Test Well [ ] Other:

CONSTRUCTION: [ ] Cable Tool [ ] Mud Rotary [X] Air Rotary [ ] Other:
Casing Type & Standard: F480 PVC Wall Thickness: 1/4" Diameter: 4 1/2"
Proposed Depth of Seal: 20' Bore Hole Diameter: 9" Variance:

SEAL MATERIAL: [X] Concrete [X] Bentonite Clay [ ] Sand-Cement Grout [ ] Neat Cement [ ] Other:

PLEASE COMPLETE ALL ATTACHMENTS
THIS PERMIT IS VALID FOR ONE YEAR FROM DATE OF ISSUANCE
Drillers please provide a minimum of 12-hour notice prior to sealing the annular space.

FOR OFFICE USE ONLY

Date Received: 3-11-2020 Fee Paid: 305.00 Receipt Number: RPC0121162
[✓] Well Driller License # Verified By: CSLB
100 Year Flood Plain? [✓] No [ ] Yes Zone: D/X Elevation:
Water Resources: Flood √ Database Minimum Casing Height: ≥ One foot above the elevation of the 100-year flood plain elevation or above any known condition of flooding by drainage or runoff from the surrounding land.
Issued By: Thackery Preciado Date: 03/16/2020

Site #1 Seal Depth: ____ – ____ Feet Total Feet Below Ground Surface: ____ [ ] Well [ ] Boring
Site #2 Seal Depth: ____ – ____ Feet Total Feet Below Ground Surface: ____ [ ] Destruct [ ] Boring
Site #3 Seal Depth: ____ – ____ Feet Total Feet Below Ground Surface: ____ [ ] Destruct [ ] Boring
Annular Seal Verified By: ____ Date: ____
Destruction Verified By: ____ Date: ____
Well Completion Report (Well Log) Date Received: ____ Initials: ____

WELL PERMIT NUMBER: WE-5326
WP0003460

Cramer Enterprises

LIC#984176

Well Test

Job Name:	Meili Liu		Well Diameter:	4 1/2 pvc			
Location:	8531 High Valley Rd		Static Water Level:	120'			
Operator:	RH		Well Depth:	305			
Original Meter Reading:			Pump Setting:	N/A			
Final Meter Reading:			Pump:	5 HP sub			
Total gallons pumped:	13,554		Pump running upon arrival?	Yes	X	No	

Date	Time	GPM	Pumping Level	Color	Comments
5/26/21	12:47	51	127	Clear	Clear/Cold, no smell
	12:48	51	127.9		
	12:49	51	130.1		
	12:50	51	131		
	13:00	51	131.8		
	13:10	51	135.5		
	13:20	51	141.2		
	13:30	51	147.1		
	13:45	51	155.1		
	14:00	50	158.2		
	14:15	50	160		
	14:30	48	162.7		
	14:45	48	165.1		
	15:00	48	165.2		
	15:15	48	165.2		
	15:30	48	165.2		
	15:45	48	165.2		
	16:00	48	165.2		
	16:15	48	165.2		
	16:30	48	165.2		
	Start Recovery				
	16:32		155.4		
	16:33		137.9		
	16:34		130.1		
	16:35		128.7		
	16:36		128.1		

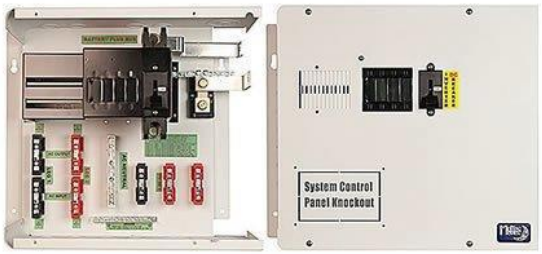
Appendix F: Solar System

Kit

sold by

webosolar

4500W Off-Grid Solar System with Schneider SW4048 Inverter



This is a complete solar charging system for 48 Volt applications and 4000W nominal AC output. The classic MPPT charge controller will regulate the PV charging voltage and maintain the batteries full charge. The battery bank has been sized to accommodate charge/discharge cycles at 50% depth of discharge in order to keep the batteries in a healthy state. Larger battery bank can be configured upon request.

The Conext SW4048 NA inverter included in this system can also be used as an AC battery charger. It is a complete and versatile inverter for off-grid and back-up power applications. It is a pure sine wave inverter that can be set up for 120VAC or 240 VAC output. Conext inverter can operate in conjunction with fuel based generators to support larger loads or compliment the solar system when production is low.

This complete system includes a Midnite MNE175SW E-Panel to facilitate simple and safe wiring. When using the Midnite Solar E-Panel for Schneider Conext SW inverters, the inverter is mounted directly to the right of the E-Panel. The E-panel comes with a 175 Amp breaker for the main battery circuit. It includes large tin plated copper bus bars directly connect to the inverter's battery terminals, bus bars for AC inputs, AC output, neutral, ground, PV + in, PV- in, Bat +, Bat-, 500 amp shunt. The E-Panel has been designed to match the knockouts of the Midnite Classic controllers. The Classic SL controller provided can be easily mounted on top of the E-Panel. Please note that other circuit protection breakers required for the installation are sold separately. Surge protection using Midnite's MNSPD arrestors can be added to the system.

This complete system includes MC4 output cable(s) to connect the solar panels to the controller terminals. Battery cables are not included, they can be purchased separately.

This 4500W 48V Off Grid System is Composed of:

(15) Canadian Solar 300W Monocrystalline Panel
(1) Midnite Classic 150 MPPT Charge Controller
(1) Midnite Wiring SW E-Panel MNE175SW
(1) Midnite MNSW-BP Mounting Back Plate
(1) Midnite MNSW-SLIDER-30 AC Bypass Assembly Kit
(1) Midnite MNEDC175 175A Main Battery Breaker
(2) Midnite MNSPD-300-AC Surge Protection Device
(1) Midnite MNSPD-300-DC Surge Protection Device
(1) Panel Mount MNEDC80 Controller Breaker
(1) Panel Mount MNEDC60-300 PV Breaker
(1) Panel Mount MNEDC30 Installer Breaker
(1) Schneider Conext SW4048 NA Inverter/Charger
(1) Schneider Conext SCP System Control Panel
(8) Surrette S6 L16 HC 445Ah, 6V Deep Cycle Battery
(5) MC4 10AWG 50ft Output PV-Cable

Notes:

– This system is configured for 48V operation
– Freight delivery included
– Wiring diagrams provided
– Racking is not included but it can be added
– Solar panels or batteries may be substituted
– Solar panel appearance may vary from product picture

* Optional system components

Appendix G: Drought Management Plan

NOTE: **This Drought Management Plan was produced to comply with Lake County ordinance number 3106.**

Appendix G: Drought Management Plan

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's in Lake County, California. Accordingly, Liu Farm proposes to implement the following Drought Management Plan.

E.1 PURPOSE

The Drought Management Plan (DMP) has been designed respond to drought conditions and establish best management practices to ensure the plan is always followed, as well as in full compliance with applicable local, county, and state regulations.

Liu Farm's Drought Management Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to the County of Lake and appropriate local and state agencies.

E.2 Scope

The Liu Farm Water Use Management Plan focuses on the following:

- Response to drought conditions effecting the projects water source.
- Meeting all legal requirements for the use of water resources located on the property during drought conditions and providing documentation of legal compliance;
- Outline actions to be taken should the project face an emergency order to reduce the projects water use.
- Identify alternate water sources should an order be given to reduce or halt use of the on-site water resources.
- Establish a process to log and report the source and quantity of off site water resources used for the project.

E.3 Overview

Liu Farm's commissioned a Ground Water Hydrologic Report in compliance with Ordinance 3106, specific to Section One, Part A, in September of 2021. The report was produced by Lundorff & Scalmanini Consulting Engineers. It indicates the projects water source has sufficient capacity to supply the project.

In the event Liu Farm's is ordered to reduce or halt drawing groundwater from the projects on-site water source, it is the intent of Liu Farm's to immediately comply with said order. Compliance with such an order may require Liu Farm's to reduce the scale of their operations or halt them all together until the Drought Emergency has subsided.

In accordance with the Water Management Plan provided by Liu Farm's, "Liu Farm will not engage in any unlawful drawing of surface water. Liu Farm will not use water provided by a public water supply, unlawful water diversions, bottled water, a water vending machine, or a retail water facility. The property is outside any County Water District "Exclusion Areas." Liu Farm will use water transportation trucks if needed or in an extreme emergency."

E.4 Emergency Drought Order Response

Liu Farm's response to an order from the County to reduce or halt the water drawn from the projects identified water source would vary dependent upon the magnitude of the order. Compliance with the order would align with the effective date of said order.

To make up for any deficiency of water created by a County Water Use Reduction Order, efforts would be made to deliver water to the project using water transport trucks. The water would be sourced through a licensed retail water supplier as defined by Section 13575 of the Water Code. Liu Farm's will maintain log's identifying the source of any water imported to the property and will make such logs available to the County upon request. Further Liu Farm's will provide the following information to the appropriate Water Board official within 7 days:

- A description of the emergency;
- Identification of the retail water supplier including license number;
- Volume of water supplied;
- Actions taken to prevent the emergency in the future.

Should importing water to the project prove not feasible Liu Farm's would scale down operations in a modular fashion. The initial response would be to shut down the appropriate number of A-Type 3 permits such that available water supply is sufficient to support the remaining operations.

E.5 REVIEW

Director of Cultivation, Meili Liu, will review the DMP on an annual basis and will make any amendments to address any changes to the local, county, or state regulations. In the event of an emergency order effecting the projects water use Liu Farm's Director of Cultivation will be responsible for maintaining and making available all logs related to this DMP.

Appendix H: Hydrology Report

NOTE: **This Hydrology Report was produced to comply with Lake County ordinance number 3106.**

Luhdorff & Scalmanini
Consulting Engineers

TECHNICAL MEMORANDUM

DATE: September 27, 2021 Project No.: 21-1-101

TO: Meili Liu;
Mike Alcantar

FROM: Eddy Teasdale, PG, CHG.
Angelica Rodriguez-Arriaga

SUBJECT: Ground Water (Hydrologic) Technical Memorandum Report to Support Lake County Ordinance 3106 (Specific to Section One, Part A), 8531 High Valley Road, Lake County, CA APN: 006-003-340

1 INTRODUCTION

This Technical Memorandum (TM) supports the requirements of Ordinance 3106 specific to Section One, Part A which pertain to the amount of water available for 8531 High Valley Road, Lake County, CA (Project), recharge rate for the Project's identified water source; and the impact of water use by the Project, to surrounding areas. The process used to determine the requirements of Ordinance 3106 are described in this TM. Provided herein are the key findings, conclusions, and preliminary recommendations regarding water availability for the Project.

The Project will utilize water from a recently installed on-site production well. For irrigation, the Project proposes to utilize, during peak use, an estimated 22,500 gallons per day (gpd); during non-peak use, an estimated 1,500 gpd according to the county approved Project's Water Use Management Plan (WUMP). To meet operational requirements related to irrigation, the production well could produce a maximum of 25 Acre-feet per year (AF/year), assuming the well would pump 40 gallons per minute (gpm) operating 9 hours on and 15 hours off (operating at peak use year-round, which provides a very conservative volume as this duration is not likely); a minimum of 9.4 AF/year, assumed to be 40 gpm operating 9 hours on and 15 hours off for three months (peak use) or 2.9 gpm operating 9 hours on and 15 hours off for nine months (non-peak use). In reality the annual projected use will range from 9.41 – 14.58 AF/year depending on water demands.

2 GEOLOGY AND HYDROGEOLOGY

The Project location is in the High Valley Ridge area, which in turn is located within a large structural depression referred to as the Clear Lake Basin. The High Valley Ridge is a northwest – east-west trending ridge that is bound by the Clear Lake fault and Clear Lake on the west and by Long Valley to the east.

The Clear Lake Basin is located in the northern section of the San Andreas Fault system which is dominated by right lateral strike slip faults oriented north north-west – south south-east, parallel to the coastline to the west. Principal faults in the Clear Lake Basin area include the Collayomi fault, which spans across the southwest portion of the basin and dies out northward between Big Valley and Mount Konocti; the Clover Valley and Clear Lake faults span the east portion of the basin and extend to the northeast. The orientation and position of faults describes a right stepover of lateral movement which, for a right lateral fault system, results in local extension expressed as a topographic basin such as the Clear Lake Basin.

The Clear Lake Basin is located in the Coast Range province; the basement unit of the Coast Range consists of the 150-165 Ma Franciscan Formation (metamorphic rock) which underlies most groundwater basins in the Clear Lake Basin. Quaternary alluvium (sedimentary rock) forms groundwater basins in the valleys of the Clear Lake Basin, and Clear Lake Volcanics (volcanic rock) 2.5 Ma and younger, form hills, geysers, and hot springs in the area (see map on **Figure 1**).

There are 12 groundwater basins and one groundwater source area (Clear Lake Volcanics groundwater source area) recognized in Lake County (CDM, 2006). Information on each groundwater basin varies widely, some basins have little or no data available to characterize groundwater conditions. While sedimentary deposits data is available for major groundwater basins, little information is available for the smaller alluvial basins within Lake County.

Natural recharge to the Clear Lake Basin is presumably from three sources, percolation of runoff, subsurface inflow in unconsolidated sediments and direct infiltration from rain (USGS, 2008).

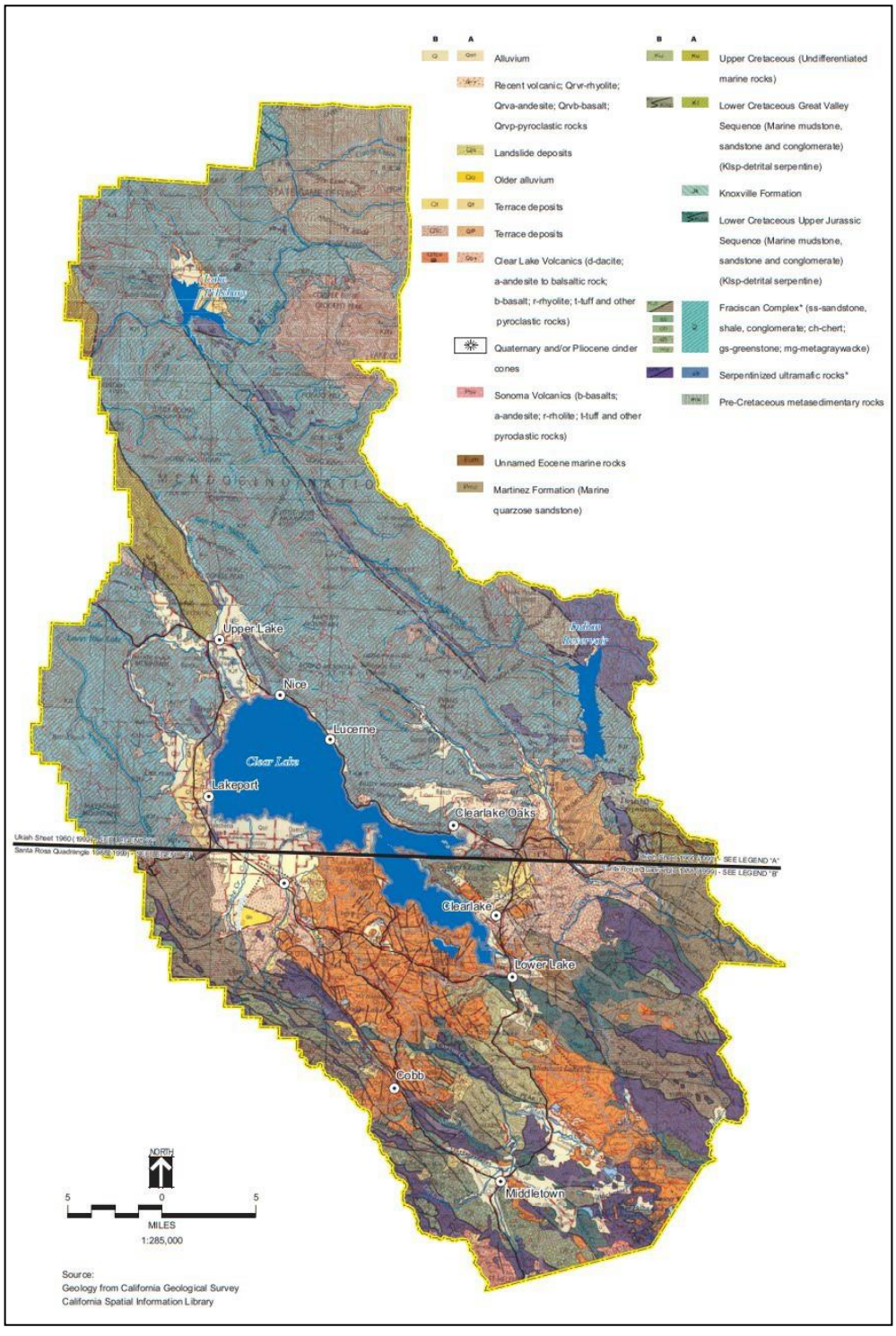


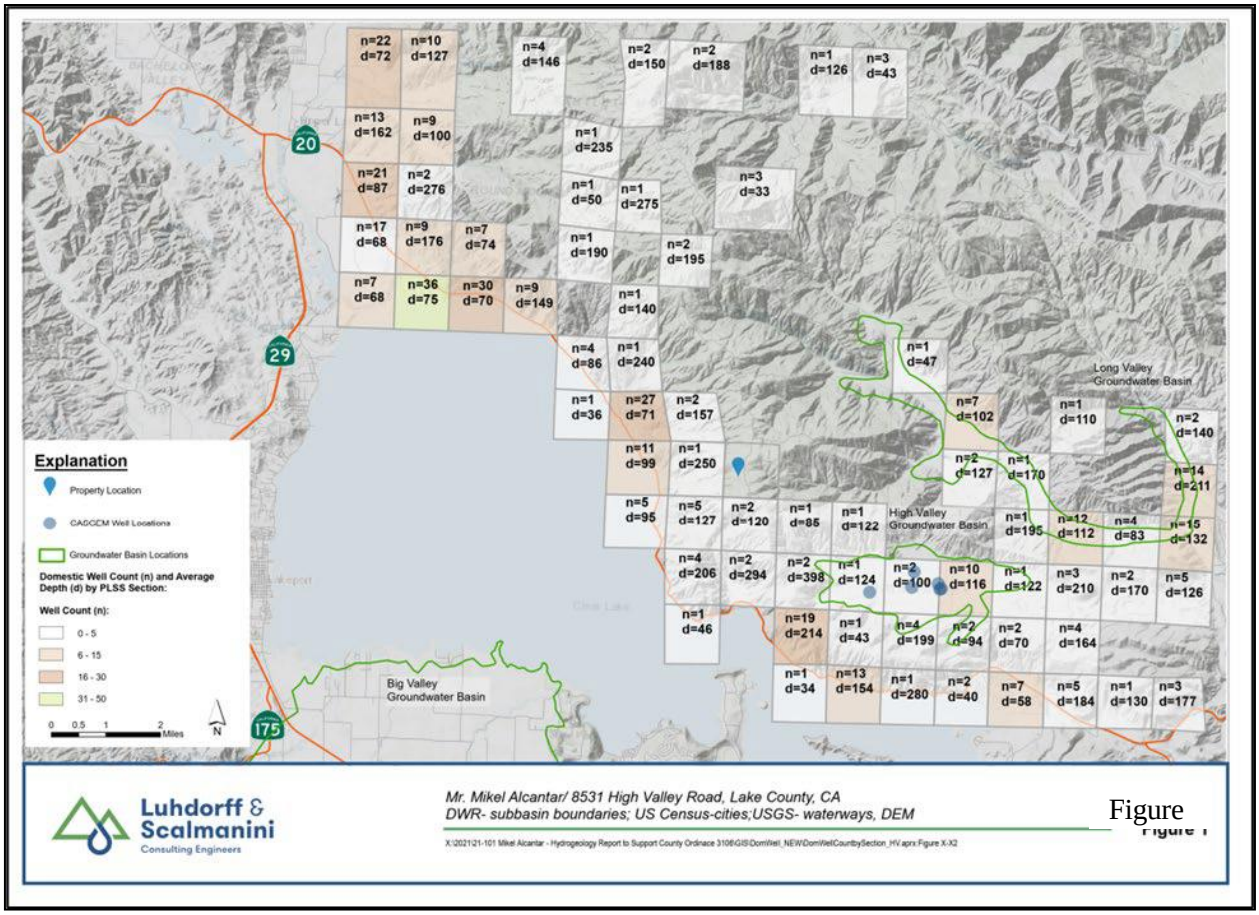
Figure 1. General Geologic Map of the Project Location (CDM, 2006)

3 GROUNDWATER CONDITIONS

3.1 Well Inventory

An inventory of existing domestic wells within 8 miles of the Project are documented by LSCE to support Ordinance 3106 items related to the impact of water use on neighboring domestic wells. Existing domestic wells were reported as listed in the California Department of Water Resources (DWR) Well Completion Report Map Application (DWR-Well Completion Report Map Application, 2021). The number of existing wells (n) and average depth of wells (d) in ft below land surface, within 8 miles, are presented on **Figure 2**.

Figure 2. Number of Nearby Domestic Wells (n) and Average Depth (d) in ft Near Project Location.



Figure

3.2 Historical Water Level Changes

Limited historical depth to groundwater level data are available for the area. A representative hydrograph from a CASGEM well (state well ID 14N08W24H001M; SGMA dataviewer, 2021), a component of the CASGEM well array in the High Valley groundwater basin, is presented on **Figure 3**. Well locations are shown on **Figure 2** and on **Figure 4**. The hydrograph indicates an increase in groundwater levels (groundwater was rising) starting in 1963 through approximately 2006, when depth to groundwater ranged from 1,652 feet above mean sea level (a MSL) to 1735 feet a MSL. From 2006 until 2009 depth to groundwater decreased (groundwater was falling) from approximately 1735 feet a MSL to 1667 feet a MSL. Since about 2013, groundwater levels have been increasing in this area (groundwater is rising).

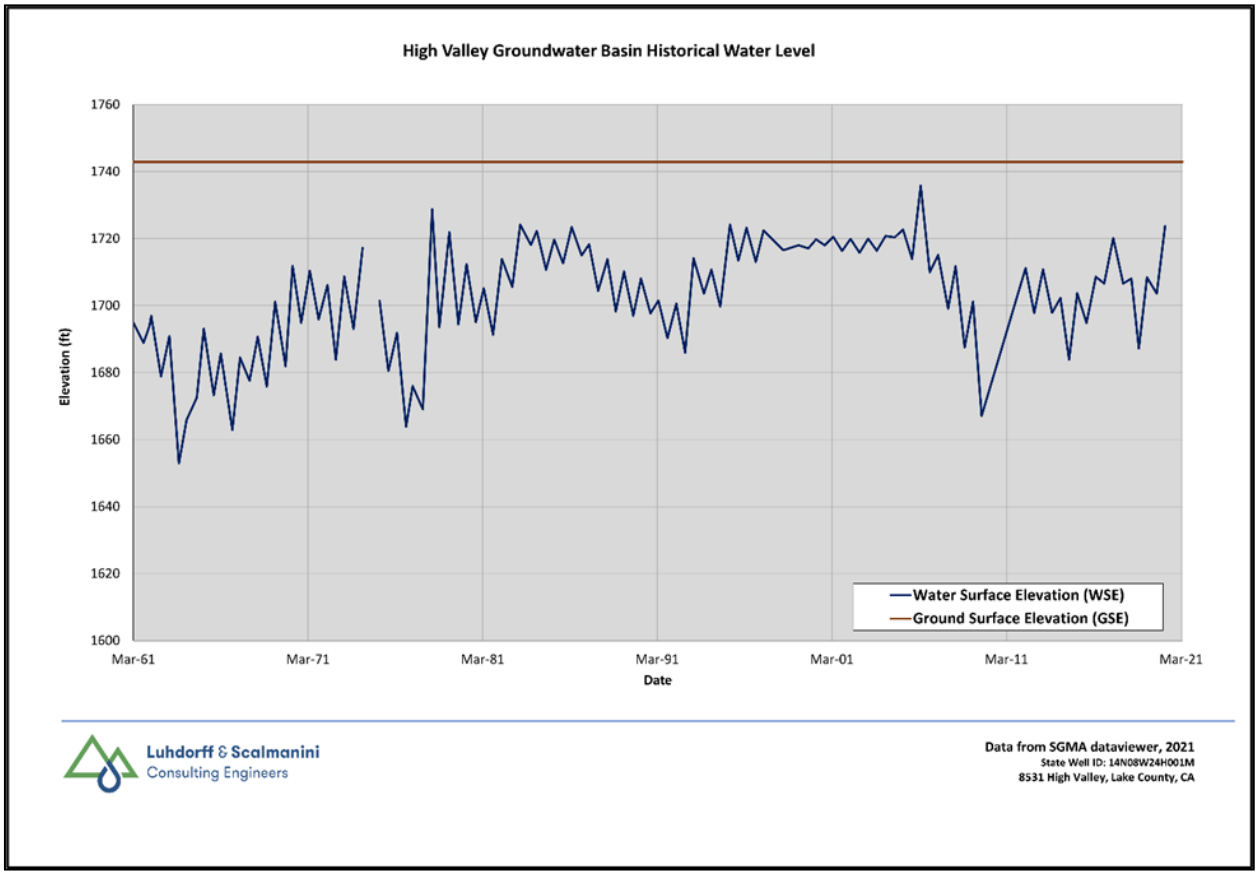


Figure 3. A Hydrograph Showing Historical Water Levels for the High Valley Groundwater Basin (State Well ID: 14N08W24H001M).

4 GROUNDWATER AVAILABILITY

To support Ordinance 3106 items related to estimating amount of water available for the Project's identified water source, LSCE utilized two well-established and accepted methodologies to evaluate groundwater availability for the Project. The first methodology evaluated the availability of water based on calculating the amount of groundwater flowing beneath the Project site. This groundwater would be

available for extraction by one or more wells for use on the overlying lands. This evaluation was completed by using Darcy's Law, which described flow through porous media. The second methodology estimated the groundwater recharge from precipitation records collected at two databases including 1. The California Irrigation Management Information System (CIMIS) Sanel Valley Station (location on Figure 6; data CIMIS, 2021) and 2. The Parameter-elevation Regression on Independent Slopes Model (PRISM; data PRISM, 2021) which interpolates data for the Project's location based on surrounding PRISM grid cell centers.

4.1 Availability based on Flowing Groundwater beneath the Project

Approximate groundwater discharge flowing through the area proposed for development at 8531 High Valley Road, Lake County, CA was estimated by utilizing Darcy's Law:

$$QQ = KKKKKK$$

Where *Q* is discharge (ft^3/day or AF/year), *K* is hydraulic conductivity feet per day (ft/day), *i* is the hydraulic horizontal gradient (ft/ft), and *A* (ft^2) is the cross-sectional area.

Hydraulic Conductivity, K: Values for transmissivity, T, were reviewed from well testing conducted on the Project well (WCR, 2020). Aquifer transmissivity is ideally determined from long duration (i.e. greater than 12 hrs in duration) aquifer tests, but these have not been done in the vicinity. In the absence of aquifer tests, a specific capacity value can be used to estimate transmissivity. During well testing (WDDT, 2021), a specific capacity (Sc) of 1.06 gpm per foot of drawdown was calculated. Applying a commonly used conversion factor for semi-confined aquifers of 1,500, per Driscoll (1986), the estimated transmissivity was calculated to be 212 ft^2/day. To calculate hydraulic conductivity (K), LSCE used the following equation:

$$TT = KKKK$$

Where b is the aquifer thickness. The assumptions for aquifer thickness are described in detail below. For this analysis, an aquifer thickness of 125 feet was used to calculate K. This results in a K of 1.7 ft/day.

Hydraulic Gradient, i: A range of hydraulic gradient (i) values was calculated from 0.018 to 0.064 (ft/ft), from October 2019 and April 2020 groundwater elevation data from adjacent area wells (14N08W24H001M, and 14N07W19M002M; location on **Figure 4**) in the High Valley Groundwater Basin (SGMA dataviewer, 2021).

Cross-Section Area, A: The cross-sectional area of the aquifer (A) was determined based on utilizing the saturated thickness across the width of the aquifer that would be available to the well.

Aquifer Width: The aquifer width utilized for this calculation is 3,938 ft, determined based on the N-S length of the property, perpendicular to the inferred flow of groundwater, as demonstrated on **Figure 5**.

Aquifer Thickness: The well was drilled to a depth of 305 ft below ground surface (BGS) based on the WCR and the well screen begins at 180 ft. This results in an estimated aquifer thickness of 125 ft.

Quantity of Groundwater Flow, Q: The calculated values of Q ranged from 0.35 AF/day to 1.2 AF/day (range due to October 2019 and April 2020 variable values in hydraulic gradient, respectively) or (126 - 449 AF/year or 288 AF/year on average). The anticipated groundwater demand for site development and future operations is 0.07 AF/day, (WUMP); 0.09 AF/day, (LSCE) at peak use, where peak use is described as 120 days (WUMP) or 155 days (LSCE). Non-peak use is estimated at 0.005 AF/day (WUMP). Estimated yearly use, accounting for peak use and non-peak use, is 9.41 AF/year, (WUMP); 14.58 AF/year, (LSCE). Given that annual projected use is 9.41 – 14.58 AF/year which is between 3 and 5 percent of the estimated average annual flux, there is sufficient groundwater available to supply the Project.

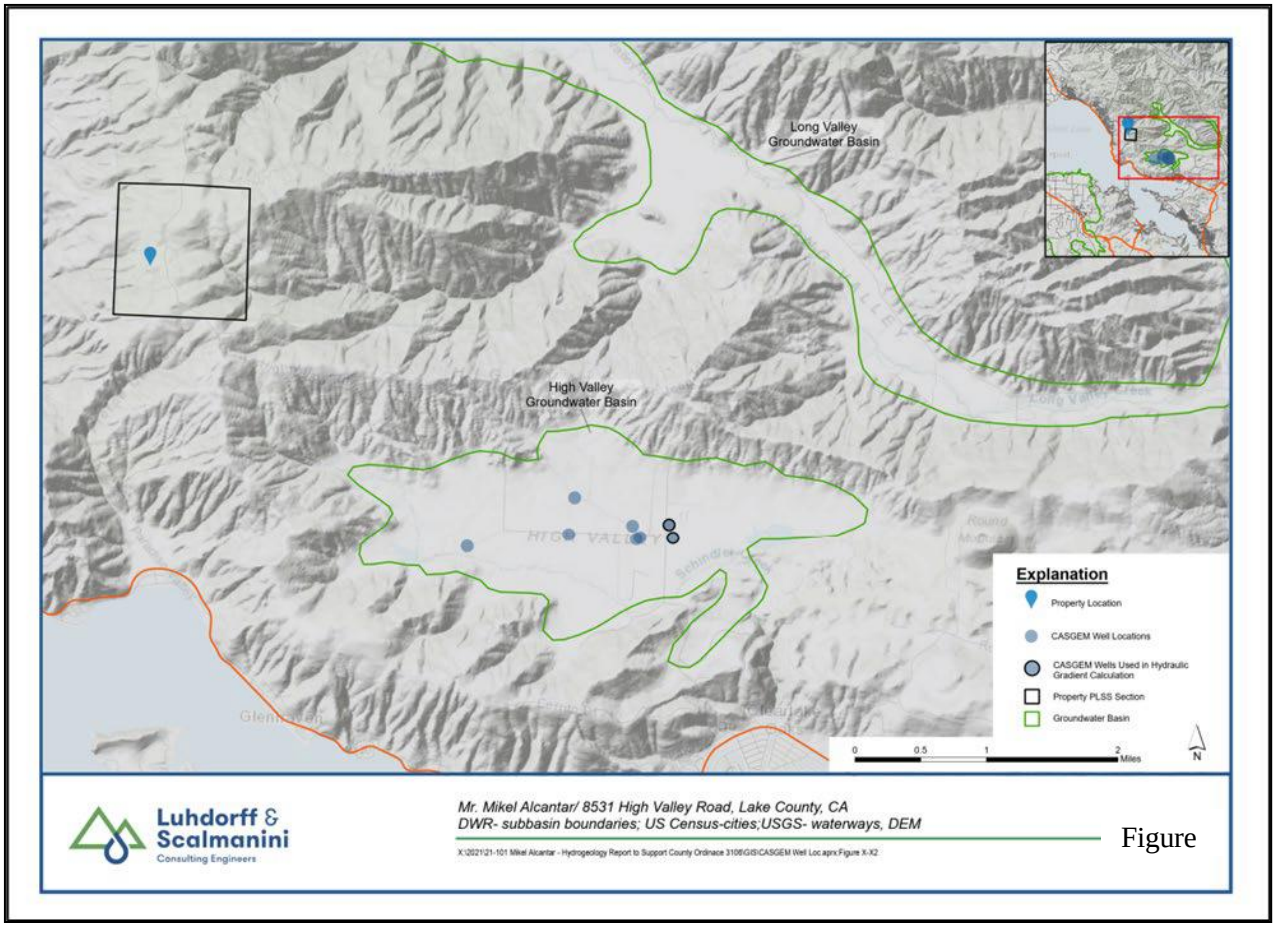
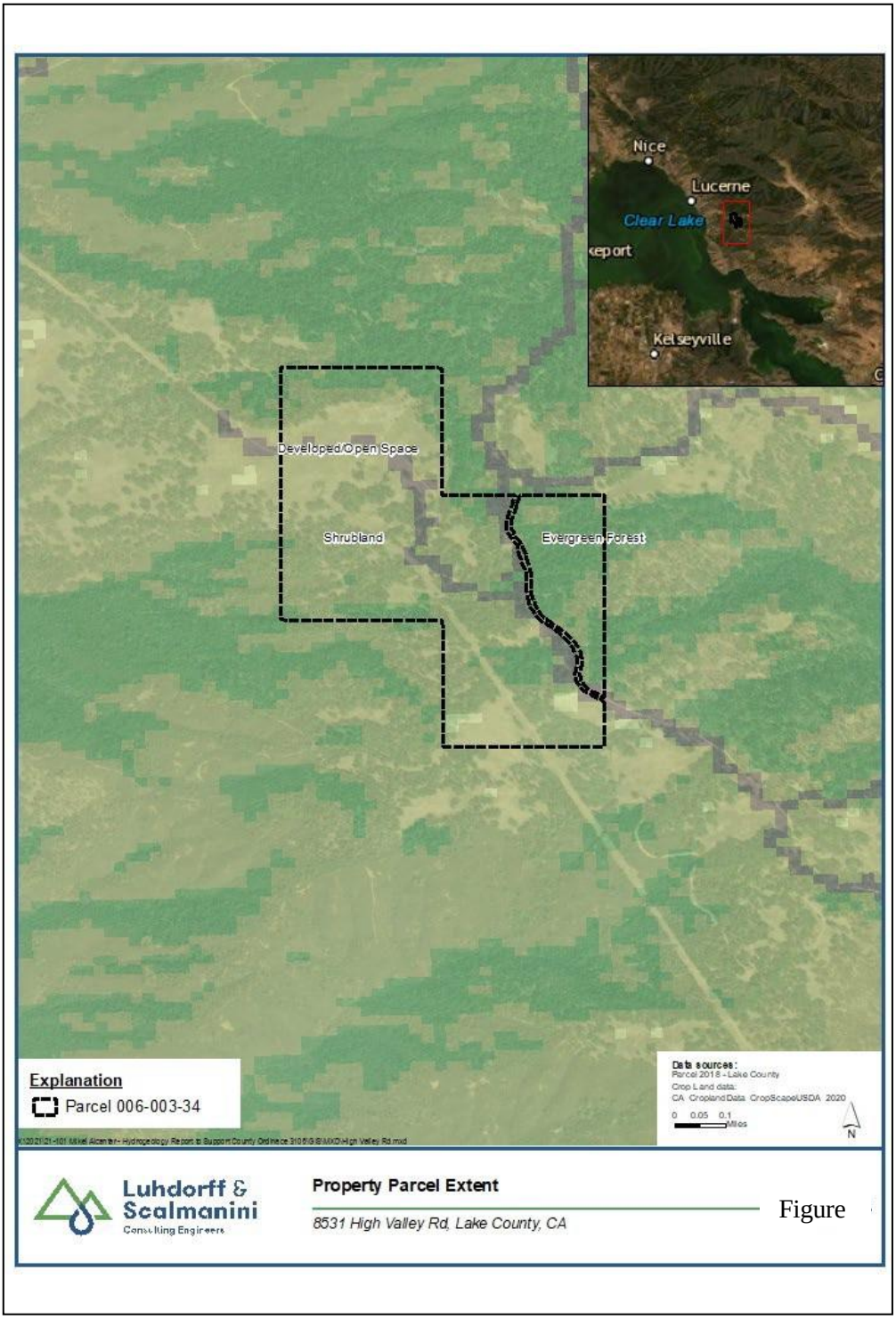


Figure 4. Location of CASGEM Well Array (blue) Near Property; and Wells Used for Hydraulic Gradient Calculation (Green- State Well ID: 14N08W24H001M and 14N07W19M002M; WSE Data (SGMA dataviewer, 2021)).



Figure

Figure 5. Parcel Extent where N-S length (3,938 ft) is used as the Aquifer Width.

4.2 Availability based on Precipitation

Records of precipitation spanning 10 water years (October 1st, 2010 to September 30th 2020) from two databases were collected. 1. The Sanel Valley CIMIS station (location on **Figure 6**), demonstrates an average long-term precipitation of 26.4 in/year recorded at the station; 2. The PRISM database demonstrates an average long-term precipitation of 38.9 in/year at the Project location. The long-term average precipitation value (26.4 in/year) from the Sanel Valley CIMIS station is within the precipitation ranges given for the Big Valley Groundwater Basin (22-35 in/year; DWR, 2004-BVGB), and falls short of the ranges in the Long Valley Groundwater Basin (27-33 in/year; DWR, 2004-LVGB), and the High Valley Groundwater Basin (27-35 in/year; DWR, 2004-HVGB) (see location of groundwater basins on **Figure 2**). The long-term average precipitation value (38.9 in/year) from the PRISM database exceeds the precipitation ranges given for the Big Valley, Long Valley, and High Valley Groundwater Basins. The precipitation value from the PRISM database is justified due to differences in factors that impact precipitation such as location and elevation. The property is located at a high elevation (2717 ft) on the windward side of the High Valley Mountain Range, and experiences increased precipitation values. The precipitation value from the Sanel Valley CIMIS station is justified for similar reasons, the station is at a lower elevation (538 ft) than the Long Valley and High Valley Groundwater Basins and receives less precipitation throughout the year Given these differences in location and elevation, the values given by the Sanel Valley CIMIS station, and the PRISM database are reasonable for the Property. Further, it is noted that precipitation increases to the west of the Long Valley Groundwater Basin (located east of the Project) (DWR, 2004-LVGB).

Direct infiltration of precipitation is one of three inferred natural recharge methods to the Clear Lake Basin (Section 2). Long term average recharge ranges from 10 to 66 percent of precipitation, as described by USGS (2007). Given the precipitation record from two databases we present a range of values that represent a minimum and maximum estimate for annual recharge from precipitation. From the Sanel Valley CIMIS station data (26.4 in/year long term average precipitation), annual recharge values range from 35 AF/year to 209 AF/year for the Project (10 and 60 percent of average precipitation, respectively). From the PRISM database (38.9 in/year long term average precipitation), annual recharge values range from 51 AF/year to 307 AF/year for the Project (10 and 60 percent of average precipitation, respectively). Where the average annual recharge from precipitation is between 104 AF/year to 153 AF/year (Sanel Valley and PRISM database, respectively).

The annual projected use of the Project is 9.41 – 14.58 AF/year (WUMP, LSCE; see Section 4.1) which is between 9 and 14 percent of the minimum estimate for average annual recharge from precipitation (104 AF/year), and between 6 and 10 percent of the maximum estimate for average annual recharge from precipitation (153 AF/year) demonstrating that there is sufficient groundwater available to supply the Project.

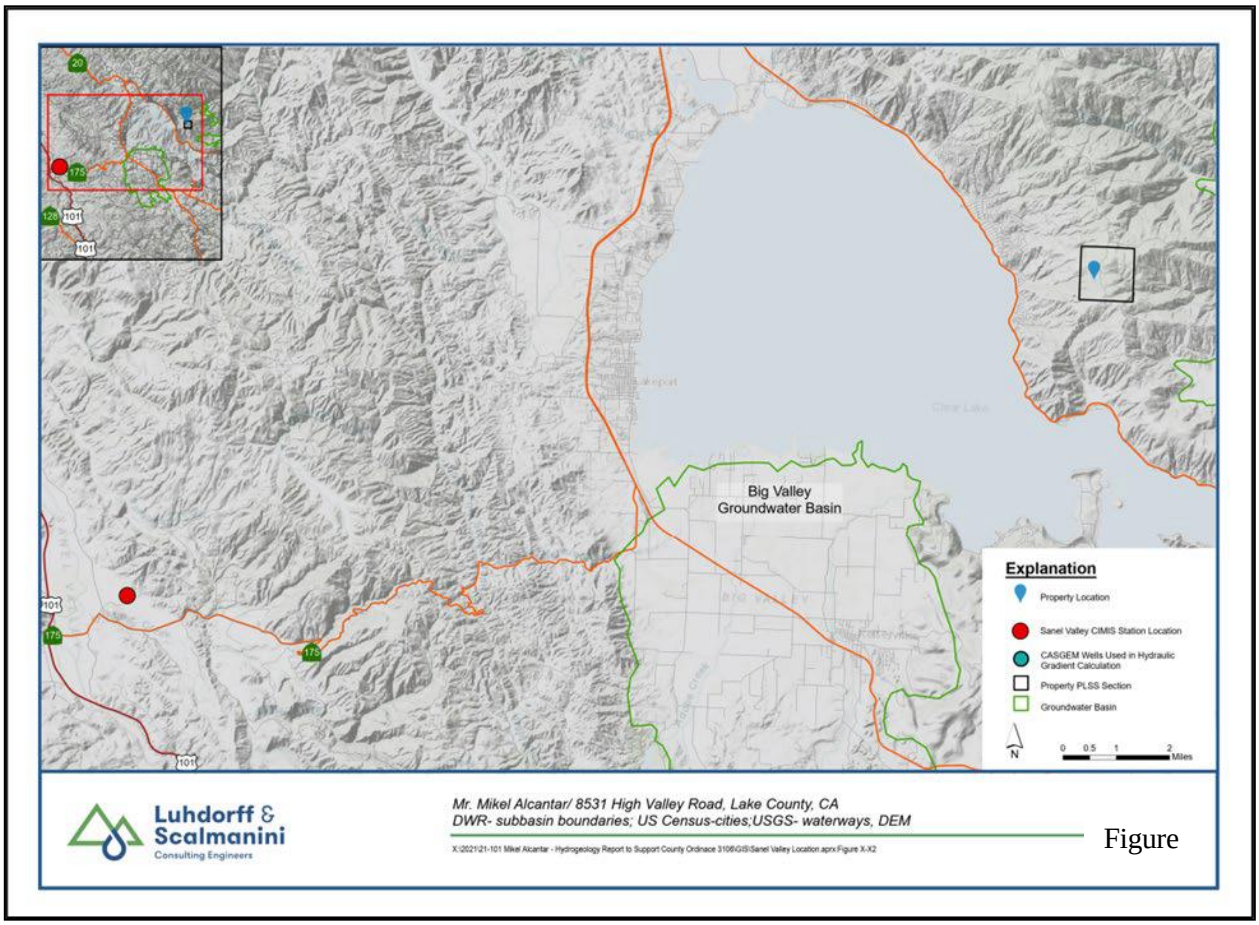


Figure 6. Location of Sanel Valley CIMIS Station (Red) Near Property Used for Precipitation Values (Station #106; Precipitation Data (CIMIS, 2021)).

5 IMPACTS OF PROPOSED PUMPING

To assess the potential impact of groundwater drawdown in response to extraction from the Project well at 40 gpm (WUMP), a desktop drawdown analysis was conducted. Two scenarios were considered, the first analysis is based on a scenario where the well is operated at peak use year-round, 40 gpm pumping for 9 hours on and 15 hours off for 25 years, in the analysis LSCE uses an equivalent pumping rate of 15.5 gpm on a 24-hour per day schedule for a 25-year period. The second analysis is based on a scenario where the well is operated at peak use and non-peak use throughout the year, as described in the WUMP, 40 gpm pumping rate for 9 hours on and 15 hours off for three months during peak use and

2.9 gpm operating 9 hours on and 15 hours off for nine months during non-peak use for 25 years, in the analysis LSCE uses an equivalent pumping rate of 5.88 gpm on a 24-hour per day schedule for a 25-year period. A caveat of this approach is that the sequence of drawdown is not represented exactly, in that the well drawdown sequence will be different operating intermittently (40 gpm pumping rate 9 hours on and 15 hours off, as described in WUMP) in comparison to operating continuously (15.5 gpm or

5.88 gpm pumping rate continuous, this analysis). However, both well operating methods (intermittent vs continuous) result in an equivalent amount of water utilized per year as listed in **Table 1** and effectively show drawdown over time.

Table 1. Intermittent vs. Continuous Pumping

	Intermittent Pumping	Continuous Pumping
Variables	Well Sequence (hrs): 9 on 15off Pumping rate (gpm): 40	Well Sequence (hrs): 24 on Pumping rate (gpm): 15.5
Conversion	Water Use = (pumping rate x well sequence x conversion factor)	
Calculation	(40 gpm x 0.391 hrs x 1.6130) Where: 9/24 hrs = 0.391 hrs 1 gpm = 1.6130 AF/yr	(15.5 gpm x 1.0 hrs x 1.6130) Where: 9/24 hrs = 0.391 hrs 1 gpm = 1.6130 AF/yr
Peak Use Year-Round Water Use Estimate (AF/Year) (rounded)	25	25
Variables	Well Sequence (hrs): 9 on 15 off Pumping rate (gpm): 40 Peak Use, 0.75 Non-Peak Use Use (days): 120 Peak Use; 245 Non-Peak Use	Well Sequence (hrs): 24 on Pumping rate (gpm): 5.88 Use (days): 365
Conversion	Water Use = (pumping rate x well sequence x use x conversion factor)	
Calculation	Peak Use: (40 gpm x 0.391 hrs x 0.329 days x 1.6) Where: 9/24 hrs = 0.391 120/365 days = 0.329 1 gpm = 1.6130 AF/yr Non-Peak Use: (40 gpm x 0.0288 hrs x 0.671 days x 1.6) Where: 0.69/24 hrs = 0.0288 hrs 245/365 days = 0.671 days 1 gpm = 1.6130 AF/yr Peak Use + Non-Peak Use (AF/yr): = 8.23+1.24	(15.5 gpm x 1.0 hrs x 1.0 days x 1.6) Where: 24/24 hrs = 1.0 365/365 days = 1.0 1 gpm = 1.6130 AF/yr

Peak Use + Non-Peak Use (Sum) Year-Round Water Use Estimate (AF/Year) (rounded)	9	9

5.1 Analytical Approach

The following analytical modeling approach is provided to determine the potential impact for the well on neighboring properties. The assessment of potential impact is based on the Theis (1953) analytical solution for transient groundwater flow. The Theis solution permits estimates of head loss due to pumping as a function of pumping rate, time, and distance from the well. As a transient model, the solution permits estimates of head change before conditions in the formation stabilize or reach equilibrium. The Theis solution is used for many applications in petroleum engineering and groundwater hydrogeology. Where the derivation assumptions are generally met, the Theis method provides estimates of pumping influences that serve in test planning and design, estimates of interference for well spacing, and estimates of short-and long-term effects of operating wells.

Assumptions for Theis Model (Theis, 1953):

The following are basic assumptions for the Theis analytical solution and applicability to the pumping well.

- **Assumption 1** – The formation is homogeneous and isotropic.
  All systems have inherent variations in properties due to depositional factors. Departures from the assumption of homogeneous and isotropic conditions are resolved by 1) conservative selection of formation properties and 2) sensitivity analyses for key parameters.

- **Assumption 2** – The formation is infinite in extent.
  This assumption is met for the proposed well due to the lack of apparent local boundaries such as faults.

- **Assumption 3** – The pumping well fully penetrates the formation.
  The pumping well is within a portion of a stratigraphic formation. The effect of the well failing to penetrate the entire aquifer is negligible in many cases per Theis (1935).

- **Assumption 4** – Diameter of the pumping well is an infinitesimal diameter
  Diameter of the pumping well is small (4.25in) which yields 0.09AF of storage, this volume is neglected.

- **Assumption 5** – The flow regime is radial around the well. This assumption is satisfied for the well.

- **Assumption 6** – The pumping rate is constant.
  The pumping is expected to be continuous.

- **Assumption 7** –Darcy's Law applies (no turbulent flow at the well).
  The area of potential impact is concerned with conditions up to and greater than hundreds of feet from the well where Darcy flow is met due to low fluid velocities.

- **Assumption 8** – Flow to pumping well is horizontal

Flow to control well is assumed to be horizontal.

- **Assumption 9** – Water is released instantaneously from storage with the decline of hydraulic head This assumption is satisfied for the well due to the well drawdown test.

Theis Method Limitations

An analytical approach may be invalid in the absence of reasonable parameter estimates required in the solution equations. For the Project well, some parameters are estimated based on local experience to characterize the targeted pumping zone. To overcome the lack of quantitative sources, sensitivity analyses are performed to produce potential head loss range induced by pumping.

Benefit of Using the Theis Analytical Solution

The Theis method is widely used in petroleum engineering and groundwater hydrology as a tool for evaluating the influences of production and injection wells. Despite potentially limiting assumptions, the Theis equation has broad applicability to many problems and is an accepted method for evaluating conditions for wells.

Applicable Equations

The applicable equations for the Theis method are as follows:

$$\Delta h = \frac{Q}{4\pi T} W(u)$$

Δh = change in head at a given distance from the well

Q = pumping or injection rate

T = transmissivity of the aquifer/formation

In the above equation, $W(u)$ is known as the well function, where u is:

$$u = \frac{r^2 S}{4Tt}$$

r = distance from the producing well

S = storativity of the aquifer/ formation

T = transmissivity of the aquifer/ formation

t = time

The well function W(u) is an integral that can be approximated by a series of terms. The series can be truncated to only a few terms without affecting the resultant estimates to a significant degree. For this analysis, a spreadsheet was used with W(u) estimated by the following sequence:

$$W(u) = -0.5772 - \ln(u) + u - \frac{u^2}{2*2!} + \frac{u^3}{3*3!} - \cdots + \frac{u^{17}}{17*17!} - \frac{u^{18}}{18*18!}$$

Various sets of consistent units can be used with the above equations. For the purposes of this analysis, the units are as follows:

Δh:	feet
T:	ft^2/day
Q:	ft^3/day
r:	feet
S:	dimensionless
t:	days

Parameter Selection

Parameter estimates for the analysis using the Theis solution are as follows:

Transmissivity (T) – The calculated transmissivity is 212 ft^2/d, as described in section 4.1, for both scenario 1 and scenario 2.

Storativity (S) – A storativity value of 0.07 is used for both scenario 1 and scenario 2. The California DWR gave the value of 0.07 corresponding to the Big Valley groundwater basin, as reported in Christensen Associates Inc. (2003). The value was assessed in the report (Christensen Associates Inc. (2003)) using both a lithologic (classification based on materials including soil, clay, sand, etc.) and a stratigraphic approach (involving interpretation of different layers based on lithology and structural features of the basin; different layers include soil, aquifers, aquitards, etc.). Both the Big Valley groundwater basin and the Project location are within comparable or related aquifer stratigraphy in that the composition of the stratigraphy is similar (quaternary alluvium), from a similar origin. The Big Valley groundwater basin and the Project share similar lithologic qualities including that they are composed of alternating layers of alluvium and clay (Big Valley) or black shale (Project; WCR, 2020). Based on the shared lithologic and stratigraphic qualities of the Project area and Big Valley, and the lack of availability of data for the Project area, we use the storativity value given by DWR.

Extraction Rate (Q) – The value of 15.5 gpm (25 AF/year) was used for scenario 1 and the value of 5.88 gpm (9.42 AF/year) was used for scenario 2, see **Table 1** for conversion.

Extraction Time (t) – The period of 25 years (9,125 days) of pumping is used for the calculations.

5.2 Results

Results for the Theis method of estimating the area of potential impact for the Project well are discussed below. All parameters were the same for scenarios 1 and 2, except Q which potentially has a moderate to significant impact on the spatial distribution of the loss of head at the specified period of time. Using the parameter estimates summarized above, the head loss due to pumping is calculated from the Theis analytical solution and presented on **Figure 7**.

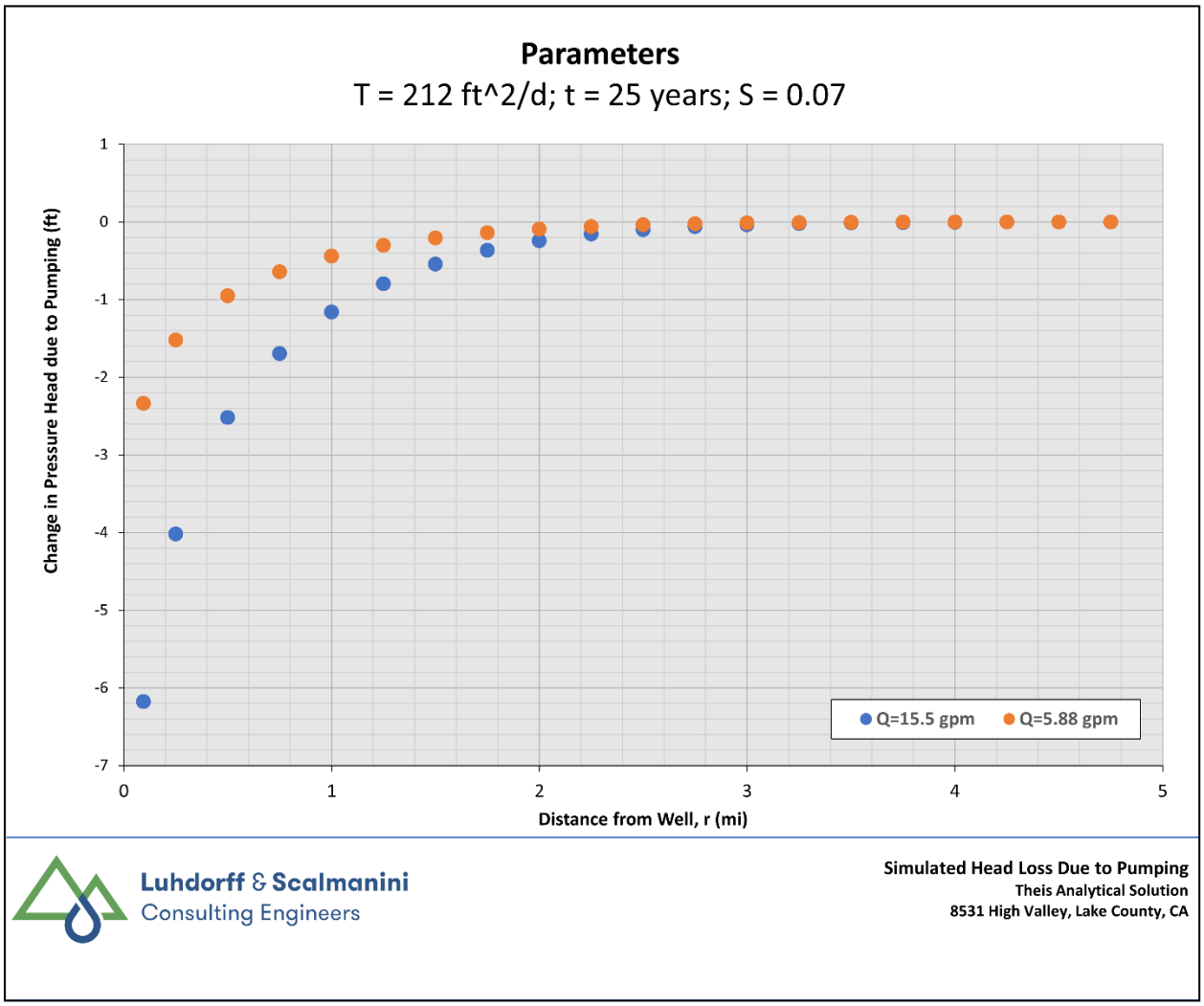


Figure 7. Change in Drawdown Due to the Operation of the Project Well, at Increasing Distances from the Project Location Results for Two Scenarios (Scenario 1: 15.5 gpm-blue; Scenario 2: 5.88 gpm-orange).

After 25 years of operating the well, the simulated head loss due to pumping within a 1-mile radius from the well's location is almost 1.16 feet and 0.44 feet when the pumping rate is changed from 15.5 to 5.88 gpm, respectively. The figure illustrates that a decrease in the head is larger at any radius from the well when we consider the larger pumping rate value in the calculations rather than using 5.88 gpm for the same purpose. The results of using 5.88 gpm reflects a smaller area of potential impact on the scale of a couple of miles away from the well, than results from 15.5 gpm.

Besides the impact of the pumping rate on the result, it is important to know that the nature of the Theis solution is to compute impacts that uniformly propagate in all directions for the entire injection period. In practice, system heterogeneities and boundary conditions typically cause a Theis calculation to over predict impacts in the long term. However, the Theis solution can serve as a sound method to predict response for shorter injection durations before equilibrium is reached in the actual setting.

5.3 Area of Potential Impact

The area of potential impact is delineated as a radius surrounding the well where the impacts of head loss could impact neighboring wells (wells documented on **Figure 2**). The results of this analysis indicate that, for the first scenario, the drawdown of water table at the radius of approximately one mile from the well, after 25 years of continuous pumping at 15.5 gpm continuous is 1.16 feet. While the second scenario indicates the drawdown of the water table at the radius of approximately one mile from the well, after 25 years of continuous pumping at 5.88 gpm continuous is almost 0.44 feet. This is shown graphically on **Figure 7**.

6 CONCLUSIONS

Groundwater availability was calculated based on Darcy's Law and Theis analytical solution using available parameters from existing wells. The result of the groundwater analysis is that sufficient groundwater supplies exist and are quantified based on three major lines of evidence:

1. Water flowing beneath the property, calculated by Darcy's Law, would range from 126 to 449 AF/year (October 2019, April 2020, where horizontal gradient (i) variable values range respectively) flowing beneath the Project site. The proposed project will only utilize approximately 9.41 to 14.58 AF/year (WUMP estimate, LSCE estimate, respectively) or 3 to 5% (WUMP, LSCE) of the average annual groundwater flowing beneath the Project site.
2. Minimal impacts on nearby domestic wells, as shown by the Theis analytical solution. The predicted drawdown after 25 years of continuous pumping at peak use year-round, is approximately 1.16 feet at a radius of one mile. In contrast, the predicted drawdown after 25 years of continuous pumping at combined peak use and non-peak use year-round, as described in WUMP, is 0.44 feet at a radius of one mile. Further, the Theis analytical solution does not account for recharge into the system, making this a maximum prediction of drawdown.
3. Water available from precipitation, or recharge due to direct infiltration of precipitation was calculated as a percentage of the average precipitation from the Sanel Valley CIMIS Station. LSCE reports 35 to 209 AF/year available for the Project from this source. The Project will utilize

9 to-15% (WUMP, LSCE) of the minimum average annual recharge from precipitation for the Project site and 6 to – 10% (WUMP, LSCE) of the maximum average annual recharge from precipitation for the Project site.

These three lines of evidence confirm that the Project pumping between 9.41 to 14.58 AF/year from the local aquifer could be supplied by groundwater in the area and the recharge rates (groundwater inflow and precipitation) In addition, the cumulative impacts of operating this well will probably not impact neighboring area wells.

Our evaluation of other professional engineering and hydrogeological analyses, coupled with LSCE's analysis of this Project site using accepted methodologies, results in calculations and conclusions that represent a conservative quantification of groundwater supplies available to the proposed Project, and more generally, the local vicinity.

7 LIMITATIONS

The conclusions presented in this report are professional opinions based solely upon the presented data. They are intended exclusively for the purpose outlined herein and the site location and Project indicated. This report is for the sole use and benefit of the Client. The scope of services performed in execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or reuse of this document or the findings, conclusions, or recommendations presented herein is at the sole risk of said user.

Given that the scope of services for this investigation was limited, it is possible that currently unrecognized subsurface conditions may be present at the site. Should site use or conditions change, the information and conclusions in this report may no longer apply. Opinions relating to environmental, geologic, and geotechnical conditions are based on limited data and actual conditions may vary from those encountered at the times and locations where data were obtained. No express or implied representation or warranty is included or intended in this report except that the work was performed within the limits prescribed by the Client with the customary thoroughness and competence of professionals working in the same area on similar projects.

8 REFERENCES

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

File Original with DWR

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

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

Page 1 of 1
Owner's Well Number 1
Date Work Began 4-22-20 Date Work Ended 4-29-20
Local Permit Agency LAKE County Environmental Health
Permit Number WE-5326 Permit Date 3-16-20

Geologic Log

Orientation ● Vertical ○ Horizontal ○ Angle Specify
Drilling Method Air/Mud Rotary Drilling Fluid Bentonite

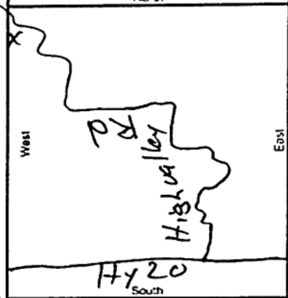
Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc)
0	20	Brown clay
20	80	Brown clay w/gravels
80	120	Black shale and sandstone
120	200	Brown shale and gray & black shale
200	270	Brown shale black shale & sandstone
270	305	sandstone and calcite

Total Depth of Boring 310 Feet
Total Depth of Completed Well 305 Feet

Well Owner
Name Meili Lin
Mailing Address 2014 Central Ave
City Alameda State CA Zip 94501

Well Location
Address 8531 Highvalley Rd.
City Clearlake Oaks County LAKE
Latitude ___ Deg. ___ Min. ___ Sec. N Longitude ___ Deg. ___ Min. ___ Sec. W
Datum ___ Dec. Lat. ___ Dec. Long. ___
APN Book 006 Page 003 Parcel 34
Township ___ Range ___ Section ___

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



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

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

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

Water Level and Yield of Completed Well
Depth to first water 90 (Feet below surface)
Depth to Static Water Level 90' (Feet) Date Measured 4-29-20
Estimated Yield* 80 (GPM) Test Type Air Lift
Test Length 1HR (Hours) Total Drawdown ___ (Feet)
*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size If Any (Inches)
0	180	9"	F480	PVC	1/4"	4½	Blank	—
180	305	9"	F480	PVC	1/4"	4½	Perf	.032

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	1	Concrete	SEAL
1	22	Bentonite	
22	305	3/16 Pea	Gravel Pack

Attachments
☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other
Attach additional information, if it exists.

Certification Statement
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief
Name Will Peterson Well Drilling
Person, Firm or Corporation
P.O. Box 695 Kelseyville CA 95451
Address City State Zip
Signed [signature] 4-30-20 1009053
C-57 Licensed Water Well Contractor Date Signed C-57 License Number

DWR 188 REV. 1/2006 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

Well Completion Report for Project Well (WCR, 2020)

Cramer Enterprises

LIC#984176

Well Test

Job Name:	Meili Liu	Well Diameter:	4 1/2 pvc
Location:	8531 High Valley Rd	Static Water Level:	120'
Operator:	RH	Well Depth:	305
Original Meter Reading:		Pump Setting:	N/A
Final Meter Reading:		Pump:	5 HP sub
Total gallons pumped:	13,554	Pump running upon arrival?	Yes X No

Date	Time	GPM	Pumping Level	Color	Comments
5/26/21	12:47	51	127	Clear	Clear/Cold, no smell
	12:48	51	127.9		
	12:49	51	130.1		
	12:50	51	131		
	13:00	51	131.8		
	13:10	51	135.5		
	13:20	51	141.2		
	13:30	51	147.1		
	13:45	51	155.1		
	14:00	50	158.2		
	14:15	50	160		
	14:30	48	162.7		
	14:45	48	165.1		
	15:00	48	165.2		
	15:15	48	165.2		
	15:30	48	165.2		
	15:45	48	165.2		
	16:00	48	165.2		
	16:15	48	165.2		
	16:30	48	165.2		
	Start Recovery				
	16:32		155.4		
	16:33		137.9		
	16:34		130.1		
	16:35		128.7		
	16:36		128.1		

Well Draw Down Test (WDDT, 2021)

Section 12 Water Use

Liu Farm is applying for one Commercial Cannabis Cultivation Major Use Permit for seven A-Type 3's and one Type 3B in Lake County, California. Accordingly, Liu Farm proposes to implement the following Water Use Management Plan.

12.1 PURPOSE

The Water Use Management Plan (WUMP) has been designed to conserve the County's water resources and establish best management practices to ensure the plan is always followed, as well as in full compliance with applicable local, county, and state regulations.

Liu Farm's Water Use Management Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to the County of Lake and appropriate local agencies.

12.2 Scope

The Liu Farm Water Use Management Plan focuses on the following:

- Develop and maintaining a safe, clean, and reliable water supply;
- Meeting all legal requirements for the use of water resources located on the property and providing documentation of legal compliance;
- Monitoring the quantity of water used for the cultivation of cannabis;
- Design a water efficient delivery system and irrigation system for cannabis cultivation. All employees are required to follow the procedures outlined in this plan;

12.3 Overview

Liu Farm's well was drilled on April 22nd, 2020. A well draw down test was conducted on May 26th, 2021 and indicated the well to be capable of producing 40 GPM continuously.

The well is sealed to the outside environment and is contained within a well house. Liu Farm's well is located towards the southwesterly corner of the parcel, east of a natural spring. The Storage tanks are located adjacent to the cultivation site.

From the well, water will be pumped to 15 separate tanks, stored directly adjacent to each cultivation site. When all 15 tanks are full, a mechanical float switch shuts off the system.

Water is delivered to an irrigation system via a 1hp jet pump pressure tank system. Liu Farms shall use a drip irrigation system to water plants. The projected monthly usage during peak use (July, August, and September) is 675,000 gallons per month. This represents a usage of 3,000 gallons per day per acer.

Liu Farm will not engage in any unlawful drawing of surface water. Liu Farm will not use water provided by a public water supply, unlawful water diversions, bottled water, a water vending machine, or a retail water facility. The property is outside any County Water District "Exclusion Areas." Liu Farm will use water transportation trucks if needed or in an extreme emergency.

Water Usage Management Plan (WUMP)

LSCE

12.4 Water Storage {BMPS)

Liu farm will install vertical storage tanks according to manufacturer's specifications and place the tanks on properly compacted soil that is free of rocks and sharp objects capable of bearing the weight of the tank and its maximum contents with minimal settlement. Water will be stored in polyethylene water tanks with a total of 37,500 gallons of water stored close to the cultivation site.

New storage tanks will be in areas with great slope stability at the cultivation site. To prevent rupture of overflow and runoff, Liu Farm will only use water storage tanks and bladders equipped with a float valve, or equivalent device, to shut off diversion when storage systems are full. All vents and other openings on water storage tanks will be designed to prevent the entry and/or entrapment of wildlife. Liu Farm will also monitor the well meter on a regular basis. to ensure excess water is not being used.

12.5 IRRIGATION SYSTEM

Daily Watering of cannabis will be achieved via a drip irrigation system feed from water storage tanks. The watering will be administered by a timed irrigation controller, set to irrigate during the nighttime when the evaporation rates will be the lowest. Drip lines will be sized to irrigate large areas slowly, to maximize absorption, and will be placed under a layer of straw mulch. Hose bibs will be positioned throughout the cultivation area for spot watering.

IRRIGATION & SPRINKLERS (8MP'S)

The following are irrigation best management practices implemented by Liu Farm:

- The site will utili2e a drip irrigation system with a schedule that requires the use of as little water as possible;
- Regularly inspect the entire water delivery system for leaks and immediately repair any leaky faucets, pipes., connectors, or other leaks;
- Replace worn outdated, or inefficient irrigation system components and equipment to ensure a properly functioning, leak-free irrigation system at all times;
- Install according to the irrigation design specifications, locally applied codes and standards, and manufacturers' product requirements;
- Actively manage the system and adherence to all applicable watering limitations;
- Ensure sprinkler heads and no,zles will apply water uniformly to the target **areas;**
- Match the precipitation/application rate of the sprinklers for each zone {+/- 5 percent)
- Design to reduce overspray of impervious surfaces or adjust planting areas, and prevent runoff of water;
- Avoid of low head drainage;
- Drip irrigation will be utili2ed instead of spray sprinklers in narrow or compie,shape areas;

12.6 MONITORING PERFORMANCE OF WATER

Liu farm will maintain records of diversion with separate records that document the amount of water used for cannabis cultivation separated out from the amount of water used for other irrigation purposes and other beneficial uses of water (e.g., domestic, lire protection, etc.). These records will be available upon request from the Water Boards or any other authoriied representatives of the state.

Liu Farm will share date relating to the cost of implementing the water management plan with the County as requested.

12.7 EVALUATING PERFORMANCE OF THE WATER USE MANAGEMENT PLAN

Annually, Liu Farm will review the Water Use Management Plan and record logs in conjunction with the reviews of all management plans. Upon review, Liu Farm will address any outstanding issues immediately. Additionally, a professional evaluation of the water plan will occur annually with the goal of improving water management practices.

12.8 CALIFORNIA DROUGHT DECLARATIONS

Liu Farm recognizes that on occasions, the Governor of California and the Lake County Board of Supervisors has and likely will continue to periodically issue a proclamation of a locar or state emergency based on drought conditions in any give year. In the event of such a Declaration, Liu Farm will abide by all emergency regulations adopted in response to drought conditions.

12.9 EMERGENCY USE PLAN

In the case of an emergency that retail water is needed, Liu Farm will work with a licensed retail water supplier as defined by Section 13575 of the Water Code and provide the following information to the Department in 7 days:

- **A** description of the emergency;
- Identification of the retail water supplier including license number;
- Volume of watersupplied;
- Actions taken to prevent the emergency in the future.

12,10 WATER AVAILABILITY ANALYSIS

This Water Use Plan has been developed in compliance with the appropriate local, and state laws that pertain to water use. These include:

- Cannabis Cultivation Policy & California State Water Resources Board;
- California Code of Regulations, Title 3 Food and Agriculture, Division 8 Medical Cannabis Cultivation, Section 8107;
- County of Lake Ordinance 3703;
- Division of Water Rights, Principals and Guidelines for Cannabis Cultivation.

Water Usage Calculation

Description	Use	Amount of Water Needed
Well Production	40 GPM Continuous	9.375 hours of pumping per day
EKisting Usage {AG/Live Stock)	Vacant	No current use
Proposed (Cannabis Cultivation)	7 acres of outdoor &	3,000 gallons per day per acre 22,SOO gallons per day total 675,000 gallons per month (30 days) @ peak use !July, August, September)

12.11 REVIEW

Director of Cultivation, Mikel Alcantar, will review the Water Use Plan oo an annual basis and will share data related to the cost of implementing this plan with the County as requested. The well will be monitored through well draw down tests as requested by the County of Lake. Liu Farm will monitor and log the well meter at a minimum twice per week and will provide said logs upon request by the County.

4"LSCE

Appendix I: Tree Removal Letter

Liu Farm

Manzanita Paradise LLC
Meili Liu; Owner/General Manager
8531 High Valley Rd.
Clearlake Oaks, CA 95423 November

11, 2022

Re: Tree removal related to Liu Farm/Manzanita Paradise LLC UP 20-33, IS 20-39

To whom it may concern:

Liu Farm/Manzanita Paradise LLC does not intend to remove any trees related to applications UP 20-33 and IS 20-39. If there comes a time which a tree is damaged or diseased to the extent it poses a threat to persons or property Liu Farm/Manzanita Paradise LLC will take appropriate measures to address the hazard through the County of Lake Community Development Department.

Sincerely,

Meili Liu
Owner/General Manager

Appendix J: Sight Plan (Revised Version)

LIU FARM
COMMERCIAL CANNABIS SITE PLAN
8531 HIGH VALLEY ROAD
CLEARLAKE OAKS, CA 95423
APN: 006-003-34

Project Information

CLIENT:	MEILI LIU 2014 CENTRAL AVENUE ALAMEDA, CA 94501 MEILILIU369@GMAIL.COM (510) 468-7657
CONSULTANT:	KYLE GEITNER, PRINCIPAL CONSULTANT 100 E ST, SUITE 104 SANTA ROSA, CA 95404 KG@NORTHBAYCANNACONSULTING.COM (707) 293-4224
PROJECT ADDRESS:	8531 HIGH VALLEY ROAD CLEARLAKE OAKS, CA 95423
LAND USE:	RL
PARCEL AREA:	160.438 ACRES

Purpose

THE PURPOSE OF THIS PLAN SET IS TO PROVIDE SUPPORT IN OBTAINING A COMMERCIAL CANNABIS PERMIT FOR (7) A-TYPE 3 LICENSES FOR 7 ACRES OUTDOOR CANNABIS CULTIVATION AND (1) A-TYPE 3B LICENSE FOR 22,000 SQFT OF MIXED-LIGHT CANNABIS CULTIVATION IN THE COUNTY OF LAKE.

Sheet Index

1.0	COVER SHEET
2.0	SURROUNDING AERIAL
3.0	EXISTING CONDITIONS
4.0	PROPOSED CONDITIONS
5.0	CULTIVATION SITE (USE PERMIT APPROVAL)
6.0	CANNABIS RELATED BUILDING LAYOUT
7.0	SECURITY

Flood Hazard Zone Information

FIRM DESIGNATED FLOOD ZONE:	ZONE X
BASE FLOOD ELEVATION:	NA
CULTIVATION AREA ELEVATION:	2950 FEET
FLOOD PROOFING REQUIRED?	NO

Abbreviations

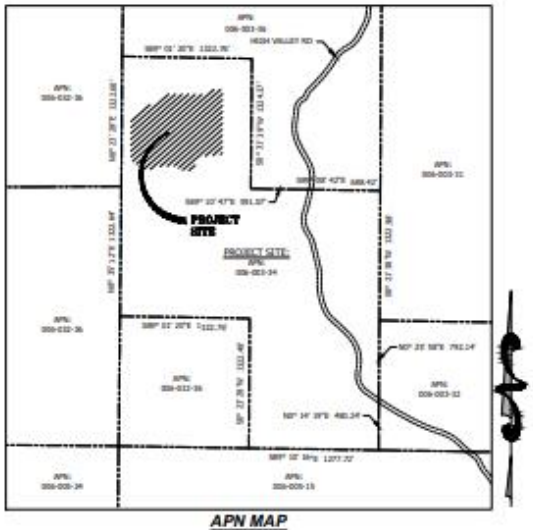
AC	ASPHALT CONCRETE	FG	FINISH GRADE
APN	ASSESSOR'S PARCEL NUMBER	FL	FLOW LINE
APPROX	APPROXIMATE	GH	GREENHOUSE
C L	CENTERLINE	HH	HOOPHOUSE
CONC	CONCRETE	INV	INVERT
CY	CUBIC YARD	LF	LINEAR FEET
Ø	DIAMETER	MAX	MAXIMUM
EG	EXISTING GROUND	MIN	MINIMUM
ELEV	ELEVATION	NA	NOT APPLICABLE
EP	EDGE OF PAVEMENT	NTS	NOT TO SCALE
(E)	EXISTING	(P)	PROPOSED
FF	FINISHED FLOOR	s	SLOPE

Linetype Legend

EXISTING	PROPOSED	DEFINITION
		FENCE
		DRAINAGE PIPE
		PROPERTY LINE
		WATERCOURSE
		ELECTRICAL UTILITY LINE
		WATER LINE
		SANITARY SEWER
		FIBER ROLL
X		TREE TO BE REMOVED

Topographic Information

TOPOGRAPHIC INFORMATION WAS OBTAINED THROUGH THE U.S. GEOLOGICAL SURVEY 3D ELEVATION PROGRAM. LONGITUDE AND LATITUDE GEOGRAPHICAL COORDINATES ARE HORIZONTALLY REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83). ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAD88).



APN MAP
NTS

Location Map
NTS

NORTH BAY CANNA CONSULTING

NOTES:

PROJECT ADDRESS:
8531 HIGH VALLEY ROAD
CLEARLAKE OAKS, CA 95423

APN:
006-003-34

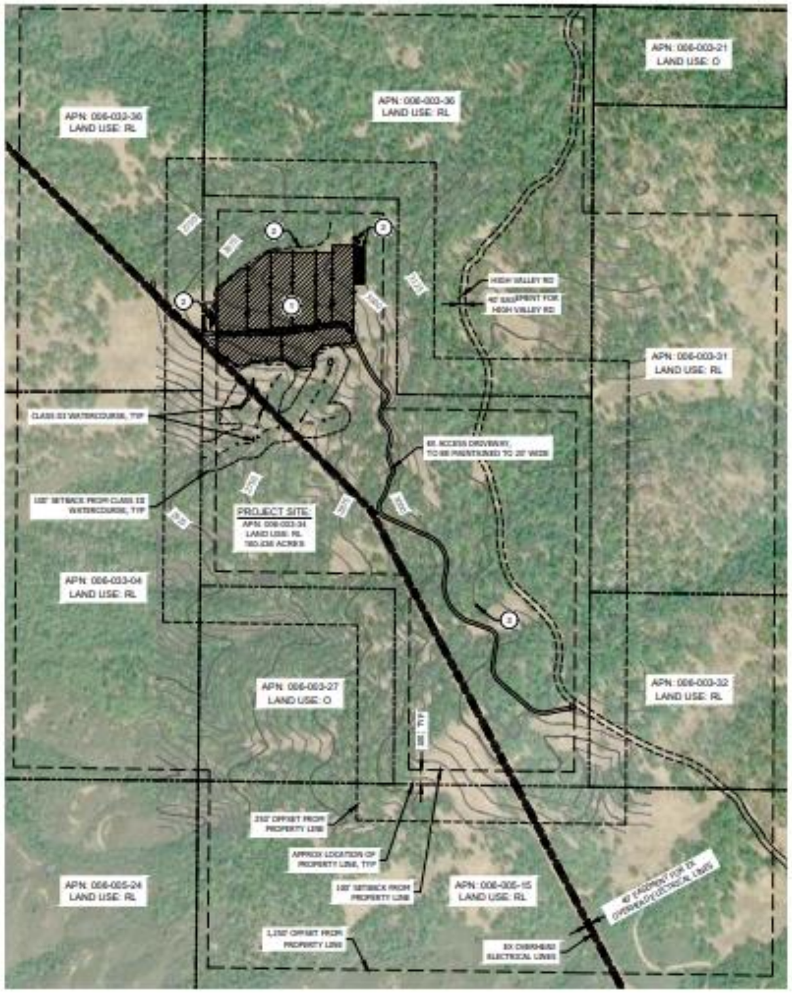
CLIENT:
MEILI LIU

CONSULTANT:
KYLE GEITNER,
PRINCIPAL CONSULTANT

DATE: 5/16/2021	DRAWN: AWR
JOB #: 20-011	SCALE: AS SHOWN
REVISIONS:	CHECKED: KJG

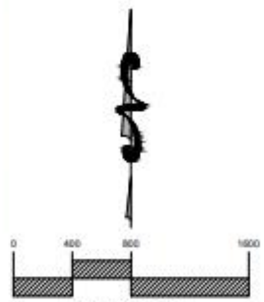
SHEET TITLE:
COVER SHEET

SHEET: 1.0
1 OF 8



KEYNOTES:

1. PROPOSED MIXED LIGHT CULTIVATION, SEE SHEET 7.0 FOR CULTIVATION SITE DETAILS
2. PROPOSED EARLY ACTIVATION OUTDOOR CULTIVATION, SEE SHEET 6.0 FOR CULTIVATION DETAILS
3. SEE SHEET 4.0 FOR PROPOSED SITE CONDITIONS
4. SEE SHEET 3.0 FOR EXISTING SITE CONDITIONS
5. SEE SHEET 9.0 FOR SECURITY DETAILS
6. EXISTING BARN, APPROX 70'Wx60'Lx28'H
7. EXISTING FENCED BARN AREA
8. EXISTING ACCESS 22' WIDE GATE TO PROJECT SITE, TO REMAIN LOCKED WHILE NOT IN USE
9. EXISTING STRUCTURE, APPROX 80'Wx60'Lx28'H
10. EXISTING STRUCTURE, APPROX 75'Wx50'Lx16'H
11. EXISTING STRUCTURE, APPROX 50'Wx30'Lx14'H
12. EXISTING STRUCTURE, APPROX 60'Wx35'Lx22'H
13. EXISTING WELL LOCATION, APPROX (39.0746261,-122.7538291)



SCALE 1" = 800'

NORTH BAY | CANNA CONSULTING

NOTES:

PROJECT ADDRESS:
8031 HIGH VALLEY ROAD
CLEARLAKE OAKS, CA 95423

APN:
006-003-36

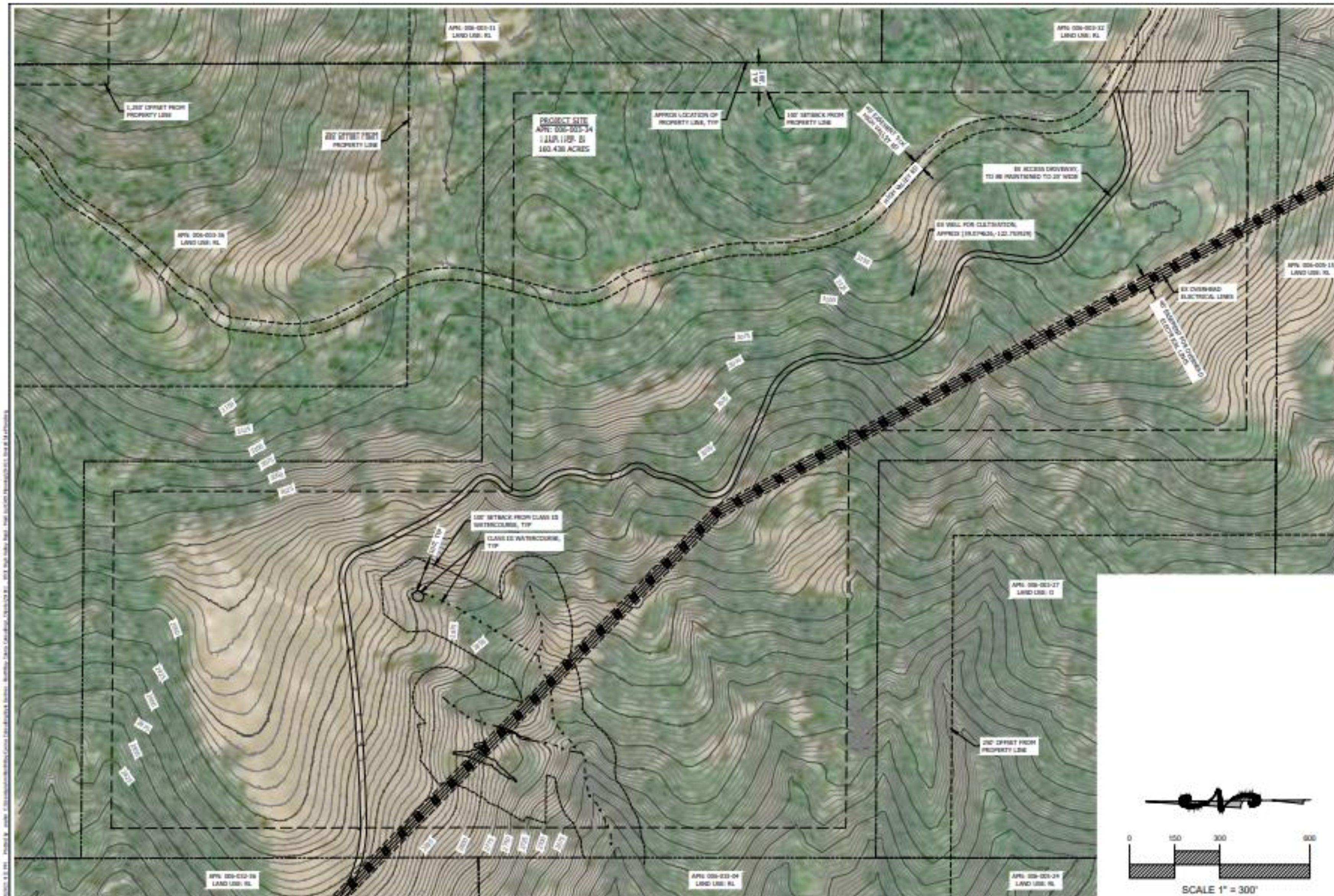
CLIENT:
MEILI LIU

CONSULTANT:
KYLE GEITNER,
PRINCIPAL CONSULTANT

DATE: 5/18/2021	DRAWN: AMR
JOB #: 20-011	SCALE: AS SHOWN
REVISION:	CHECKED: KJG

SHEET TITLE:
SURROUNDING AERIAL

SHEET: 2.0
2 OF 7



NORTH BAY CANNA CONSULTING

PROJECT ADDRESS:
8531 HIGH VALLEY ROAD
CLEARLAKE OAKS, CA 95423

APN:
006-003-34

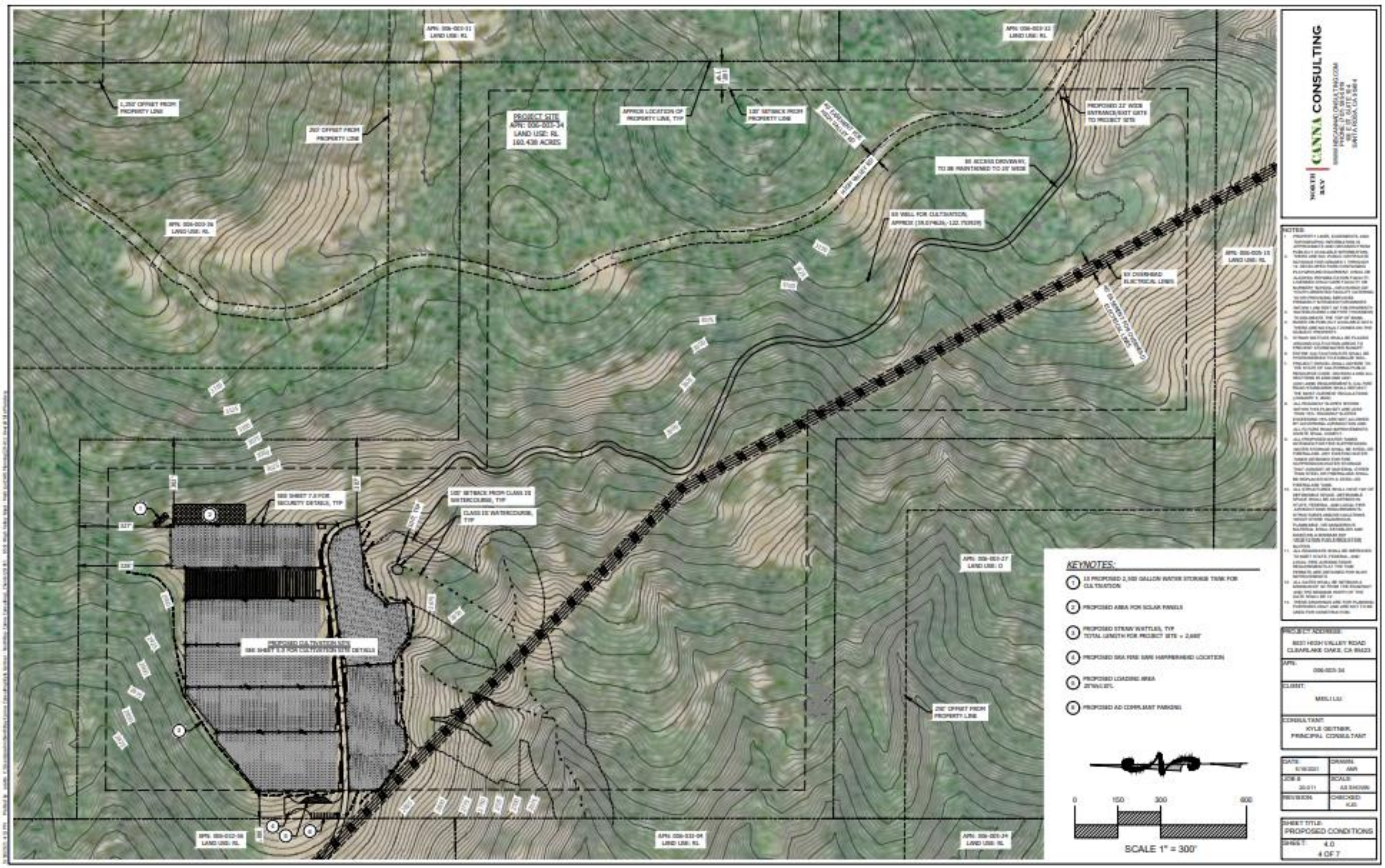
CLIENT:
MEILI LIU

CONSULTANT:
KYLE GETTER,
PRINCIPAL CONSULTANT

DATE: 5/18/2021	DRAWN: AMR
JOB #: 20-011	SCALE: AS SHOWN
REVISION:	CHECKED: KJG

SHEET TITLE:
EXISTING CONDITIONS

SHEET: 3.0
3 OF 7


PROJECT SITE
APN: 006-003-34
LAND USE: RL
LAND USE: RL
LAND USE: RL
LAND USE: RL
LAND USE: RL
LAND USE: RL
LAND USE: RL
LAND USE: O
PROPOSED 22' WIDE ENTRANCE/EXIT GATE TO PROJECT SITE
EX ACCESS DRIVEWAY, TO BE MAINTAINED TO 20' WIDE
EX WELL FOR CULTIVATION
EX OVERHEAD ELECTRICAL LINES
100' SETBACK FROM CLASS III WATERCOURSE, TYP
CLASS III WATERCOURSE, TYP
KEYNOTES:
1 10 PROPOSED 2,500 GALLON WATER STORAGE TANK FOR CULTIVATION
2 PROPOSED AREA FOR SOLAR PANELS
3 PROPOSED STRAW WATTLES, TYP TOTAL LENGTH FOR PROJECT SITE = 2,600'
4 PROPOSED SRA FIRE SAFE HAMMERHEAD LOCATION
5 PROPOSED LOADING AREA
6 PROPOSED AD COMPLIANT PARKING
0 150 300 600
SCALE 1" = 300'
NORTH BAY
CANNA CONSULTING
NOTES:
PROJECT ADDRESS:
CLEARLAKE OAKS, CA
APN:
CLIENT:
CONSULTANT:
KYLE GEITNER,
PRINCIPAL CONSULTANT
DATE:
DRAWN:
JOB #
SCALE:
AS SHOWN
REVISION:
CHECKED:
SHEET TITLE:
PROPOSED CONDITIONS
SHEET:
4.0
4 OF 7

KEYNOTES:

1. PROPOSED OUTDOOR CULTIVATION SITE 1
   TOTAL FENCED AREA = 78,292 SQFT
   OUTDOOR CANOPY = 43,510 SQFT
   866 PROPOSED RAISED PLANTER BAGS
2. PROPOSED OUTDOOR CULTIVATION SITE 2
   TOTAL FENCED AREA = 78,292 SQFT
   OUTDOOR CANOPY = 43,510 SQFT
   866 PROPOSED RAISED PLANTER BAGS
3. PROPOSED OUTDOOR CULTIVATION SITE 3
   TOTAL FENCED AREA = 78,292 SQFT
   OUTDOOR CANOPY = 43,510 SQFT
   866 PROPOSED RAISED PLANTER BAGS
4. PROPOSED OUTDOOR CULTIVATION SITE 4
   TOTAL FENCED AREA = 78,292 SQFT
   OUTDOOR CANOPY = 43,510 SQFT
   866 PROPOSED RAISED PLANTER BAGS
5. PROPOSED MIXED-LIGHT CULTIVATION SITE 5
   TOTAL FENCED AREA = 94,100 SQFT
   OUTDOOR CANOPY = 21,600 SQFT
   9 PROPOSED MIXED-LIGHT GREENHOUSES
   4 PROPOSED IMMATURE PLANT GREENHOUSES
6. PROPOSED OUTDOOR CULTIVATION SITE 6
   TOTAL FENCED AREA = 78,292 SQFT
   OUTDOOR CANOPY = 43,510 SQFT
   866 PROPOSED RAISED PLANTER BAGS
7. PROPOSED OUTDOOR CULTIVATION SITE 7
   TOTAL FENCED AREA = 78,292 SQFT
   OUTDOOR CANOPY = 43,510 SQFT
   866 PROPOSED RAISED PLANTER BAGS
8. PROPOSED OUTDOOR CULTIVATION SITE 8
   TOTAL FENCED AREA = 78,292 SQFT
   OUTDOOR CANOPY = 43,510 SQFT
   866 PROPOSED RAISED PLANTER BAGS
9. AREA FOR PROPOSED SOLAR PANELS (70'Wx250'L)
10. 12 PROPOSED 2,500 GALLON WATER STORAGE TANKS
11. PROPOSED COMPOST AREA, TYP (20'Wx15'Lx4'H)
12. 4 PROPOSED LOCKABLE SHED FOR HARVEST STORAGE AND ADMINISTRATIVE-HOLD AREA, TYP (10'Wx10'Lx8'H)
13. PROPOSED PESTICIDE AND AGRICULTURAL-CHEMICAL STORAGE, TYP (10'Wx10'Lx8'H)
14. SEE SHEET 7.0 FOR SECURITY DETAILS, TYP
15. 2 PROPOSED LOCKABLE WASTE BINS, TYP (APPROX 4'Wx4'Lx3'H)
16. PROPOSED ADA COMPLIANT PORTABLE BATHROOM, TYP
17. PROPOSED 20' WIDE ENTRANCE/EXIT TO CULTIVATION SITE, TYP
18. PROPOSED SRA FIRE SAFE HAMMERHEAD LOCATION
19. PROPOSED LOADING AREA, 20'Wx110'L
20. PROPOSED ADA PARKING AREA

0 50 100 200
SCALE 1" = 100'

NORTH BAY CANNA CONSULTING

PROJECT ADDRESS:
8831 HIGH VALLEY ROAD
CLEARLAKE OAKS, CA 95423

APN: 006-003-34

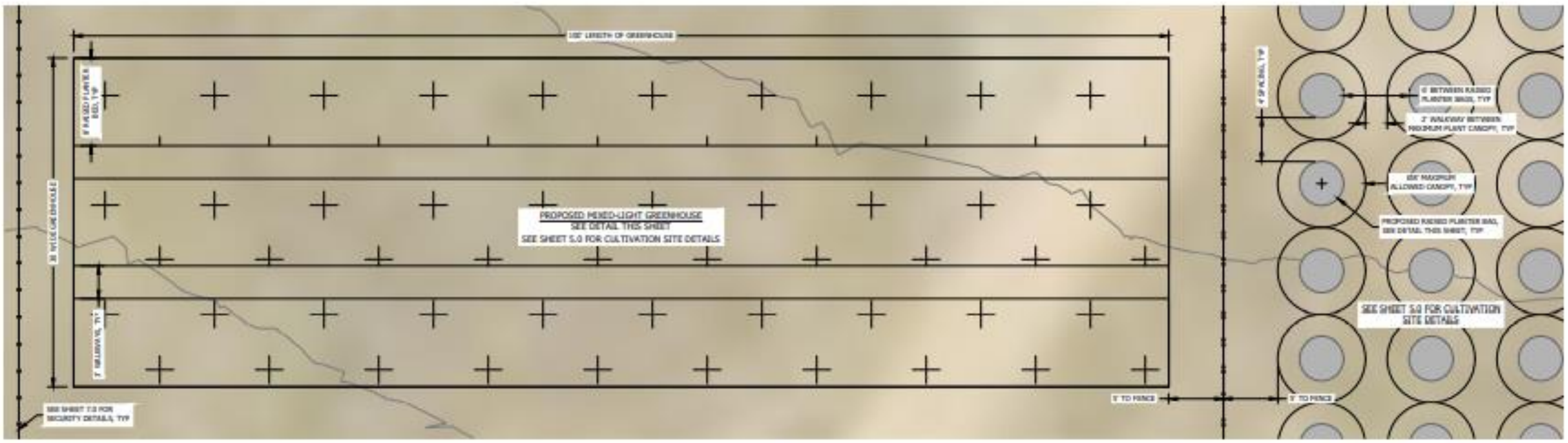
CLIENT: MEILI LIU

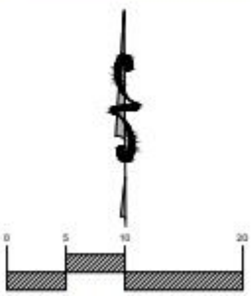
CONSULTANT: KYLE GEITNER, PRINCIPAL CONSULTANT

DATE: 6/16/2021	DRAWN: AAR
JOB #: 20-011	SCALE: AS SHOWN
REVISION:	CHECKED: KJG

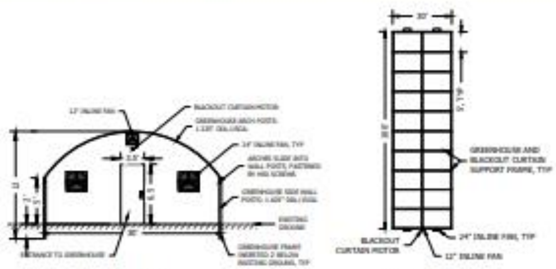
SHEET TITLE: CULTIVATION SITE

SHEET: 5.0
5 OF 7





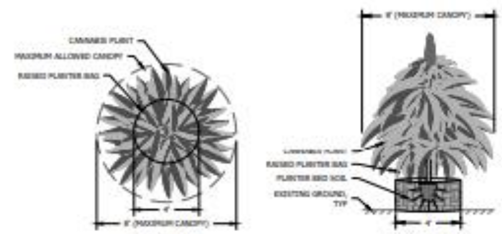
SCALE 1" = 10'



PROFILE VIEW
NTS

PLAN VIEW
NTS

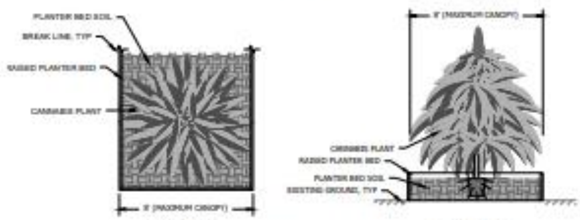
GREENHOUSE DETAIL
(30'Wx100'Lx12'H)
NTS



PLAN VIEW
NTS

PROFILE VIEW
NTS

RAISED PLANTER BAG DETAIL
NTS



PLAN VIEW
NTS

PROFILE VIEW
NTS

MIXED-LIGHT RAISED PLANTER BED DETAIL
NTS

NORTH BAY | CANNA CONSULTING

NOTES:

PROJECT ADDRESS:
8837 HIGH VALLEY ROAD
CLEARLAKE OAKS, CA 95423

APN:
006-003-34

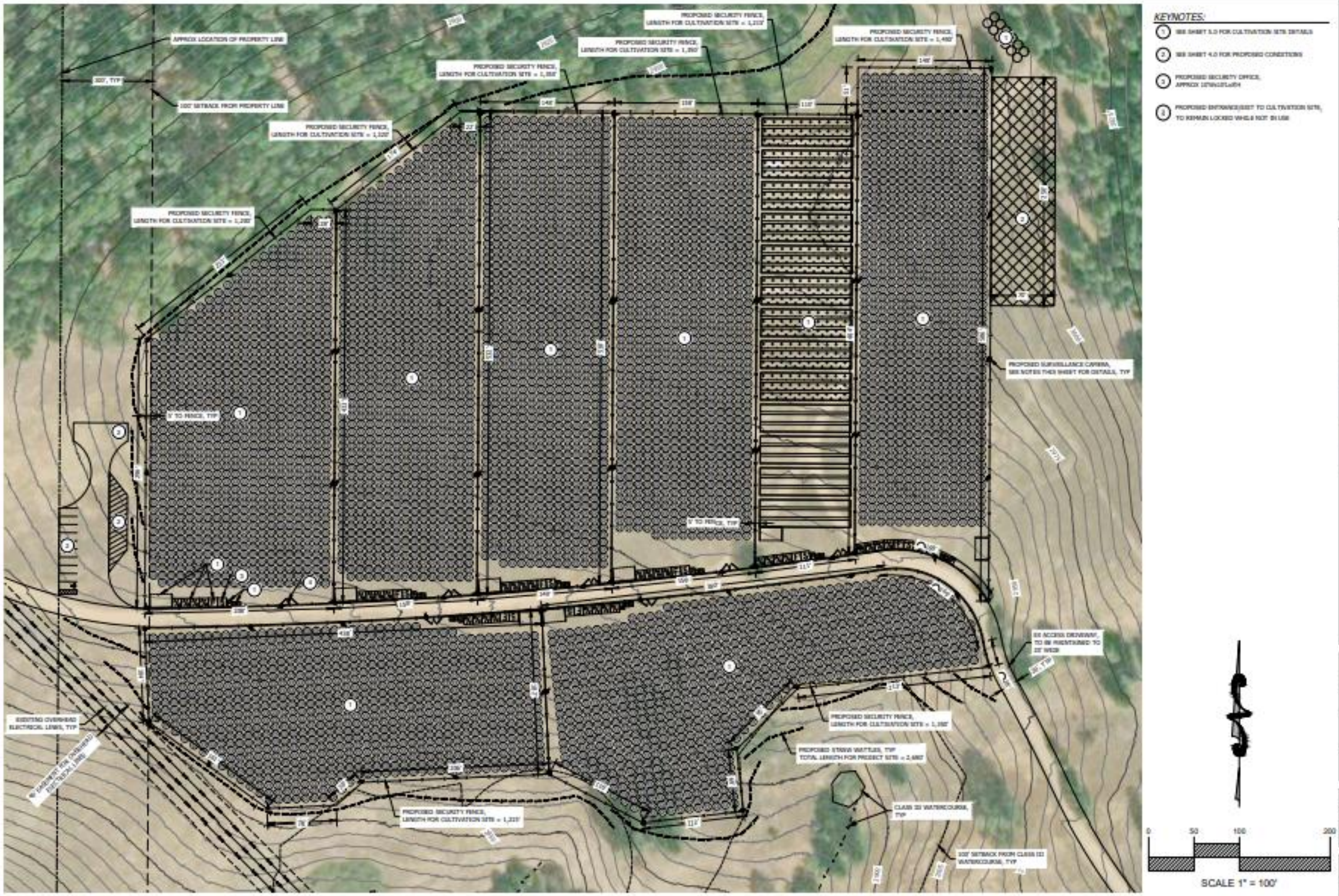
CLIENT:
MEILI LIU

CONSULTANT:
KYLE GEITNER,
PRINCIPAL CONSULTANT

DATE:	DRAWN:
5/18/2021	AMR
JOB #: 20-011	SCALE: AS SHOWN
REVISION:	CHECKED: K.G.

SHEET TITLE:
CANNABIS RELATED
BUILDING LAYOUT

SHEET: 6.0
6 OF 7



SCALE 1" = 100'

KEYNOTES:

1. SEE SHEET 5.0 FOR CULTIVATION SITE DETAILS
2. SEE SHEET 4.0 FOR PROPOSED CONDITIONS
3. PROPOSED SECURITY OFFICE, APPROX 10'Wx10'Lx8'H
4. PROPOSED ENTRANCE/EXIT TO CULTIVATION SITE, TO REMAIN LOCKED WHILE NOT IN USE

NORTH BAY CANNA CONSULTING

NBCANNACONSULTING.COM

NOTES:

PROJECT ADDRESS:	8931 HIGH VALLEY ROAD CLEARLAKE OAKS, CA 95423
APN:	006-003-34
CLIENT:	MEILI LIU
CONSULTANT:	KYLE GEITHER, PRINCIPAL CONSULTANT
DATE: 6/18/2021	DRAWN: AMR
JOB #: 20.011	SCALE: AS SHOWN
REVISION:	CHECKED: KJG
SHEET TITLE:	SECURITY PLAN
SHEET:	7.0 7 OF 7

Appendix K: Erosion and Sediment Control Plan

NOTE: **The drawings in this Erosion and Sediment Control Plan are from the original "Site Plan". The mitigating actions described have been included in the "Revised Site Plan" and will be implemented as described in this Erosion and Sediment Control Plan. The only difference will be the locations which some of the mitigating actions are deployed.**

MEILI LIU
COMMERCIAL CANNABIS EROSION AND SEDIMENT CONTROL PLAN
8531 HIGH VALLEY ROAD
CLEARLAKE OAKS, CA 95423
APN: 006-003-34

Project Information

PROJECT ADDRESS:	8531 HIGH VALLEY ROAD, CLEARLAKE OAKS
OWNER/DEVELOPER :	MEILI LIU 8531 HIGH VALLEY ROAD CLEARLAKE OAKS, CA 95423 (510) 468-7657 MEILILIU369@GMAIL.COM
CIVIL ENGINEER :	BC ENGINEERING GROUP 418 B STREET, THIRD FLOOR SANTA ROSA, CA 95401 (707) 542-4321
PARCEL AREA :	158.22 ACRES

Abbreviations

AB	AGGREGATE BASE	F.F.	FINISHED FLOOR
AC	ASPHALT CONCRETE	F.G.	FINISHED GRADE
APN	ASSESSOR'S PARCEL NUMBER	F.L.	FLOW LINE
APPROX	APPROXIMATE	HP	HIGH POINT
B.C.	BEGIN HORIZONTAL CURVE	INV.	INVERT
BSL	BUILDING SETBACK LINE	L.F.	LINEAR FEET
BW	BOTTOM OF WALL	MAX.	MAXIMUM
BLDG	FINISH GRADE BUILDING	MIN.	MINIMUM
C L	CENTERLINE	NA	NOT APPLICABLE
CL.	CLASS	N.T.S.	NOT TO SCALE
C.P.P.	CORRUGATED PLASTIC PIPE	PL	PROPERTY LINE
CONC.	CONCRETE	R.C.	RELATIVE COMPACTION
C.Y.	CUBIC YARD	R/W	RIGHT-OF-WAY
DI	DROP INLET	S	SLOPE
DIA.	DIAMETER	S.C.	SPIRAL CURVE
DL	DAYLIGHT	S.G.	SUBGRADE
E.C.	END HORIZONTAL CURVE	STA.	STATION
E.G.	EXISTING GROUND	TW	TOP OF WALL
E.P.	EDGE OF PAVEMENT	TYP.	TYPICAL
EX.	EXISTING	V.C.	VERTICAL CURVE

Linetype Legend

- LIMITS OF WORK
- GRADING CONFORM
- SUBDRAIN
- EX EDGE OF PAVEMENT
- EX FENCE
- PROPOSED DRAIN PIPE
- PROPERTY LINE
- EX PROPERTY LINE
- RETAINING WALL
- DRAINAGE SWALE
- ELECTRICAL
- FENCE
- GREASE WASTE
- WATER LINE
- SANITARY SEWER
- FIRE LINE
- FIBER ROLL
- TREE TO BE REMOVED
- POINT OF COORDINATION
- PIPE CAP
- HYDRANT

Sheet Index

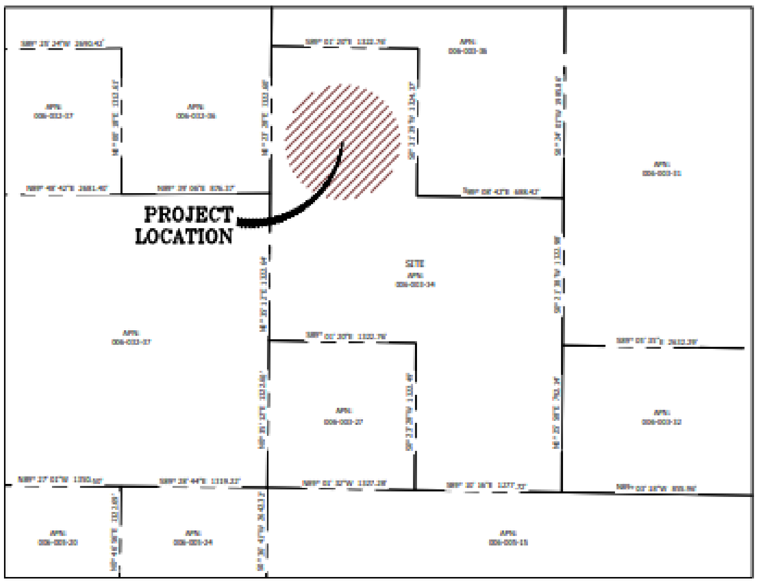
C1.0 PROJECT INFORMATION
C1.1 DETAILS AND NOTES
C1.2 CULTIVATION EROSION AND SEDIMENT CONTROL PLAN

Purpose

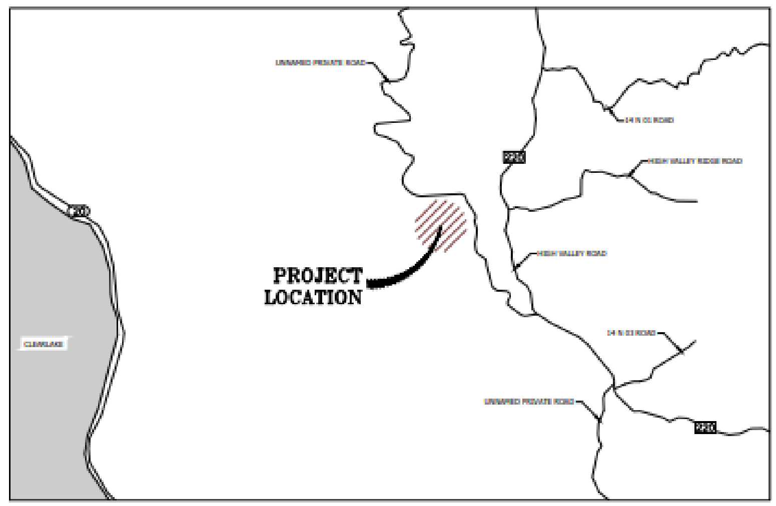
THE PURPOSE OF THIS PLAN SET IS TO PROVIDE SUPPORT IN OBTAINING A COMMERCIAL CANNABIS USE PERMIT FOR 7 ACRES OF OUTDOOR AND 22,000 SF MIXED LIGHT IN THE COUNTY OF LAKE.

Flood Hazard Zone Information

FIRM DESIGNATED FLOOD ZONE:	NA
BASE FLOOD ELEVATION:	NA
CULTIVATION AREA ELEVATION:	2925 FEET
FLOOD PROOFING REQUIRED?	NO



Parcel Exhibit
NTS



Location Map
NTS

BC ENGINEERING GROUP, INC.
CIVIL ENGINEERING & LAND PLANNING

COMMERCIAL CANNABIS EROSION AND SEDIMENT CONTROL PLAN
PROJECT INFORMATION
MEILI LIU
8531 HIGH VALLEY ROAD
CLEARLAKE OAKS, CA 95423

Date	6/09/2020
Job	1671-19
Drawn	ANR
Scale	AS SHOWN
APN	006-003-34
Permit #	
Sheet	C1.0

1 of 3

EROSION PREVENTION & SEDIMENT CONTROL NOTES

GENERAL

1. PERFORM EROSION PREVENTION AND SEDIMENT CONTROL IN ACCORDANCE WITH COUNTY ORDINANCES AND REGULATIONS.

2. THE APPROVED PLANS SHALL CONFORM TO THE COUNTY'S EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP) OR CASQA WHICH EVER IS MORE STRINGENT.

3. THE PROPERTY OWNER IS RESPONSIBLE FOR PREVENTING STORM WATER POLLUTION GENERATED FROM THE CONSTRUCTION SITE YEAR ROUND. WORK SITES WITH INADEQUATE EROSION PREVENTION AND/OR SEDIMENT CONTROL MAY BE SUBJECT TO A STOP WORK ORDER AND/OR ADDITIONAL INSPECTION FEES TO VERIFY COMPLIANCE WITH THE COUNTY ORDINANCE AND REGULATIONS.

4. IF DISCREPANCIES OCCUR BETWEEN THESE NOTES, MATERIAL REFERENCED ON THE APPROVED PLANS OR MANUFACTURER'S RECOMMENDATIONS, THEN THE MOST PROTECTIVE SHALL APPLY.

5. AT ALL TIMES THE PROPERTY OWNER IS RESPONSIBLE FOR OBTAINING AND COMPLYING WITH THE STATE OF CALIFORNIA NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION AND LAND DISTURBING ACTIVITIES SUCH AS CLEARING, GRADING, EXCAVATION, STOCKPILING, AND RECONSTRUCTION OF EXISTING FACILITIES INVOLVING REMOVAL AND REPLACEMENT.

6. THE PROPERTY OWNER MUST IMPLEMENT AN EFFECTIVE COMBINATION OF EROSION PREVENTION AND SEDIMENT CONTROL ON ALL DISTURBED AREAS DURING THE RAINY SEASON (OCTOBER 1 - APRIL 30). GRADING AND DRAINAGE IMPROVEMENT SHALL BE PERMITTED DURING THE RAINY SEASON ONLY WHEN ON-SITE SOIL CONDITIONS PERMIT THE WORK TO BE PERFORMED IN COMPLIANCE WITH COUNTY CODE AND REGULATION.

7. DURING THE RAINY SEASON, STORM WATER BMP'S REFERENCED OR DETAILED IN COUNTY'S OR CASQA BMP GUIDE SHALL BE IMPLEMENTED AND FUNCTIONAL ON THE SITE AT ALL TIMES AND THE AREA OF ERODIBLE LAND EXPOSED AT ANY ONE TIME DURING THE WORK SHALL NOT EXCEED ONE ACRE OR 20 PERCENT OF THE PERMITTED WORK AREA, WHICHEVER IS GREATER, AND THE TIME OF EXPOSURE SHALL BE MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE.

8. DURING THE NON-RAINY SEASON, ON ANY DAY WHEN THE NATIONAL WEATHER SERVICE FORECAST IS A CHANCE OF RAIN OF 30 PERCENT OR GREATER WITHIN THE NEXT 24 HOURS, STORM WATER BMP'S REFERENCED OR DETAILED IN COUNTY'S OR CASQA BMP GUIDE SHALL BE IMPLEMENTED AND FUNCTIONAL ON THE SITE TO PREVENT SOIL AND OTHER POLLUTANT DISCHARGES. AT ALL OTHER TIMES, BMP'S SHOULD BE STORED ON SITE IN PREPARATION FOR INSTALLATION PRIOR TO RAIN EVENTS.

9. EROSION PREVENTION AND SEDIMENT CONTROL BMP'S SHALL BE INSPECTED BY THE PROPERTY OWNER BEFORE FORECASTED STORM EVENTS AND AFTER STORM EVENTS TO ENSURE BMP'S ARE FUNCTIONING PROPERLY. EROSION PREVENTION AND SEDIMENT CONTROL BMP'S THAT HAVE FAILED OR ARE NO LONGER EFFECTIVE SHALL BE PROMPTLY REPLACED. EROSION PREVENTION AND SEDIMENT CONTROL BMP'S SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED.

10. THE LIMITS OF GRADING SHALL BE DEFINED AND MARKED ON SITE TO PREVENT DAMAGE TO SURROUNDING TREES AND OTHER VEGETATION. PRESERVATION OF EXISTING VEGETATION SHALL OCCUR TO THE MAXIMUM EXTENT PRACTICABLE. ANY EXISTING VEGETATION WITHIN THE LIMITS OF GRADING THAT IS TO REMAIN UNDISTURBED BY THE WORK SHALL BE IDENTIFIED AND PROTECTED FROM DAMAGE BY MARKING, FENCING, OR OTHER MEASURES.

11. CHANGES TO THE EROSION PREVENTION AND SEDIMENT CONTROL PLAN MAY BE MADE TO RESPOND TO FIELD CONDITIONS IF THE ALTERNATIVE BMP'S ARE EQUIVALENT OR MORE PROTECTIVE THAN THE BMP'S SHOWN ON THE APPROVED PLANS. ALTERNATIVE BMP'S ARE SUBJECT TO REVIEW AND APPROVAL BY COUNTY STAFF.

12. DISCHARGES OF POTENTIAL POLLUTANTS FROM CONSTRUCTION SITES SHALL BE PREVENTED USING SOURCE CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SEDIMENT, TRASH, NUTRIENTS, PATHOGENS, PETROLEUM HYDROCARBONS, METALS, CONCRETE, CEMENT, ASPHALT, LIME, PAINT, STAINS, GLUES, WOOD PRODUCTS, PESTICIDES, HERBICIDES, CHEMICALS, HAZARDOUS WASTE, SANITARY WASTE, VEHICLE OR EQUIPMENT WASH WATER, AND CHLORINATED WATER.

13. ENTRANCE(S) TO THE CONSTRUCTION SITE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF POTENTIAL POLLUTANTS OFFSITE. POTENTIAL POLLUTANTS DEPOSITED ON PAVED AREAS WITHIN THE COUNTY RIGHT-OF-WAY, SUCH AS ROADWAYS AND SIDEWALKS, SHALL BE PROPERLY DISPOSED OF AT THE END OF EACH WORKING DAY OR MORE FREQUENTLY AS NECESSARY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING CONSTRUCTION VEHICLES LEAVING THE SITE ON A DAILY BASIS TO PREVENT DUST, SILT, AND DIRT FROM BEING RELEASED OR TRACKED OFFSITE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AT THE END OF EACH WORKING DAY OR MORE OFTEN, AS NECESSARY.

14. ALL DISTURBED AREAS SHALL BE PROTECTED BY USING EROSION PREVENTION BMP'S TO THE MAXIMUM EXTENT PRACTICABLE, SUCH AS ESTABLISHING VEGETATION COVERAGE, HYDROSEEDING, STRAW MULCH, GEOTEXTILES, PLASTIC COVERS, BLANKETS, OR MATS. TEMPORARY REVEGETATION SHALL BE INSTALLED AS SOON AS PRACTICAL AFTER VEGETATION REMOVAL, BUT IN ALL CASES PRIOR TO OCTOBER 1. PERMANENT REVEGETATION OR LANDSCAPING SHALL BE INSTALLED PRIOR TO FINAL INSPECTION.

15. WHENEVER IT IS NOT POSSIBLE TO USE EROSION PREVENTION BMP'S ON EXPOSED SLOPES, SEDIMENT CONTROL BMP'S SUCH AS FIBER ROLLS AND SILT FENCES SHALL BE INSTALLED TO PREVENT SEDIMENT MIGRATION. FIBER ROLLS AND SILT FENCES SHALL BE TRENCHED AND KEYED INTO THE SOIL AND INSTALLED ON CONTOUR. SILT FENCES SHALL BE INSTALLED APPROXIMATELY 2 TO 5 FEET FROM TOE OF SLOPE.

16. HYDROSEEDING SHALL BE CONDUCTED IN A THREE STEP PROCESS. FIRST, EVENLY APPLY SEED MIX AND FERTILIZER TO THE EXPOSED SLOPE. SECOND, EVENLY APPLY MULCH OVER THE SEED AND FERTILIZER. THIRD, STABILIZE THE MULCH IN PLACE. AN EQUIVALENT SINGLE STEP PROCESS, WITH SEED, FERTILIZER, WATER, AND BONDED FIBERS IS ACCEPTABLE.

APPLICATIONS SHALL BE BROADCASTED MECHANICALLY OR MANUALLY AT THE RATES SPECIFIED BELOW. SEED MIX AND FERTILIZER SHALL BE WORKED INTO THE SOIL BY ROLLING OR TAMPING. IF STRAW IS USED AS MULCH, STRAW SHALL BE DERIVED FROM WHEAT, RICE, OR BARLEY AND BE APPROXIMATELY SIX TO EIGHT INCHES IN LENGTH. STABILIZATION OF MULCH SHALL BE DONE HYDRAULICALLY BY APPLYING AN EMULSION OR MECHANICALLY BY CRIMPING OR PUNCHING THE MULCH INTO THE SOIL. EQUIVALENT METHODS AND MATERIALS MAY BE USED ONLY IF THEY ADEQUATELY PROMOTE VEGETATION GROWTH AND PROTECT EXPOSED SLOPES.

MATERIALS	APPLICATION RATE (POUNDS PER ACRE)
SEED MIX	
Bromus mollis (BLANDO BROME)	40
Trifolium hirtum (HYKON ROSE CLOVER)	20
FERTILIZER	
16-20-0 & 15% SULPHUR	500
MULCH	
STRAW	4000
HYDRAULIC STABILIZING*	
M-BINDER OR SENTINEL	75-100
EQUIVALENT MATERIAL	PER
MANUFACTURER	
*NON-ASPHALTIC, DERIVED FROM PLANTS	

17. DUST CONTROL SHALL BE PROVIDED BY CONTRACTOR DURING ALL PHASES OF CONSTRUCTION.

18. STORM DRAIN INLETS SHALL BE PROTECTED FROM POTENTIAL POLLUTANTS UNTIL DRAINAGE CONVEYANCE SYSTEMS ARE FUNCTIONAL AND CONSTRUCTION IS COMPLETE.

19. ENERGY DISSIPATERS SHALL BE INSTALLED AT STORM DRAIN OUTLETS WHICH MAY CONVEY EROSIVE STORM WATER FLOW.

20. SOIL, MATERIAL STOCKPILES, AND FERTILIZING MATERIAL SHALL BE PROPERLY PROTECTED WITH PLASTIC COVERS OR EQUIVALENT BMP'S TO MINIMIZE SEDIMENT AND POLLUTANT TRANSPORT FROM THE CONSTRUCTION SITE.

21. SOLID WASTE, SUCH AS TRASH, DISCARDED BUILDING MATERIALS AND DEBRIS, SHALL BE PLACED IN DESIGNATED COLLECTION AREAS OR CONTAINERS. THE CONSTRUCTION SITE SHALL BE CLEARED OF SOLID WASTE DAILY OR AS NECESSARY. REGULAR REMOVAL AND PROPER DISPOSAL SHALL BE COORDINATED BY THE CONTRACTOR.

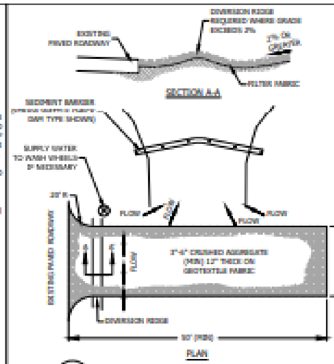
22. A CONCRETE WASHOUT AREA SHALL BE DESIGNATED TO CLEAN CONCRETE TRUCKS AND TOOLS. AT NO TIME SHALL CONCRETE PRODUCTS AND WASTE BE ALLOWED TO ENTER COUNTY WATERWAYS SUCH AS CREEKS OR STORM DRAINS. NO WASHOUT OF CONCRETE, MORTAR MIXERS, OR TRUCKS SHALL BE ALLOWED ON SOIL. CONCRETE WASTE SHALL BE PROPERLY DISPOSED.

23. PROPER APPLICATION, CLEANING, AND STORAGE OF POTENTIALLY HAZARDOUS MATERIALS, SUCH AS PAINTS AND CHEMICALS, SHALL BE CONDUCTED TO PREVENT THE DISCHARGE OF POLLUTANTS.

24. TEMPORARY RESTROOMS AND SANITARY FACILITIES SHALL BE LOCATED AND MAINTAINED DURING CONSTRUCTION ACTIVITIES TO PREVENT THE DISCHARGE OF POLLUTANTS.

25. APPROPRIATE VEHICLE STORAGE, FUELING, MAINTENANCE, AND CLEANING AREAS SHALL BE DESIGNATED AND MAINTAINED TO PREVENT DISCHARGE OF POLLUTANTS.

26.

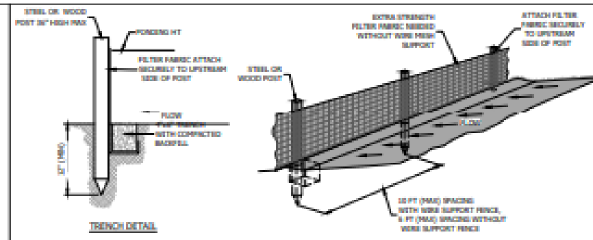


NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

TG — TEMPORARY GRAVEL CONSTRUCTION ENTRANCE & EXIT

NO SCALE

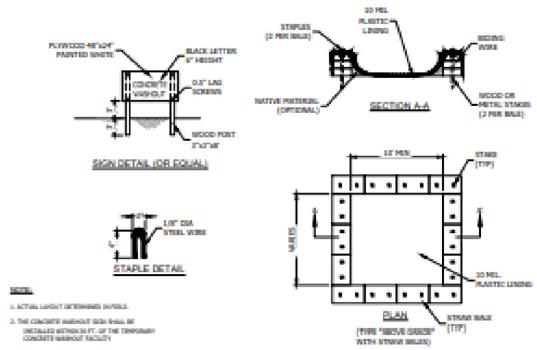


NOTES:

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

SF — SILT FENCE

NO SCALE

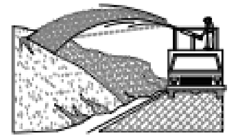


NOTE:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

CW — CONCRETE WASHOUT (WMB)

NO SCALE

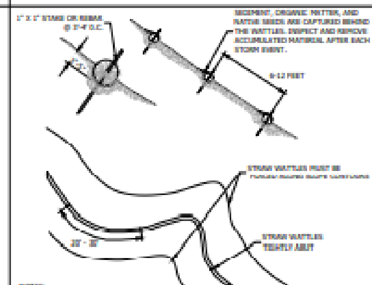


NOTES:

1. SOIL/SLOPE STABILIZATION PRACTICES SHALL BE DESIGNED TO PRESERVE EXISTING VEGETATION WHERE FEASIBLE AND TO REVEGETATE OPEN AREAS AS SOON AS FEASIBLE AFTER GRADING. THESE CONTROL PRACTICES SHALL INCLUDE TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING, SOD STABILIZATION, VEGETATIVE BUFFER STRIPS, PROTECTION OF TREES, OR OTHER SOIL STABILIZATION PRACTICES.
2. SOIL STABILIZATION SHALL BE IMPLEMENTED ON ALL INACTIVE DISTURBED AREAS FROM NOVEMBER 1 THRU APRIL 15 AND ON ALL DISTURBED AREAS DURING A RAIN EVENT OR POTENTIAL RAIN.
3. STABILIZATION PRACTICES SHALL CONTROL/PREVENT EROSION FROM THE FORCES OF WIND AND WATER.
4. STABILIZATION PRACTICES SHALL BE IMPLEMENTED IN CONJUNCTION WITH SEDIMENT TRAPPING/FILTERING PRACTICES AND PRACTICES TO REDUCE THE TRACKING OF SEDIMENT ONTO PAVED ROADS.
5. WHEN USING STRAW MULCHING, THE MINIMUM APPLICATION SHALL BE 2 TONS/ACRE. MULCH MUST BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER.
6. WHEN USING HYDROSEEDING/MULCHING, THE MINIMUM APPLICATION OF WOOD FIBER SHALL BE 1,500 LBS/ACRE, THAT DOES NOT CONTAIN MORE THAN 50 PERCENT NEWSPRINT.
7. FOR SEEDING RECOMMENDATIONS, CONTACT: USDA, NATURAL RESOURCES CONSERVATION SERVICE.

HS — HYDROSEEDING/MULCHING SLOPE STABILIZATION

NO SCALE



NOTES:

1. STRAW WATTLES ARE TUBES MADE FROM STRAW AND BOUND BY BIODEGRADABLE WRAPPED NETTING. THEY ARE APPROXIMATELY 8" DIA. AND 20 - 30 FT LONG.
2. STRAW WATTLES TRAP SEDIMENT AND REDUCE SHEET & RILL EROSION BY REDUCING SLOPE GRADIENT, INCREASING INFILTRATION RATES, AND BY PRODUCING A FAVORABLE ENVIRONMENT FOR PLANT ESTABLISHMENT.
3. STRAW WATTLE INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE WATTLE IN A TRENCH, 3" - 5" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND WATTLE.

STRAW WATTLES:
CONSTRUCTION SPECIFICATIONS:

PREPARE SLOPE BEFORE THE WATTLING PROCEDURE IS STARTED. SHALLOW GULLIES SHOULD BE SMOOTHED AS WORK PROGRESSES.

DIG SMALL TRENCHES ACROSS SLOPE ON CONTOUR, TO PLACE WATTLES IN. THE TRENCH SHOULD BE DEEP ENOUGH TO ACCOMMODATE HALF THE THICKNESS OF THE WATTLE. WHEN THE SOIL IS LOOSE AND UNCOMPACTED, THE TRENCH SHOULD BE DEEP ENOUGH TO BURY THE WATTLE 2/3 OF ITS THICKNESS BECAUSE THE GROUND WILL SETTLE. IT IS CRITICAL THAT WATTLES ARE INSTALLED PERPENDICULAR TO WATER MOVEMENT, PARALLEL TO THE SLOPE CONTOUR.

START BUILDING TRENCHES AND INSTALL WATTLES FROM THE BOTTOM OF THE SLOPE AND WORK UP.

CONSTRUCT TRENCHES AT CONTOUR INTERVALS OF THREE TO EIGHT FEET APART DEPENDING ON STEEPNESS OF SLOPE. THE STEEPER THE SLOPE, THE CLOSER TOGETHER THE TRENCHES.

LAY THE WATTLE ALONG THE TRENCHES FITTING IT SNUGLY AGAINST THE SOIL. MAKE SURE NO GAPS EXIST BETWEEN THE SOIL AND THE STRAW WATTLE.

USE A STRAIGHT BAR TO DRIVE HOLES THROUGH THE WATTLE AND INTO THE SOIL FOR THE WOODEN STAKES.

DRIVE THE STAKE THROUGH THE PREPARED HOLE INTO THE SOIL. LEAVE ONLY ONE OR TWO INCHES OF STAKE EXPOSED ABOVE WATTLE.

INSTALL STAKES AT LEAST EVERY FOUR FEET APART THROUGH WATTLE. ADDITIONAL STAKES MAY BE DRIVEN ON THE DOWNSLOPE SIDE OF THE TRENCHES ON HIGHLY EROSIVE OR VERY STEEP SLOPES.

ST — STRAW WATTLE

NO SCALE

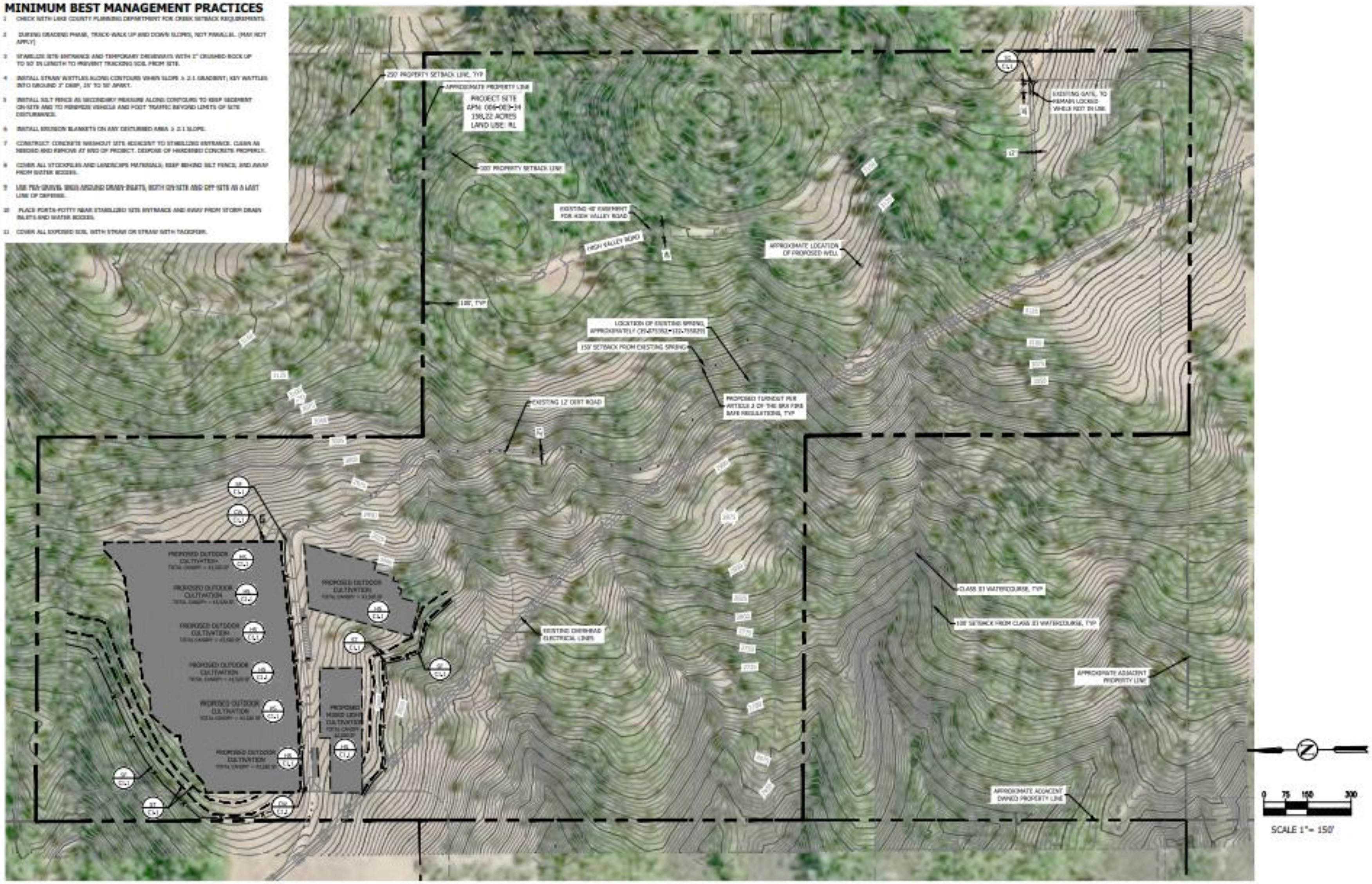
BC ENGINEERING GROUP, INC.
CIVIL ENGINEERING & LAND PLANNING

COMMERCIAL CANNABIS EROSION AND SEDIMENT CONTROL PLAN
DETAILS AND NOTES
MEILI LIU
8531 HIGH VALLEY ROAD
CLEARLAKE OAKS, CA 95423

Date	6/09/2020
Job	1671-19
Drawn	ANR
Scale	AS SHOWN
APN	006-003-34
Permit #	
Sheet	C1.1

MINIMUM BEST MANAGEMENT PRACTICES

1. CHECK WITH LAKE COUNTY PLANNING DEPARTMENT FOR CREEK SETBACK REQUIREMENTS.
2. DURING GRADING PHASE, TRACK-WALK UP AND DOWN SLOPES, NOT PARALLEL. (MAY NOT APPLY)
3. STABILIZE SITE ENTRANCE AND TEMPORARY DRIVEWAYS WITH 3" CRUSHED ROCK UP TO 50' IN LENGTH TO PREVENT TRACKING SOIL FROM SITE.
4. INSTALL STRAW WATTLES ALONG CONTOURS WHEN SLOPE ≥ 2:1 GRADIENT; KEY WATTLES INTO GROUND 3" DEEP, 25' TO 50' APART.
5. INSTALL SILT FENCE AS SECONDARY MEASURE ALONG CONTOURS TO KEEP SEDIMENT ON-SITE AND TO MINIMIZE VEHICLE AND FOOT TRAFFIC BEYOND LIMITS OF SITE DISTURBANCE.
6. INSTALL EROSION BLANKETS ON ANY DISTURBED AREA ≥ 2:1 SLOPE.
7. CONSTRUCT CONCRETE WASHOUT SITE ADJACENT TO STABILIZED ENTRANCE. CLEAN AS NEEDED AND REMOVE AT END OF PROJECT. DISPOSE OF HARDENED CONCRETE PROPERLY.
8. COVER ALL STOCKPILES AND LANDSCAPE MATERIALS; KEEP BEHIND SILT FENCE, AND AWAY FROM WATER BODIES.
9. USE PEA-GRAVEL BAGS AROUND DRAIN INLETS, BOTH ON-SITE AND OFF-SITE AS A LAST LINE OF DEFENSE.
10. PLACE PORTA-POTTY NEAR STABILIZED SITE ENTRANCE AND AWAY FROM STORM DRAIN INLETS AND WATER BODIES.
11. COVER ALL EXPOSED SOIL WITH STRAW OR STRAW WITH TACKIFIER.



REV	DESCRIPTION	BY	DATE

BC ENGINEERING GROUP, INC.
CIVIL ENGINEERING & LAND PLANNING

COMMERCIAL CANNABIS EROSION AND SEDIMENT CONTROL PLAN
CULTIVATION EROSION AND SEDIMENT CONTROL PLAN
8531 HIGH VALLEY ROAD
CLEARLAKE OAKS, CA 95423

Date	6/09/2020
Job	1671-19
Drawn	ANR
Scale	AS SHOWN
APN	006-003-34
Permit #	
Sheet	C1.2 3 of 3

Appendix L: CDFW Lake or Stream Bed Letter

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670-4599
(916) 358-2900
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

6/22/2020
Date

Meili Liu
2014 Central Avenue
Alameda, CA 94501
shogun00215@gmail.com

General Agreement Notification Not Required
Notification No. EPIMS-LAK-10879-R2
Cannabis Cultivation – APN 006-003-340-000

Dear Ms. Liu:

The California Department of Fish and Wildlife (CDFW) received your Lake or Streambed Alteration (LSA) Notification through the Environmental Permit Information Management System (EPIMS) on April 14, 2020. CDFW has determined the Cannabis Cultivation Project (Project) described in your LSA Notification No. EPIMS-10879-R2 is not subject to the notification requirement in Fish and Game Code section 1602 and your fee will be refunded.

As described in the Notification, the Project is located at 8531 High Valley Road, Clearlake Oaks, CA 95423. The entire project consists of a commercial cannabis cultivation operation. Plants will be grown using smart pots and some minor grading may be required. Liquid nutrients and other chemicals related to cultivation will be stored in an on-site storage shed. Plants will be watered using drip irrigation with water provided by an existing groundwater well. No work is proposed in or near any river, lake, or stream.

The Project does not include within or adjacent to the property boundaries any: water discharge, surface water diversion, or vegetation trimming or removal, or construction.

CDFW finds the Project will not substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or deposit or dispose of debris, waste, or other material where it may pass into any river, stream, or lake.

This letter may be submitted to the California Department of Food and Agriculture (CDFA) to satisfy Business and Professions Code section 26060.1 (b)(3) as written verification that a Lake or Streambed Alteration Agreement is not required for the activities specifically described in your Notification. You are responsible for complying

with all applicable local, State, and federal laws in completing your work. A copy of this letter and your Notification with all attachments should be available at all times at the Project site.

Please note, any material or changes otherwise made to your Project description in the Notification, will require submittal of a new Notification and corresponding fee to CDFW.

Your refund may take from six to eight weeks to process. You will receive an email from R2Cannabis@wildlife.ca.gov with instructions on how to initiate the refund process within 3 business days of receipt of this letter. Please contact the North Central Region Cannabis Program at R2Cannabis@wildlife.ca.gov with any questions you have regarding the refund process.

If you have any questions regarding this matter, please contact Michael Shun, Environmental Scientist, at (916) 767-8444 or by email at michael.shun@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Kursten Sheridan
3052529B61FC469...

Kursten Sheridan, Senior Environmental Scientist, Supervisor

ec: Michael Shun, Environmental Scientist
michael.shun@wildlife.ca.gov

Appendix M: Biological Resource Assessment

BIOLOGICAL RESOURCES ASSESSMENT FOR THE CANNABIS CULTIVATION OPERATION AT 8531 HIGH VALLEY ROAD, CLEARLAKE OAKS, CALIFORNIA

March 28, 2020

Applicant:

Meili Liu

Prepared by:

G.O. Graening, PhD and Tim Nosal, MS
Natural Investigations Company, Inc.
3104 O Street, #221, Sacramento, CA 95816

NATURAL INVESTIGATIONS CO.
WWW.NATURALINVESTIGATIONS.COM

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1. INTRODUCTION

1.1. PROJECT LOCATION AND DESCRIPTION

Natural Investigations Company conducted a biological resources assessment for a cannabis cultivation operation on a 158.22-acre parcel (APN 006-003-34) at 8531 High Valley Road, Clearlake Oaks, California. The proposed cannabis cultivation operation consists of 2 cultivation compounds capable of growing 10.5 acres of Cannabis canopy in total.

The north compound is approximately 12.4 acres in size and will contain 9 discrete cultivation areas ('gardens'). Gardens 1 through 8 will be 1 acre each; Garden 9 is 0.5 acre. The north compound is approximately 3 acres in size and will contain 2 discrete cultivation areas: Gardens 10 and 11 will each be 1 acre. Water will be pumped into tanks; each garden will have two 10,000 gallon tanks. To establish the gardens, the annual grassland habitat will have to be removed and the areas graded.

For this assessment, the Project Area was defined as the cultivation area plus the ancillary facilities, and this 15.5-acre area was the subject of the impact analysis. The entire 158.22-acre property was defined as the Study Area. The Study Area is defined to identify biological resources adjacent to the Project Area, and is the area subject to potential indirect effects from Project implementation.

1.2. PURPOSE AND SCOPE OF ASSESSMENT

This Biological Resources Assessment was prepared to assist in compliance with the California Environmental Quality Act and the state and federal Endangered Species Acts. This assessment also functions to fulfill requirements for obtaining enrollment (a Notice of Applicability) in the State Water Resources Control Board's Order WQ 2019-0007-DWQ General Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation Activities (General Order).

This assessment provides information about the biological resources within the Study Area, the regulatory environment affecting such resources, any potential Project-related impacts upon these resources, and finally, to identify mitigation measures and other recommendations to reduce the significance of these impacts. The specific scope of services performed for this assessment consisted of the following tasks:

- Compile all readily-available historical biological resource information about the Study Area;
- Spatially query state and federal databases for any occurrences of special-status species or habitats within the Study Area and vicinity;
- Perform a reconnaissance-level field survey of the Study Area, including photographic documentation;
- Inventory all flora and fauna observed during the field survey;
- Characterize and map the habitat types present within the Study Area, including any potentially-jurisdictional water resources;
- Evaluate the likelihood for the occurrence of any special-status species;
- Assess the potential for the Project to adversely impact any sensitive biological resources;
- Recommend mitigation measures designed to avoid or minimize Project-related impacts; and
- Prepare and submit a report summarizing all of the above tasks.

The scope of services does not include other services that are not described in this Section, such as formal aquatic resource delineations or protocol-level surveys for special-status species.

1.3. REGULATORY SETTING

The following section summarizes some applicable regulations of biological resources on real property in California.

1.3.1. *Special-status Species Regulations*

The United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service implement the Federal Endangered Species Act of 1973 (FESA) (16 USC §1531 et seq.). Threatened and endangered species on the federal list (50 CFR §17.11, 17.12) are protected from "take" (direct or indirect harm), unless a FESA Section 10 Permit is granted or a FESA Section 7 Biological Opinion with incidental take provisions is rendered. Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present in the project area and determine whether the proposed project will have a potentially significant impact upon such species. Under FESA, habitat loss is considered to be an impact to the species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC §1536[3], [4]). Therefore, project-related impacts to these species or their habitats would be considered significant and would require mitigation. Species that are candidates for listing are not protected under FESA; however, USFWS advises that a candidate species could be elevated to listed status at any time, and therefore, applicants should regard these species with special consideration.

The California Endangered Species Act of 1970 (CESA) (California Fish and Game Code §2050 *et seq*., and CCR Title 14, §670.2, 670.51) prohibits "take" (defined as hunt, pursue, catch, capture, or kill) of species listed under CESA. A CESA permit must be obtained if a project will result in take of listed species, either during construction or over the life of the project. Section 2081 establishes an incidental take permit program for state-listed species. Under CESA, California Department of Fish and Wildlife (CDFW) has the responsibility for maintaining a list of threatened and endangered species designated under state law (CFG Code 2070). CDFW also maintains lists of species of special concern, which serve as "watch lists." Pursuant to requirements of CESA, an agency reviewing proposed projects within its jurisdiction must determine whether any state-listed species may be present in the Study Area and determine whether the proposed project will have a potentially significant impact upon such species. Project-related impacts to species on the CESA list would be considered significant and would require mitigation.

California Fish and Game Code Sections 4700, 5050, and 5515 designates certain mammal, amphibian, and reptile species "fully protected", making it unlawful to take, possess, or destroy these species except under issuance of a specific permit. The California Native Plant Protection Act of 1977 (CFG Code §1900 *et seq*.) requires CDFW to establish criteria for determining if a species or variety of native plant is endangered or rare. Section 19131 of the code requires that landowners notify CDFW at least 10 days prior to initiating activities that will destroy a listed plant to allow the salvage of plant material.

Many bird species, especially those that are breeding, migratory, or of limited distribution, are protected under federal and state regulations. Under the Migratory Bird Treaty Act of 1918 (16 USC §703-711), migratory bird species and their nests and eggs that are on the federal list (50 CFR §10.13) are protected from injury or death, and project-related disturbances must be reduced or eliminated during the nesting cycle. California Fish and Game Code (§3503, 3503.5, and 3800) prohibits the possession, incidental take, or needless destruction of any bird nests or eggs. Fish and Game Code §3511 designates certain bird species "fully protected", making it unlawful to take, possess, or destroy these species except under issuance of a specific permit. The Bald and Golden Eagle Protection Act (16 USC §668) specifically protects bald and golden eagles from harm or trade in parts of these species.

California Environmental Quality Act (CEQA) (Public Resources Code §15380) defines "rare" in a broader sense than the definitions of threatened, endangered, or fully protected. Under the CEQA definition, CDFW can request additional consideration of species not otherwise protected. CEQA requires that the impacts of a project upon environmental resources must be analyzed and assessed using criteria determined by the lead agency. Sensitive species that would qualify for listing but are not currently listed

may be afforded protection under CEQA. The CEQA Guidelines (§15065) require that a substantial reduction in numbers of a rare or endangered species be considered a significant effect. CEQA Guidelines (§15380) provide for assessment of unlisted species as rare or endangered under CEQA if the species can be shown to meet the criteria for listing. Plant species on the California Native Plant Society (CNPS) Lists 1A, 1B, or 2 are typically considered rare under CEQA. California "Species of Special Concern" is a category conferred by CDFW on those species that are indicators of regional habitat changes or are considered potential future protected species. While they do not have statutory protection, Species of Special Concern are typically considered rare under CEQA and thereby warrant specific protection measures.

1.3.2. *Water Resource Protection*

Real property that contains water resources are subject to various federal and state regulations and activities occurring in these water resources may require permits, licenses, variances, or similar authorization from federal, state and local agencies, as described next.

The Federal Water Pollution Control Act Amendments of 1972 (as amended), commonly known as the Clean Water Act (CWA), established the basic structure for regulating discharges of pollutants into "waters of the United States". Waters of the US includes essentially all surface waters, all interstate waters and their tributaries, all impoundments of these waters, and all wetlands adjacent to these waters. CWA Section 404 requires approval prior to dredging or discharging fill material into any waters of the US, especially wetlands. The permitting program is designed to minimize impacts to waters of the US, and when impacts cannot be avoided, requires compensatory mitigation. The US Army Corps of Engineers (USACE) is responsible for administering Section 404 regulations. Substantial impacts to jurisdictional wetlands may require an Individual Permit. Small-scale projects may require only a Nationwide Permit, which typically has an expedited process compared to the Individual Permit process. Mitigation of wetland impacts is required as a condition of the CWA Section 404 Permit and may include on-site preservation, restoration, or enhancement and/or off-site restoration or enhancement. The characteristics of the restored or enhanced wetlands must be equal to or better than those of the affected wetlands to achieve no net loss of wetlands.

Under CWA Section 401, every applicant for a federal permit or license for any activity which may result in a discharge to a water body must obtain State Water Quality Certification that the proposed activity will comply with State water quality standards. The California State Water Resources Control Board is responsible for administering CWA Section 401 regulations.

Section 10 of the Rivers and Harbors Act of 1899 requires approval from USACE prior to the commencement of any work in or over navigable Waters of the US, or which affects the course, location, condition or capacity of such waters. Navigable waters of the United States are defined as waters that have been used in the past, are now used, or are susceptible to use, as a means to transport interstate or foreign commerce up to the head of navigation. Rivers and Harbors Act Section 10 permits are required for construction activities in these waters.

California Fish and Game Code (§1601 - 1607) protects fishery resources by regulating "*any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake*." CDFW requires notification prior to commencement, and issuance of a Lake or Streambed Alteration Agreement, if a proposed project will result in the alteration or degradation of ''waters of the State". The limit of CDFW jurisdiction is subject to the judgment of the Department; currently, this jurisdiction is interpreted to be the "stream zone", defined as "*that portion of the stream channel that restricts lateral movement of water*" and delineated at "*the top of the bank or the outer edge of any riparian vegetation, whichever is more landward*". CDFW reviews the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the CDFW and the applicant is the

Streambed Alteration Agreement. Projects that require a Streambed Alteration Agreement may also require a CWA 404 Section Permit and/or CWA Section 401 Water Quality Certification.

For construction projects that disturb one or more acres of soil, the landowner or developer must obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ).

The State Water Resources Control Board's Order WQ 2019-0007-DWQ General Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation Activities protects receiving water bodies from water-quality impacts associated with cannabis cultivation using a combination of Best Management Practices, buffer zones, sediment and erosion controls, site management plans, inspections and reporting, and regulatory oversight.

1.3.3. *Tree Protection*

At the State level, in areas inside timberland, any tree removal is subject to the conditions and requirements set forth in the Z'berg-Nejedly Forest Practice Act and the California Forest Practice Rules. If development of a project will result in the removal of commercial tree species, one of the following permits is needed: Less than 3 Acre Conversion Exemption; Christmas Tree; Dead, Dying or Diseased, Fuelwood, or Split Products Exemption; a Public Agency, Public and Private Utility Right of Way Exemption; a Notice of Exemption from Timberland Conversion Permit for Subdivision; or an Application for Timberland Conversion Permit.

Lake County does not have a specific ordinance protecting native trees. However, under the Cannabis Ordinance 3084, Section 4, Subsection iii) Prohibited Activities (a) Tree Removal, Lake County restricts tree removal as follows:

> *"The removal of any commercial tree species as defined by the California Code of Regulations section 895.1, Commercial Species for the Coast Forest District and Northern Forest District, and the removal of any true oak species (Quercus species) or Tan Oak (Notholithocarpus species) for the purpose of developing a cannabis cultivation site should be avoided and minimized. This shall not include the pruning of any such tree species for the health of the tree or the removal of such trees if necessary for safety or disease concerns."*

During the permitting process, Lake County requires mitigation for the removal of protected trees; typical mitigation is tree replacement at a ratio of 2:1 or 3:1.

2. ENVIRONMENTAL SETTING

The Study Area is located within the Inner North Coast Range geographic subregion, which is contained within the Northwestern California geographic subdivision of the larger California Floristic Province (Baldwin et al. 2012). This region has a Mediterranean-type climate, characterized by distinct seasons of hot, dry summers and wet, moderately-cold winters. The Study Area and vicinity is in Climate Zone 7
- California's Gray Pine Belt, defined by hot summers and mild but pronounced winters without severe winter cold or high humidity (Sunset, 2020).

The topography of the Study Area is mountainous, and consists of the west-facing slopes of a ridge crest. The slopes drain directly to Clear Lake. A small portion of the property drains east down Sulphur Canyon into Long Valley. The elevation ranges from approximately 2,600 feet to 3,050 feet above mean sea level. The Property is undeveloped land used for livestock ranging. It is surrounded by Mendocino National forest. The surrounding land uses are private estates, timberland, recreation, and grazing land.

3. METHODOLOGY

3.1. PRELIMINARY DATA GATHERING AND RESEARCH

Prior to conducting the field survey, the following information sources were reviewed:

- Any readily-available previous biological resource studies pertaining to the Study Area or vicinity
- United States Geologic Service (USGS) 7.5 degree-minute topographic quadrangles of the Study Area and vicinity
- Aerial photography of the Study Area
- California Natural Diversity Database (CNDDB), electronically updated monthly by subscription
- USFWS species list (IPaC Trust Resources Report).

3.2. FIELD SURVEY

Consulting biologist Tim Nosal, MS. conducted a reconnaissance-level field survey on March 20, 2020.

A variable-intensity pedestrian survey was performed, and modified to account for differences in terrain, vegetation density, and visibility. All visible fauna and flora observed were recorded in a field notebook, and identified to the lowest possible taxon. Survey efforts emphasized the search for any special-status species that had documented occurrences in the CNDDB within the vicinity of the Study Area and those species on the USFWS species list (Appendix 1).

When a specimen could not be identified in the field, a photograph or voucher specimen (depending upon permit requirements) was taken and identified in the laboratory using a dissecting scope where necessary. Plant specimens difficult to identify were sent to botanist Margriet Wetherwax (U.C. Berkeley Jepson Herbarium). Tim Nosal holds CDFW Plant Voucher Specimen Permit 2081(a)-16-102-V. Taxonomic determinations were facilitated by referencing museum specimens or by various texts, including the following: Powell and Hogue (1979); Pavlik (1991); (1993); Brenzel (2012); Stuart and Sawyer (2001); Lanner (2002); Sibley (2003); Baldwin et al. (2012); Calflora (2020); CDFW (2020b,c); NatureServe 2020; and University of California at Berkeley (2020a,b).

The locations of any special-status species sighted were marked on aerial photographs and/or georeferenced with a geographic positioning system (GPS) receiver. Habitat types occurring in the Study Area were mapped on aerial photographs, and information on habitat conditions and the suitability of the habitats to support special-status species was also recorded. The Study Area was also informally assessed for the presence of potentially-jurisdictional water features, including riparian zones, isolated wetlands and vernal pools, and other biologically-sensitive aquatic habitats

3.3. MAPPING AND OTHER ANALYSES

Locations of species' occurrences and habitat boundaries within the Study Area were digitized to produce the final habitat maps. The boundaries of potentially jurisdictional water resources within the Study Area were identified and measured in the field, and similarly digitized to calculate acreage and to produce informal delineation maps. Geographic analyses were performed using geographical information system software (ArcGIS 10, ESRI, Inc.). Vegetation communities (assemblages of plant species growing in an area of similar biological and environmental factors), were classified by Vegetation Series (distinctive associations of plants, described by dominant species and particular environmental setting) using the CNPS Vegetation Classification system (Sawyer and Keeler-Wolf, 1995). Informal wetland delineation methods consisted of an abbreviated, visual assessment of the three requisite wetland parameters (hydrophytic vegetation, hydric soils, hydrologic regime) defined in the US Army Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1987). Wildlife habitats were classified according to the CDFW's California Wildlife Habitat Relationships System (CDFW, 2020c). Species' habitat requirements and life histories were identified using the following sources: Baldwin et al. (2012); CNPS (2020), Calflora (2020); CDFW (2020a,b,c); and University of California at Berkeley (2020a,b).

4. RESULTS

4.1. INVENTORY OF FLORA AND FAUNA FROM FIELD SURVEY

All plants detected during the field survey of the Study Area are listed in Appendix 2. The following animals were detected within the Study Area during the field survey: northern Pacific treefrog (*Pseudacris regilla*); sharp-tailed snake (*Contia tenuis*); Botta's pocket gopher (*Thomomys bottae*); Columbian black- tailed deer (*Odocoileus hemionus columbianus*); coyote (*Canis latrans*); acorn woodpecker (*Melanerpes formicivorus*); American robin (*Turdus migratorius*); Anna's hummingbird (*Calypte anna*); common raven (*Corvus corax*); dark-eyed junco (*Junco hyemalis*); pileated woodpecker (*Dryocopus pileatus*); red breasted nuthatch (*Sitta canadensis*); red-shouldered hawk (*Buteo lineatus*); spotted towhee (*Pipilo maculatus*); Stellar's jay (*Cyanocitta stelleri*); and common songbirds.

4.2. VEGETATION COMMUNITIES AND WILDLIFE HABITAT TYPES

4.2.1. *Terrestrial Vegetation Communities*

General vegetation communities occurring in the Study Area were mapped (see Exhibits). More specifically, the following terrestrial natural communities occur in the Study Area (as categorized by CDFW 2019):

- 87.010.00 *Pinus ponderosa* (Ponderosa Pine Forest)
- 37.101.10 *Adenostoma fasciculatum – Ceanothus cuneatus* (Chamise chaparral)
- 42.020.03 *Elymus caput-medusae* (Medusahead grassland)
- 45.560.00 *Juncus* sp. (Rush marshes)

These vegetation communities are discussed here and are delineated in the Exhibits.

Ponderosa Pine Forest. Much of the Study Area is characterized by forest habitat, dominated by ponderosa pine (*Pinus ponderosa*) with California black oak (*Quercus kelloggii*) also prominent. Numerous additional tree species were observed sharing the canopy including Douglas-fir (*Pseudotsuga menziesii*), knobcone pine (*Pinus attenuata*), sugar pine (*Pinus lambertiana*), canyon live oak (*Quercus chrysolepis*), interior live oak (*Quercus wislizeni*) and California bay (*Umbellularia californica*). The understory was highly variable, with little vegetation where the canopy was dense, and shrubs and grasses common where openings were found. Typical understory plants include common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), poison-oak (*Toxicodendron diversilobum*), California fescue (*Festuca californica*), hedgehog dogtail grass (*Cynosurus echinoides*), blue wildrye (*Elymus glaucus*), sweet pea (*Lathyrus* sp.) and wavy leaved soap plant (*Chlorogalum pomeridianum*). This vegetation can be classified as "87.010.00 *Pinus ponderosa* (Ponderosa Pine Forest) (CDFW 2019)" or as the Holland Type "Upland Coast Range Ponderosa Pine Forest".

Chaparral (Chamise): Habitat dominated by evergreen shrubs is found within a small region along the western edge of the Study Area. The warm west-facing slopes are vegetated with chamise (*Adenostoma fasciculatum*) as the dominant shrub with California scrub oak (*Quercus berberidifolia*) and wedge leaf ceanothus (*Ceanothus cuneatus*). The dense cover of the shrubs is not favorable to the growth of many herbs however, the following plants were observed in openings and along the edge of the chaparral: California fescue, bedstraw (*Galium* sp.), blue wildrye and spearleaf mountain dandelion (*Agoseris retrorsa*). This type of chaparral can be classified as "37.101.10 *Adenostoma fasciculatum – Ceanothus cuneatus*" (CDFW 2019) or as the Holland Type "Chamise chaparral".

Annual Grassland: The numerous openings within the ponderosa pine forest are vegetated with annual grassland habitat. This vegetation is comprised largely of non-native grasses and native

and non-native herbs including medusahead (*Elymus caput-medusae*), yellow star-thistle (*Centaurea solstitialis*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), fillaree (*Erodium* spp.), slender wild oat (*Avena barbata*) and clarkia (*Clarkia* sp.). This vegetation can be classified as the "87.010.00 42.020.03 *Elymus caput-medusae* (Medusahead grassland) (CDFW 2019)" or as the Holland Type "Non-native Grassland".

Freshwater Marsh: Four wetlands were observed within the Study Area. A wetland near the center of the parcel is supported by flow from a spring. The other three wetlands appear to be supported by seeps. Freshwater marsh vegetation is found downhill from the spring and each seep. The composition of the vegetation within each wetland is variable, but typically includes rush (*Juncus* sp.), coyote brush (*Baccharis pilularis*), hedge nettle (*Stachys ajugoides*), bull thistle (*Cirsium vulgare*) and stinging nettles (*Urtica dioica ssp. holosericea*). Willows (*Salix* sp.), giant chain fern (*Woodwardia fimbriata*) and California mugwort (*Artemisia douglasiana*) are present at the spring. This vegetation can be classified as "45.560.00 *Juncus* sp. (Rush marshes) (CDFW 2019)" or as the Holland Type "Coastal and Valley Freshwater Marsh".

4.2.2. *Wildlife Habitat Types*

Wildlife habitat types were classified using CDFW's Wildlife Habitat Relationship System. The Study Area contains the following wildlife habitat types: Montane Hardwood-Conifer; Montane Chaparral; Mixed Chaparral; Annual Grassland; Fresh Emergent Wetland.

4.2.3. *Critical Habitat and Special-status Habitat*

No special-status habitats were detected within the Study Area during the field survey. No critical habitat for any federally-listed species occurs within the Study Area. The CNDDB reported no special-status habitats within the Project Areas or Study Area. The CNDDB reported the following special-status habitats in a 10-mile radius outside of the Study Area: Clear Lake Drainage Cyprinid/ Catostomid Stream; Clear Lake Drainage Seasonal Lakefish Spawning Stream; Coastal and Valley Freshwater Marsh and Great Valley Mixed Riparian Forest.

4.2.4. *Habitat Plans and Wildlife Corridors*

Wildlife movement corridors link remaining areas of functional wildlife habitat that are separated primarily by human disturbance, but natural barriers such as rugged terrain and abrupt changes in vegetation cover are also possible. Wilderness and open lands have been fragmented by urbanization, which can disrupt migratory species and separate interbreeding populations. Corridors allow migratory movements and act as links between these separated populations.

No fishery resources exist in or near the Study Area. Although there are no designated wildlife corridors, the open space within the Study Area provides unrestricted animal movement. The Study Area is not located within any adopted Habitat Conservation Plan or Natural Community Conservation Plan.

4.3. LISTED SPECIES AND OTHER SPECIAL-STATUS SPECIES

For the purposes of this assessment, "special status" is defined to be species that are of management concern to state or federal natural resource agencies, and include those species that are:

- Listed as endangered, threatened, proposed, or candidate for listing under the Federal Endangered Species Act;
- Listed as endangered, threatened, rare, or proposed for listing, under the California Endangered Species Act of 1970;
- Designated as endangered or rare, pursuant to California Fish and Game Code (§1901);
- Designated as fully protected, pursuant to California Fish and Game Code (§3511, §4700, or §5050);
- Designated as a species of special concern by CDFW;

- Plants considered to be rare, threatened or endangered in California by the California Native Plant Society (CNPS); this consists of species on Lists 1A, 1B, and 2 of the CNPS Ranking System; or
- Plants listed as rare under the California Native Plant Protection Act.

4.3.1. *Reported Occurrences of Listed Species and Other Special-status Species*

A list of special-status plant and animal species that have occurred within the Study Area and vicinity was compiled based upon the following:

- Any previous and readily-available biological resource studies pertaining to the Study Area;
- Informal consultation with USFWS by generating an electronic Species List (Information for Planning and Conservation website at https://ecos.fws.gov/ipac/); and
- A spatial query of the CNDDB.

The CNDDB was queried and any reported occurrences of special-status species were plotted in relation to the Study Area boundary using GIS software (see exhibits). The CNDDB reported no special-status species occurrences within the Project Area or Study Area. Within a 10-mile buffer of the Study Area boundary, the CNDDB reported several special-status species occurrences, summarized in the following table.

A USFWS species list was generated online using the USFWS' IPaC Trust Resource Report System (see Appendix 1). This list is generated using a regional and/or watershed approach and does not necessarily indicate that the Study Area provides suitable habitat. The following listed species should be considered in the impact assessment:

- Mammals
  - Fisher (West Coast DPS) (*Pekania pennanti*) Proposed Threatened
- Birds
  - Northern Spotted Owl (*Strix occidentalis caurina*) Threatened
- Amphibians
  - California Red-legged Frog (*Rana draytonii*) Threatened
- Fishes
  - Delta Smelt (*Hypomesus transpacificus*) Threatened
- Flowering Plants
  - Burke's Goldfields (*Lasthenia burkei*) Endangered

Migratory birds should also be considered in the impact assessment.

Table 1. Special-status Species Reported by CNDDB in the Vicinity of the Study Area

Common Name Scientific Name	Status*	General Habitat	Microhabitat
Red-bellied newt *Taricha rivularis*	CSSC	Found in coastal woodlands and redwood forests along the coast of Northern California	A stream or river dweller. Larvae retreat into vegetation and under stones during the day.
Foothill yellow-legged frog *Rana boylii*	CCT/CSSC	Partly-shaded, shallow streams & riffles with a rocky substrate in a variety of habitats.	Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.
Double-crested cormorant *Phalacrocorax auritus*	WL	Colonial nester on coastal cliffs, offshore islands, & along lake margins in the interior of the state.	Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.
Great blue heron *Ardea herodias*		Colonial nester in tall trees, cliffsides, and sequestered spots on marshes.	Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.
Osprey *Pandion haliaetus*	WL	Ocean shore, bays, fresh-water lakes, and larger streams.	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT/CE	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.	Nests in riparian jungles of willow, often mixed with cottonwoods, w/ lower story of blackberry, nettles, or wild grape.
Tricolored blackbird *Agelaius tricolor*	CT/CSSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California.	Requires open water, protected nesting substrate, & foraging area with insect prey within a few km of the colony.
Clear Lake hitch *Lavinia exilicauda chi*	CT	Found only in Clear Lake, Lake Co, and associated ponds. Spawns in streams flowing into Clear Lake.	Adults found in the limnetic zone. Juveniles found in the nearshore shallow-water habitat hiding in the vegetation.
Sacramento perch *Archoplites interruptus*	CSSC	Historically found in the sloughs, slow- moving rivers, and lakes of the Central Valley.	Prefers warm water. Aquatic vegetation is essential for young. Tolerates wide range of physio-chemical water conditions.
Silver-haired bat *Lasionycteris noctivagans*	CSSC	Primarily a coastal & montane forest dweller feeding over streams, ponds & open brushy areas.	Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes & rarely under rocks. Needs drinking water.
Townsend's big-eared bat *Corynorhinus townsendii*	CSSC	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls & ceilings. Roosting sites limiting. Extremely

			sensitive to human disturbance.
Pallid bat *Antrozous pallidus*	CSSC	Deserts, grasslands, shrublands, woodlands & forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.
North American porcupine *Erethizon dorsatum*	CSSC	Coast ranges, Klamath Mountains, southern Cascades, Modoc Plateau, Sierra Nevada and Transverse Ranges.	Montane conifer and wet meadow habitats.
Humboldt marten *Martes caurina humboldtensis*	CE/CSSC	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County.	Associated with late-successional coniferous forests, prefer forests with low, overhead cover.
Fisher - West Coast DPS *Pekania pennanti*	CT/CSSC	Intermediate to large-tree stages of coniferous forests & deciduous-riparian areas with high percent canopy closure.	Uses cavities, snags, logs & rocky areas for cover & denning. Needs large areas of mature, dense forest.
American badger *Taxidea taxus*	CSSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Needs sufficient food, friable soils & open, uncultivated ground. Preys on burrowing rodents. Digs burrows.
Western pond turtle *Emys marmorata*	CSSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation, be	Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying

An isopod *Calasellus californicus*	CSSC	Known from Lake, Napa, Marin, Santa Cruz and Santa Clara Counties.	
Brownish dubiraphian riffle beetle *Dubiraphia brunnescens*	CSSC	Aquatic; known only from the NE shore of Clear Lake, Lake County.	Inhabits exposed, wave-washed willow roots.
Obscure bumble bee *Bombus caliginosus*	CSSC	Open grassy coastal prairies and Coast Range meadows. Nesting occurs underground as well as above ground in abandoned bird nests.	Food plants include *Ceanothus, Cirsium, Clarkia, Keckiella, Lathyrus, Lotus, Lupinus, Rhododendron, Rubus, Trifolium,* and *Vaccinium.*
Blennosperma vernal pool andrenid bee *Andrena blennospermatis*	CSSC	This bee is oligolectic on vernal pool Blennosperma.	Bees nest in the uplands around vernal pools.
Borax Lake cuckoo wasp *Hedychridium milleri*	CSSC	Endemic to Central California. Only collection is from the type locality.	External parasite of wasp and bee larva.
Big-scale balsamroot *Balsamorhiza macrolepis*	1B.2	Chaparral, valley and foothill grassland, cismontane woodland.	Sometimes on serpentine. 90-1555 m.
Small-flowered calycadenia *Calycadenia micrantha*	1B.2	Chaparral, valley and foothill grassland, meadows and seeps.	Rocky talus or scree; sparsely vegetated areas. Occasionally on roadsides; sometimes on serpentine. 5-1500 m.
Greene's narrow-leaved daisy *Erigeron greenei*	1B.2	Chaparral.	Serpentine and volcanic substrates, generally in shrubby vegetation. 80-1005 m.
Burke's goldfields *Lasthenia burkei*	FE/CE/1B.1	Vernal pools, meadows and seeps.	Most often in vernal pools and swales. 15-600 m.
Colusa layia *Layia septentrionalis*	1B.2	Chaparral, cismontane woodland, valley and foothill grassland.	Scattered colonies in fields and grassy slopes in sandy or serpentine soil. 145-1095m.
Bent-flowered fiddleneck *Amsinckia lunaris*	1B.2	Cismontane woodland, valley and foothill grassland.	50-500m.
Serpentine cryptantha *Cryptantha dissita*	1B.2	Chaparral.	Serpentine outcrops. 330-730m.
Mayacamas popcornflower *Plagiobothrys lithocaryus*	1A	Meadows? Valley and foothill grassland, cismontane woodland, chaparral?	Moist sites. 285-450m.
Watershield *Brasenia schreberi*	2B.3	Freshwater marshes and swamps.	Aquatic from water bodies both natural and artificial in California.

Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	1B.1	Chaparral, lower montane coniferous forest.	Rocky, serpentine sites. Slopes and ridges. 450-1000 m.
Konocti manzanita *Arctostaphylos manzanita ssp. elegans*	1B.3	Chaparral, cismontane woodland, lower montane coniferous forest.	Volcanic soils. 395-1615 m.
Anthony Peak lupine *Lupinus antoninus*	1B.2	Upper montane coniferous forest, lower montane coniferous forest.	Open areas with surrounding forest; rocky sites. 1220-2285 m.
Napa bluecurls *Trichostema ruygtii*	1B.2	Cismontane woodland, chaparral, valley and foothill grassland, vernal pools, lower montane coniferous forest.	Often in open, sunny areas. Also has been found in vernal pools. 30-590m.
Woolly meadowfoam *Limnanthes floccosa ssp. floccosa*	4.2	Chaparral, cismontane woodland, valley and foothill grassland, vernal pools.	Vernally wet areas, ditches, and ponds. 60-1335 m.
Glandular western flax *Hesperolinon adenophyllum*	1B.2	Chaparral, cismontane woodland, valley and foothill grassland.	Serpentine soils; generally found in serpentine chaparral. 150-1315 m.

Two-carpellate western flax *Hesperolinon bicarpellatum*	1B.2	Serpentine chaparral.	Serpentine barrens at edge of chaparral. 60-1005 m.
Marsh checkerbloom *Sidalcea oregana ssp. hydrophila*	1B.2	Meadows and seeps, riparian forest.	Wet soil of streambanks, meadows. 1100- 2300 m.
Brandegee's eriastrum *Eriastrum brandegeeae*	1B.1	Chaparral, cismontane woodland.	On barren volcanic soils; often in open areas. 425-840 m.
Tracy's eriastrum *Eriastrum tracyi*	3.2	Chaparral, cismontane woodland.	Gravelly shale or clay; often in open areas. 315-760 m.
Baker's navarretia *Navarretia leucocephala ssp. bakeri*	1B.1	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest.	Vernal pools and swales; adobe or alkaline soils. 5-1740 m.
Few-flowered navarretia *Navarretia leucocephala ssp. pauciflora*	FE/CT/1B.1	Vernal pools.	Volcanic ash flow, and volcanic substrate vernal pools. 400-855 m.
Rincon Ridge ceanothus *Ceanothus confusus*	1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland.	Known from volcanic or serpentine soils, dry shrubby slopes. 75-1065 m.
Bolander's horkelia *Horkelia bolanderi*	1B.2	Lower montane coniferous forest, chaparral, meadows, valley and foothill grassland.	Grassy margins of vernal pools and meadows. 450-1100 m.
Boggs Lake hedge- hyssop *Gratiola heterosepala*	CE/1B.2	Marshes and swamps (freshwater), vernal pools.	Clay soils; usually in vernal pools, sometimes on lake margins. 10-2375 m.
Indian Valley brodiaea *Brodiaea rosea*	CE/3.1	Closed cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland.	Serpentinite endemic. 335-1450 m
Eel-grass pondweed *Potamogeton zosteriformis*	2B.2	Marshes and swamps.	Ponds, lakes, streams. 0-1860 m.

*Definitions of Status Codes: FE = Federally listed as endangered; FT = Federally listed as threatened; FPE = Federally proposed for listing as endangered; FPT = Federally proposed for listing as threatened; FC = Candidate for Federal listing; MB = Migratory Bird Act; CE = California State listed as endangered; CT = California State listed as threatened; CSSC = California species of special concern; CR = California rare species; CFP = California fully protected species; CNPS (California Native Plant Society) List 1A = Plants presumed extinct in California by CNPS; CNPS List 1B = CNPS designated rare or endangered plants in California and elsewhere; and CNPS List 2 = CNPS designated rare or endangered plants in California, but more common elsewhere. Global Ranking: G1 = Critically Imperiled; G2 = Imperiled; G3 = Vulnerable. State Ranking: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable.
**Copied verbatim from CNDDB, unless otherwise noted.

4.3.2. Listed Species or Special-status Species Observed During Field Survey

During the field survey, no special-status species were detected within the Project Area or the surrounding Study Area.

4.3.3. *Potential for Listed Species or Special-status Species to Occur in the Study Area*

The non-native grasslands within the Study Area have a low potential for harboring special-status plant species due to the dominance of aggressive non-native grasses and forbs. Watercourses and wetlands within the Study Area have a low to moderate potential to sustain aquatic special-status species. The pine forest and chaparral habitats have a moderate potential to sustain special-status plant species.

4.4. POTENTIALLY-JURISDICTIONAL WATER RESOURCES

The USFWS National Wetland Inventory reported riverine water features within the Study Area (see Exhibits); these are ephemeral channels.

An informal assessment for the presence of potentially-jurisdictional water resources within the Study Area was also conducted during the field survey. For purposes of this biological site assessment, non- wetland waters were classified using the California Forest Practice Rules. The California Forest Practice Rules define a Class I watercourse as 1) a watercourse providing habitat for fish always or seasonally, and/or 2) providing a domestic water source; a Class II watercourse is 1) a watercourse capable of supporting non-fish aquatic species, or 2) a watercourse within 1000 feet of a watercourse that seasonally or always has fish present; a Class III watercourse is a watercourse with no aquatic life present and that shows evidence of being capable of transporting sediment to Class I and Class II waters during high water flow conditions.

The field survey determined that the Project Area does not contain any channels or wetlands. The following water features were detected within the larger Study Area during the field survey (see Exhibits):

- 3 unnamed ephemeral channels (Class III watercourses)
- wetlands in poorly drained areas of pasture
- 1 spring and adjacent wetlands

There are no vernal pools or other isolated wetlands in the Study Area.

5. IMPACT ANALYSES AND MITIGATION MEASURES

This section establishes the impact criteria, then analyzes potential Project-related impacts upon the known biological resources within the Study Area, and then suggests mitigation measures to reduce these impacts to a less-than-significant level.

5.1. IMPACT SIGNIFICANCE CRITERIA

The significance of impacts to biological resources depends upon the proximity and quality of vegetation communities and wildlife habitats, the presence or absence of special-status species, and the effectiveness of measures implemented to protect these resources from Project-related impacts. As defined by CEQA, the Project would be considered to have a significant adverse impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a special-status species in local or regional plans, policies, or regulations, or by USFWS or CDFW
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by USFWS or CDFW

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
- Conflict with any county or municipal policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved governmental habitat conservation plan.

5.2. IMPACT ANALYSIS

The following discussion evaluates the potential for Project-related activities to adversely affect biological resources. The Project boundaries were digitized and then overlaid on the habitat map using GIS to quantify potential impacts. Historical aerial photos were also analyzed for changes in land use.

5.2.1. *Potential Direct / Indirect Adverse Effects Upon Special-status Species*

- *Will the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

To establish the gardens, the annual grassland habitat will have to be removed and the areas graded. The non-native grasslands within the Study Area have a low potential for harboring special-status plant species due to the dominance of aggressive non-native grasses and forbs. During the field survey, no special-status species were detected within the Project Area or the surrounding Study Area. Therefore, project implementation is not expected to impact special-status species. If project implementation requires the removal of pine forest or chaparral habitats, which have a moderate potential to sustain special-status plant species, this would be a potentially significant impact.

Note that a PG&E transmission line crosses the Study Area. PG&E may require vegetation management activities such as tree removal as part of ongoing transmission line maintenance operations.

The Study Area contains suitable nesting habitat for various bird species because of the presence of trees and poles. However, no nests or nesting activity was observed in the project area during the field survey. Trees must be inspected for the presence of active bird nests before tree felling or ground clearing. If active nests are present in the project area during construction of the project, CDFW should be consulted to develop measures to avoid "take" of active nests prior to the initiation of any construction activities. Avoidance measures may include establishment of a buffer zone using construction fencing or the postponement of vegetation removal until after the nesting season, or until after a qualified biologist has determined the young have fledged and are independent of the nest site.

Recommended Mitigation Measures

If cannabis cultivation activities require the removal of pine forest or chaparral habitat, a rare plant (botanical) survey should be performed before vegetation clearing and grading are performed.

5.2.2. *Potential Direct / Indirect Adverse Effects Upon Special-status Habitats or Natural Communities or Corridors*

- *Will the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

The Study Area is not within any designated listed species' critical habitat. The Project Areas do not contain any special-status habitats. The surrounding Study Area contains special-status habitats: a spring, wetlands, and ephemeral channels. Project implementation will not directly impact any special- status habitats. Indirect impacts, such as increased sedimentation, are discusses in the next section.

Recommended Mitigation Measures

No mitigation is necessary.

5.2.3. *Potential Direct / Indirect Adverse Effects On Jurisdictional Water Resources*

- *Will the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

There are no water resources in the Project Areas. There are several water resources within the Study Area: a spring, wetlands, and ephemeral channels. Potential adverse impacts to water resources could occur during construction by modification or destruction of stream banks or riparian vegetation, the filling of wetlands, or by increased erosion and sedimentation in receiving water bodies due to soil disturbance. However, the cultivation areas have been designed to avoid watercourses. Because of these avoidance measures, no direct impacts to water resources are expected.

If the total area of ground disturbance from installation of the cultivation operation is 1 acre or more, the Cultivator must enroll for coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ). Implementation of a stormwater pollution prevention plan, and erosion control plan, along with regular inspections, will ensure that construction activities do not pollute receiving waterbodies.

Potential adverse impacts to water resources could occur during operation of cultivation activities resources by discharge of sediment or other pollutants (fertilizers, pesticides, human waste, etc.) into receiving waterbodies. However, the project proponent must file a Notice of Intent and enroll in Cannabis Cultivation Order WQ 2019-0007-DWQ. Compliance with this Order will ensure that cultivation operations will not significantly impact water resources by using a combination of Best Management Practices (BMPs), buffer zones, sediment and erosion controls, site management plans, inspections and reporting, and regulatory oversight.

Cultivators who enroll in the State Water Board's Waste Discharge Requirements for Cannabis Cultivation Order WQ 2019-0007-DWQ must comply with the Minimum Riparian Setbacks, as summarized in the following table. The Project would be considered to have a significant adverse impact on jurisdictional water resources if it would be non-compliant with these requirements. The minimum riparian setbacks apply to all land disturbance, cannabis cultivation activities, and facilities (e.g., material or vehicle storage, diesel powered pump locations, water storage areas, and chemical toilet placement). The proposed project is not compliant with the setback requirements of Cannabis Cultivation Order WQ 2019-0007-DWQ. Portions of the planned cultivation compounds may need to be relocated to comply

with this Order. It is recommended that a formal delineation of jurisdictional waters be performed before construction work, or ground disturbance, is performed near any wetland or drainage.

Minimum Riparian Setbacks

Common Name	Watercourse Class	Distance
Perennial watercourses, waterbodies (e.g. lakes, ponds), or springs	I	150 ft.
Intermittent watercourses or wetlands	II	100 ft.
Ephemeral watercourses	III	50 ft.
Man-made irrigation canals, water supply reservoirs, or hydroelectric canals that support native aquatic species	IV	Established riparian zone vegetation

Recommended Mitigation Measures

The locations and configurations of the cultivation compounds may need to be redesigned to comply with the setback requirements of the Cannabis Cultivation Order.

Note also that the Cannabis Cultivation Order requires that cannabis cultivators located on slopes greater than 30% and less than 50% must submit a Site Erosion and Sediment Control Plan to the Regional Water Board Executive Officer for any cannabis-related land development or alteration.

5.2.4. *Potential Impacts to Wildlife Movement, Corridors, etc.*

- *Will the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

Although no mapped wildlife corridors (such as the California Essential Habitat Connectivity Area layer in CNDDB) exist within or near the Study Area, the open space and the stream corridors in the Study Area facilitate animal movement and migrations. While the Study Area may be used by wildlife for movement or migration, the Project would not have a significant impact on this movement because it would not block movement and the majority of the open space in the Study Area would still be available.

Implementation of the proposed project would necessitate erection of security fences around the cultivation compounds. These fences do not allow animal movement and may act as a local barrier to wildlife movement. However, the fenced cultivation areas are surrounded by open space, allowing wildlife to move around these fenced areas. Thus, implementation of the proposed project is a less than significant impact upon wildlife movement. Implementation of the project will not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Recommended Mitigation Measures

No mitigation is necessary.

5.2.5. *Potential Conflicts With Ordinances, Habitat Conservation Plans, etc.*

- *Will the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

- *Will the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

Construction of the project does not appear to require the removal of trees protected by Lake County and CALFIRE. The project does not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or another approved governmental habitat conservation plan. The Study Area is not within the coverage area of any adopted Habitat Conservation Plan or Natural Community Conservation Plan.

Recommended Mitigation Measures

No mitigation is necessary.

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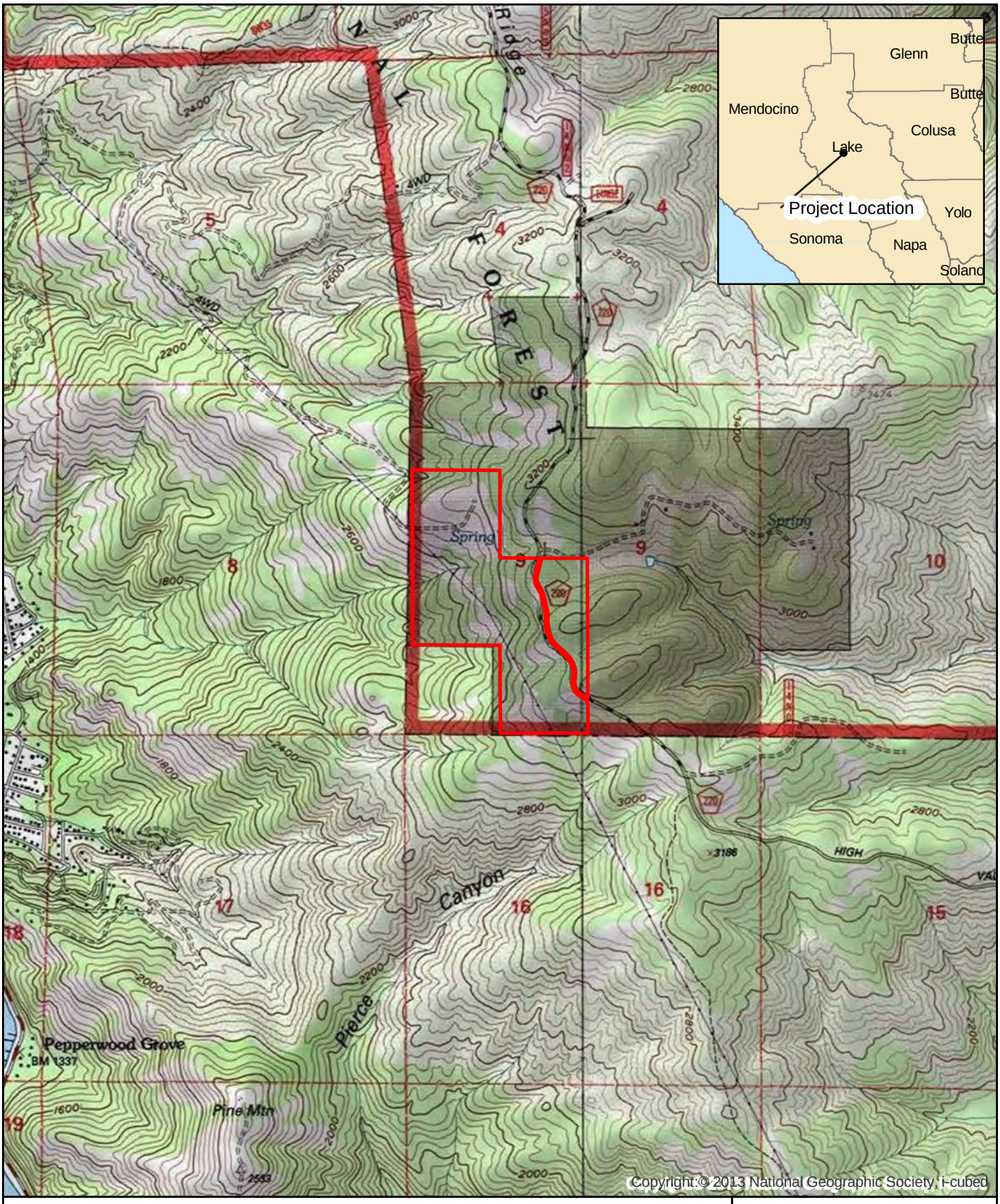
EXHIBITS



Parcel Location

0 0.5 1 Kilometers

0 0.5 1 Miles

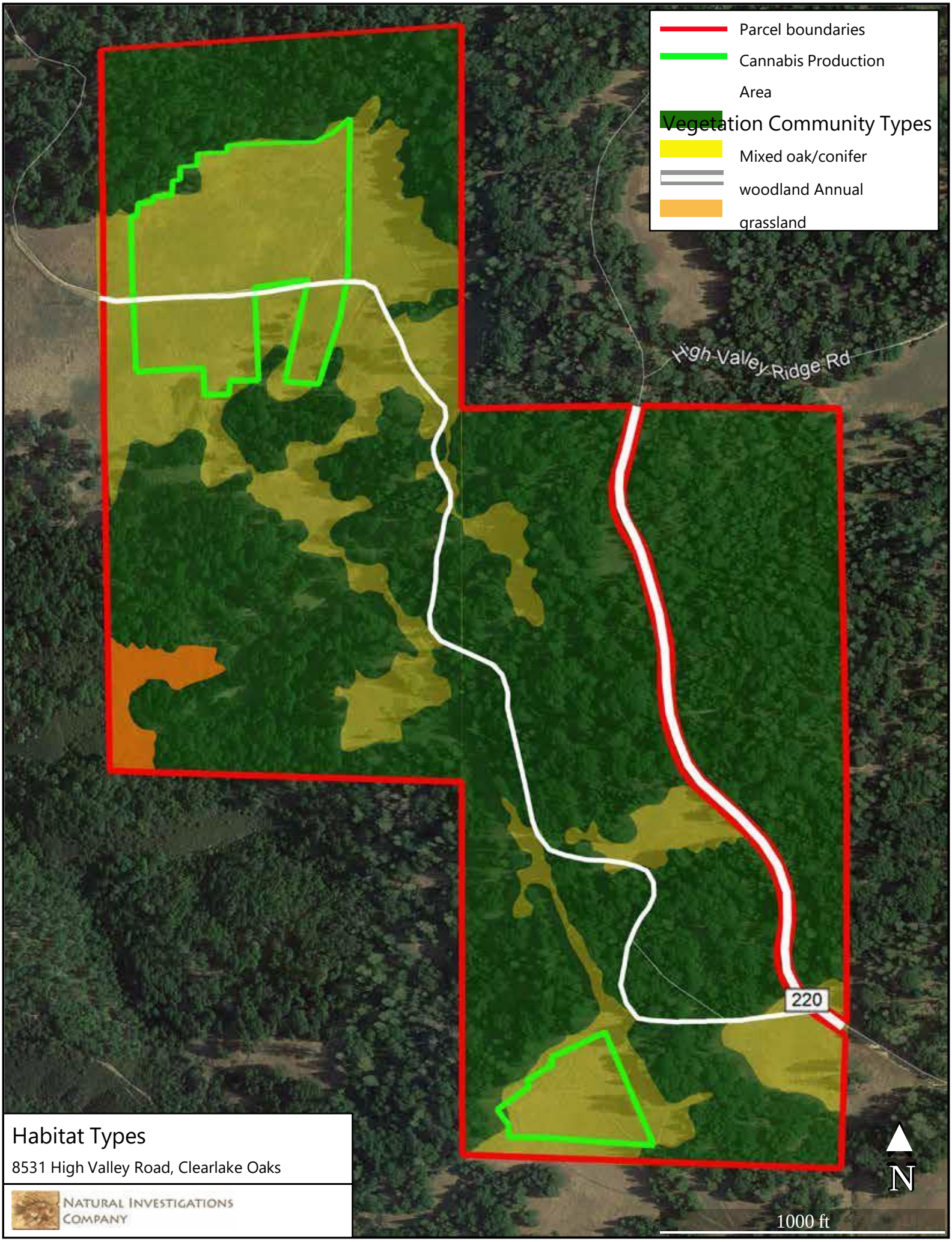
1:24,000

8531 High Valley Road
Parcel Location Map

NATURAL INVESTIGATIONS COMPANY

Map Date 3/14/2020

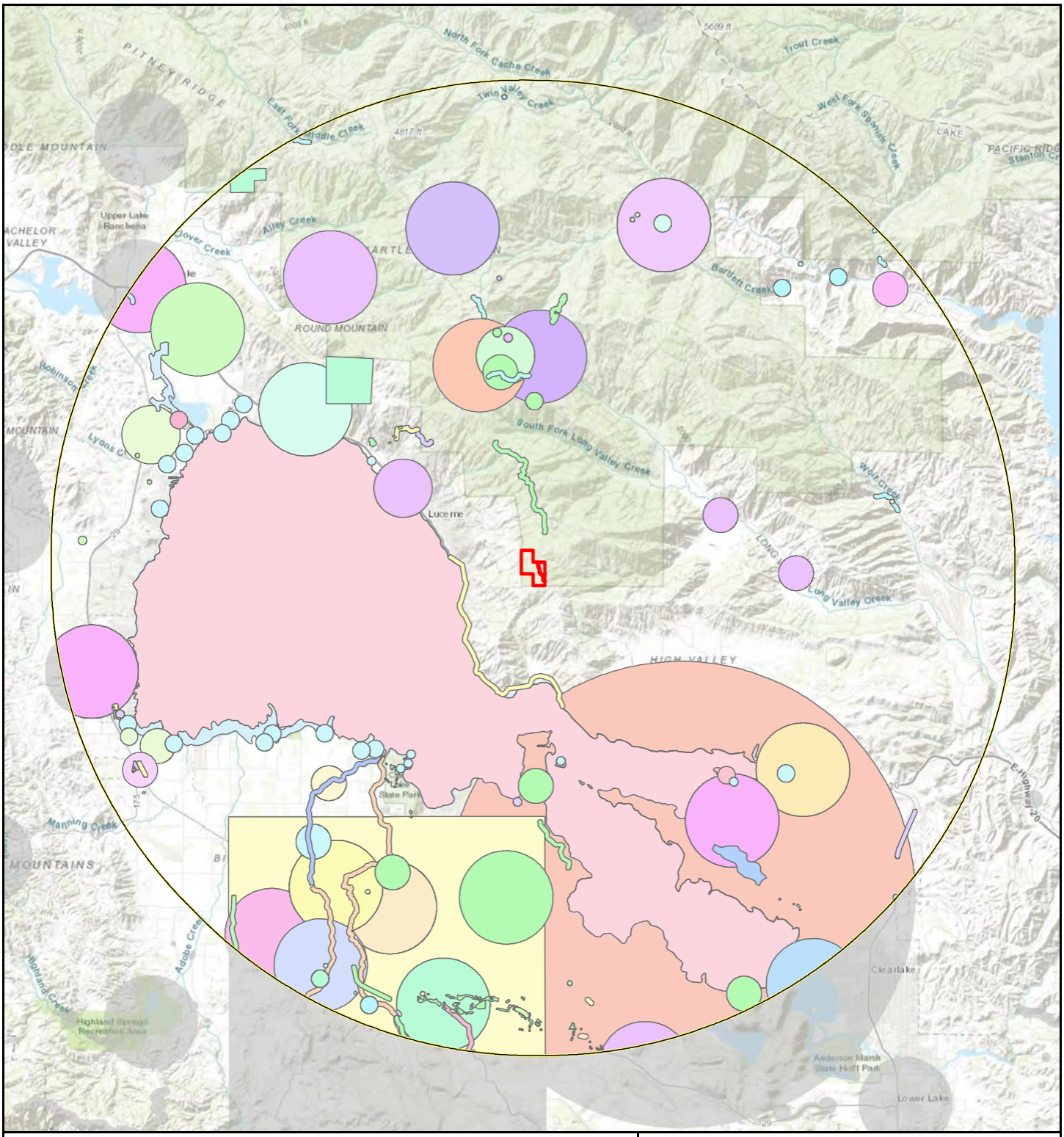
Clear Lake Oaks 1996 Quadrangle:Township 14N, Range 8W, Section 9 Lucerne 1996 Quadrangle:Township 14N, Range 8W, Section 9



Habitat Types

8531 High Valley Road, Clearlake Oaks

Natural Investigations Company



Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist inshowing features discussed in an attached document. Natural Investigations Company can not guarantee the accuracy and content of electronic files.The master file is stored by Natural Investigations Company and will serve as the official record of this communication.
3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.Data Sources: California Department of Fish and Wildlife. 2020. RareFind 5.x, California Natural Diversity Data Base. Biogeographic Data Branch, Sacramento, California.
(updated monthly by subscription service)

Special-Status Species Occurrences Map

8531 High Valley Road

Lucerne 1996 Quadrangle:Township 14N, Range 8W, Section 9
Clear Lake Oaks 1996 Quadrangle:Township 14N, Range 8W, Section 9

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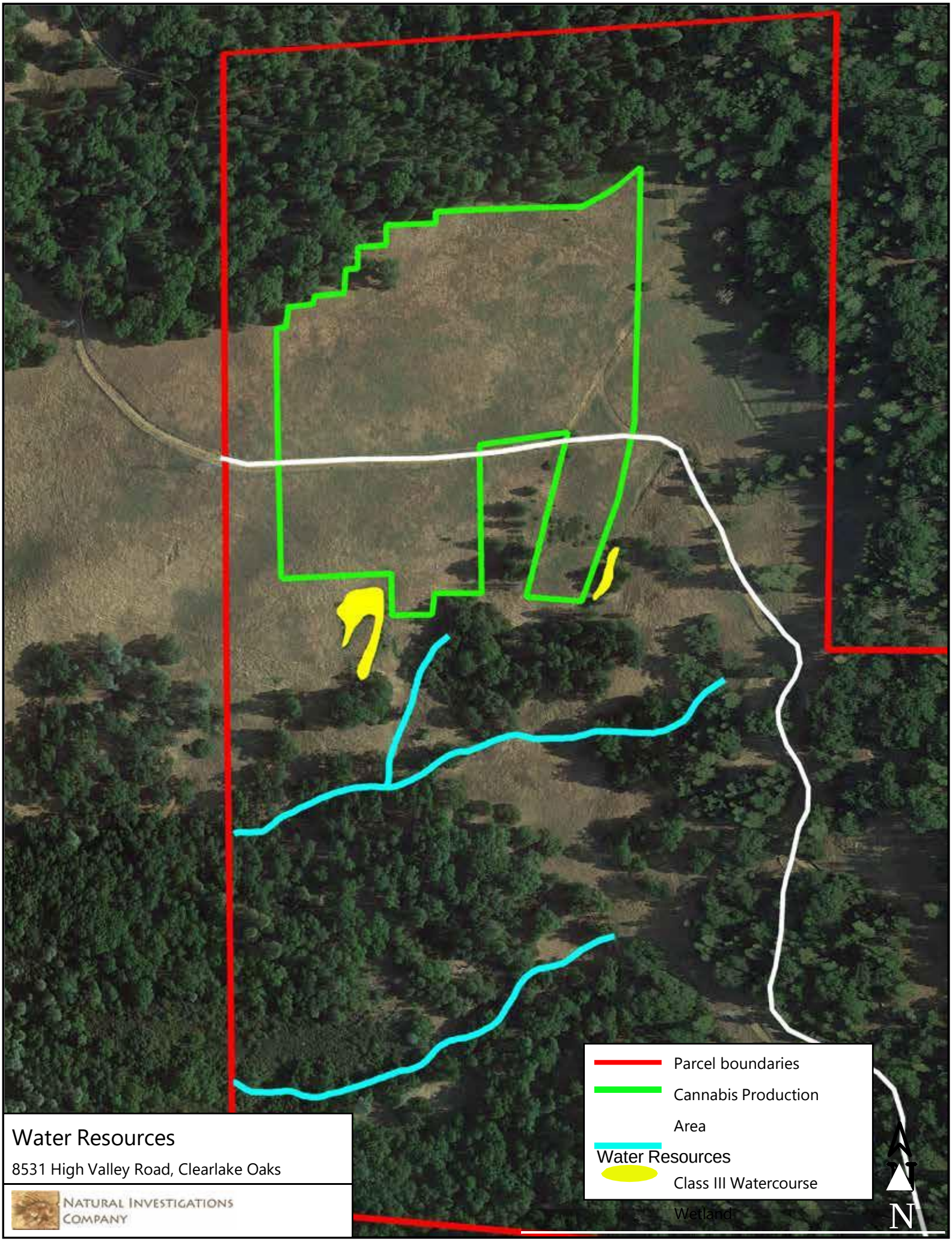
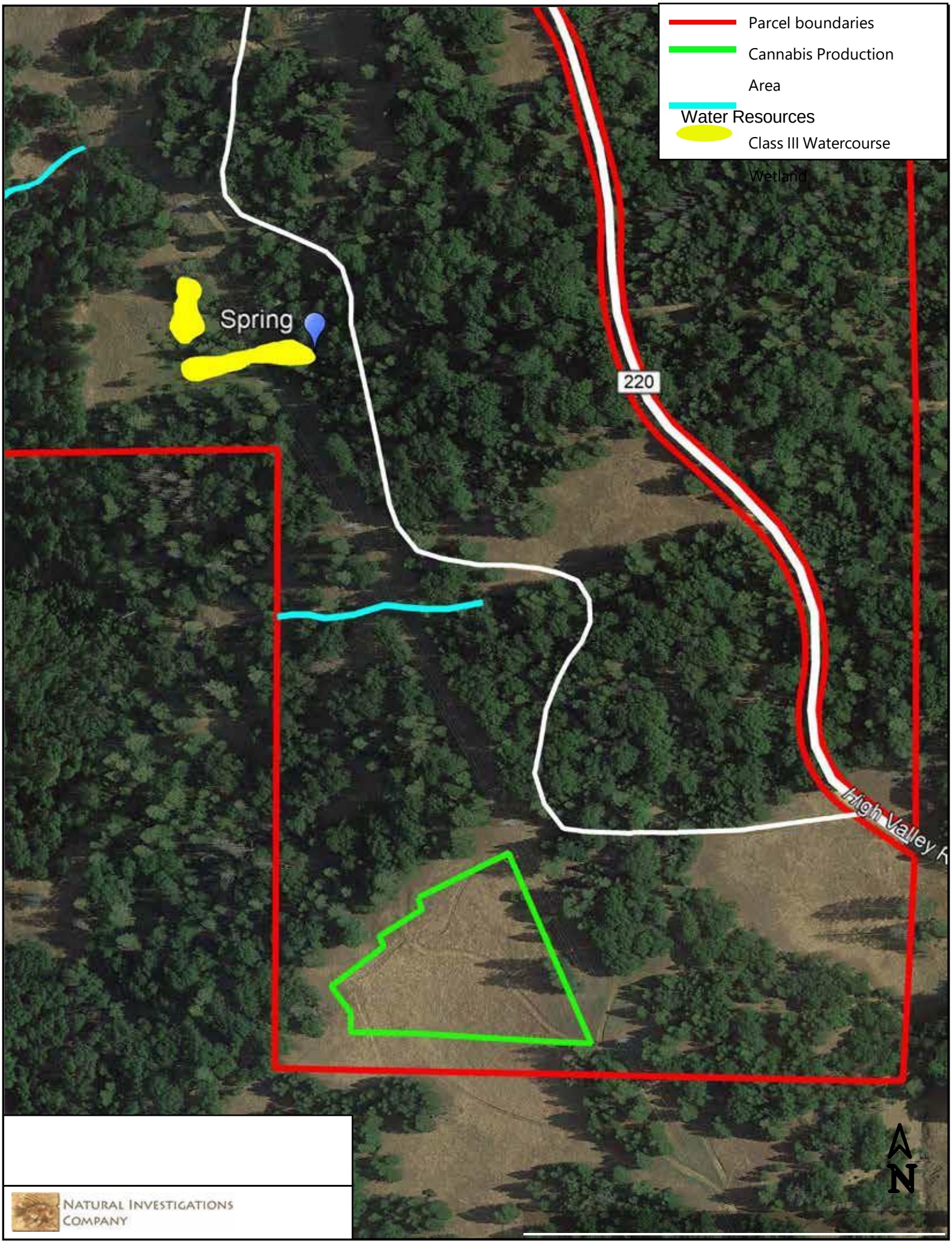
www.NaturalInvestigations.com



Water Resources

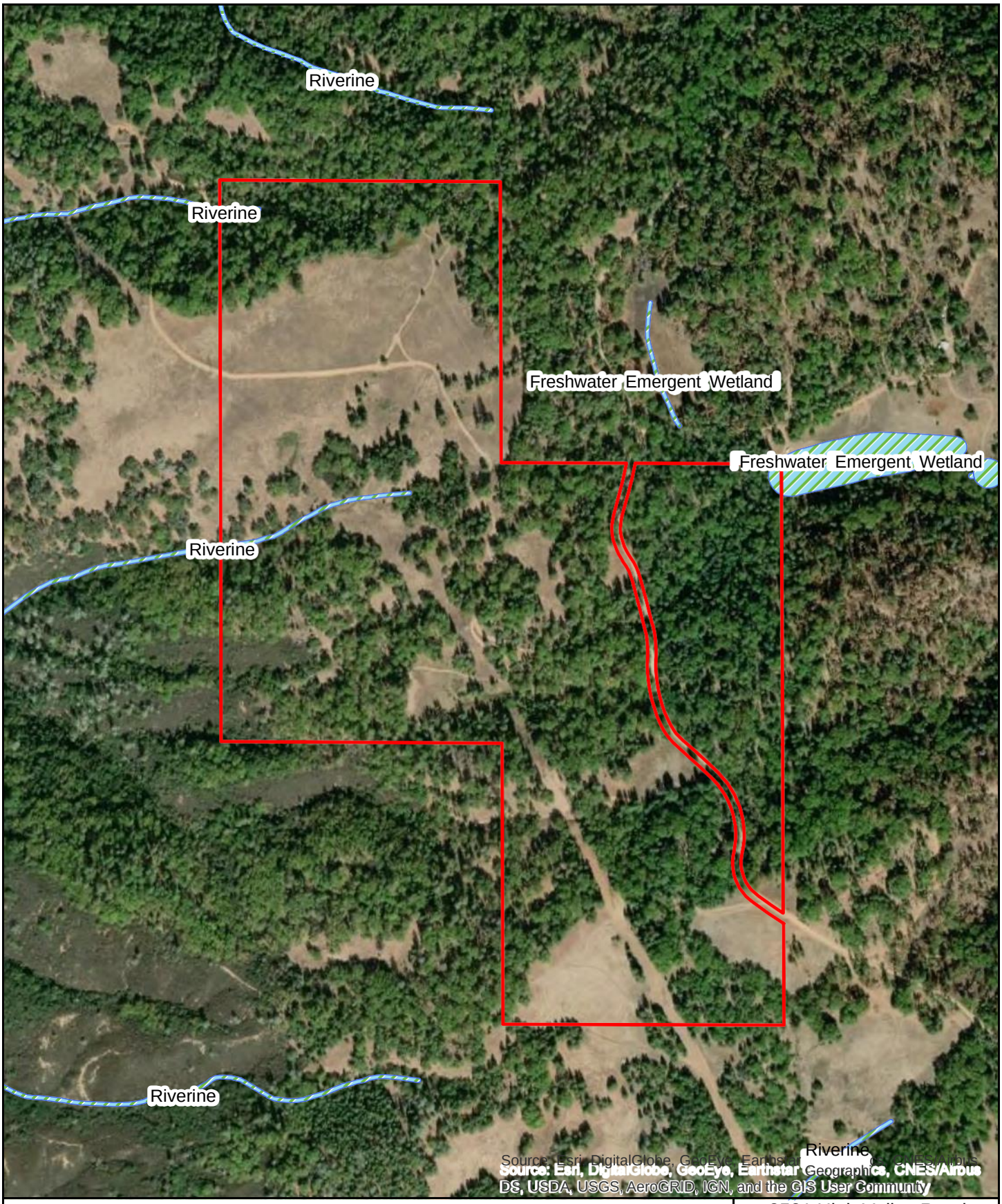
8531 High Valley Road, Clearlake Oaks

Natural Investigations Company


Parcel boundaries
Cannabis Production Area
Water Resources
Class III Watercourse
Wetland
Spring
220
High Valley R
N
Natural Investigations Company

Water Resources

8531 High Valley Road, Clearlake Oaks



Parcel Location

Wetlands and Channels

0 100 200 Meters

0 500 1,000 Feet

1:7,500

8531 High Valley Road
National Wetlands Inventory
Features Map

Natural Investigations Company

Map Date 3/14/2020

Clear Lake Oaks 1996 Quadrangle:Township 14N, Range 8W, Section 9 Lucerne 1996 Quadrangle:Township 14N, Range 8W, Section 9

APPENDIX 1: USFWS SPECIES LIST

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
Phone: (707) 822-7201 Fax: (707) 822-8411

In Reply Refer To: *March 14, 2020*
Consultation Code: 08EACT00-2020-SLI-0145 Event
Code: 08EACT00-2020-E-00443
Project Name: 8531 High Valley Road

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/ eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http:// www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http:// www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/ comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- *Official Species List*

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605 Sacramento, CA
95825-1846
(916) 414-6600

Project Summary

Consultation Code: *08EACT00-2020-SLI-0145*

Event Code: *08EACT00-2020-E-00443*

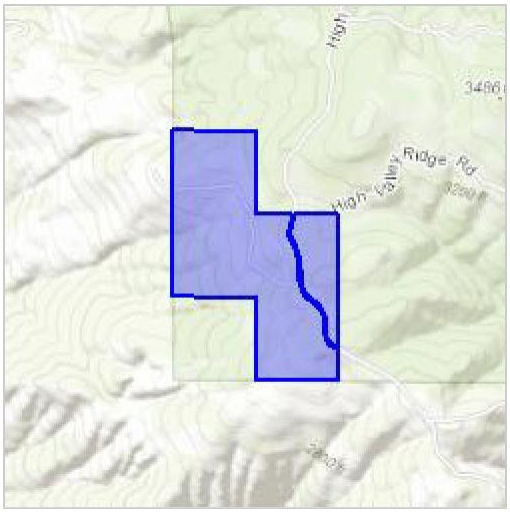
Project Name: *8531 High Valley Road*

Project Type: *** OTHER ****

Project Description: *Bio Assessment*

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/39.07651769687621N122.75661621045901W



Counties: *Lake, CA*

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. *NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.*

Mammals

NAME	STATUS
Fisher *Pekania pennanti* Population: West coast DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3651	*Proposed Threatened*

Birds

NAME	STATUS
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	*Threatened*

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	*Threatened*

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: *March 14, 2020*
Consultation Code: 08ESMF00-2020-SLI-1339 Event
Code: 08ESMF00-2020-E-04269
Project Name: 8531 High Valley Road

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/ eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http:// www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http:// www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/ comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- *Official Species List*

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605 Sacramento, CA
95825-1846
(916) 414-6600

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

Project Summary

Consultation Code: *08ESMF00-2020-SLI-1339*

Event Code: *08ESMF00-2020-E-04269*

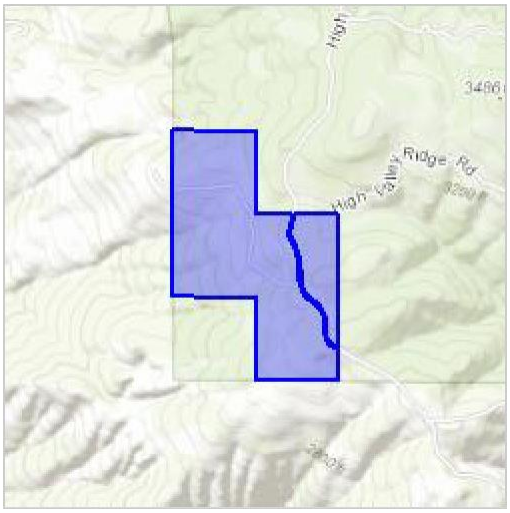
Project Name: *8531 High Valley Road*

Project Type: *** OTHER ***

Project Description: *Bio Assessment*

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/39.07651769687621N122.75661621045901W



Counties: *Lake, CA*

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. *NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.*

Birds

NAME	STATUS
Northern Spotted Owl *Strix occidentalis caurina*	*Threatened*

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1123

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii*	*Threatened*

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2891
Species survey guidelines:
https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus*	*Threatened*

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/321

Flowering Plants

NAME	STATUS
Burke's Goldfields *Lasthenia burkei*	*Endangered*

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4338

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

APPENDIX 2: CHECKLIST OF PLANTS DETECTED IN THE STUDY AREA

Appendix 2:
Plants Observed at 8531 High Valley Road, Clearlake Oaks on March 20, 2020

Common Name	**Scientific Name**
Yarrow	*Achillea millefolium*
Lotus	*Acmispon sp.*
Chamise	*Adenostoma fasciculatum*
Giant mountain dandelion	*Agoseris grandiflora*
Mallory's manzanita (CNPS List 4)	*Arctostaphylos malloryi*
Common manzanita	*Arctostaphylos manzanita ssp. manzanita*
California mugwort	*Artemisia douglasiana*
Narrowleaf milkweed	*Asclepias fascicularis*
Milkweed	*Asclepias sp.*
Lady fern	*Athyrium filix-femina*
Coyote brush	*Baccharis pilularis*
Winter cress	*Barbarea sp.*
Brodiaea	*Brodiaea sp.*
Ripgut brome	*Bromus diandrus*
Soft chess	*Bromus hordeaceus*
Mariposa lily	*Calochortus sp.*
Tolmie's star tulip	*Calochortus tolmiei*
Milk maids	*Cardamine californica*
Italian thistle	*Carduus pycnocephalus*
Wedge leaf ceanothus	*Ceanothus cuneatus*
Maltese star thistle	*Centaurea melitensis*
Yellow star thistle	*Centaurea solstitialis*
Sticky mouse-eared chickweed	*Cerastium glomeratum*
Western redbud	*Cercis occidentalis*
Bull thistle	*Cirsium vulgare*
Clarkia	*Clarkia sp.*
Miner's lettuce	*Claytonia parviflora*
Pacific hound's tongue	*Cynoglossum grande*
Hedgehog dogtail grass	*Cynosurus echinoides*
Medusahead	*Elymus caput-medusae*
Squirreltail grass	*Elymus elymoides*
Blue wildrye	*Elymus glaucus*
Naked buckwheat	*Eriogonum nudum*
California bedstraw	*Galium californicum*
Dove's foot geranium	*Geranium molle*
Hairy gumplant	*Grindelia hirsutula*
Toyon	*Heteromeles arbutifolia*
Large leather root	*Hoita macrostachya*
California horkelia	*Horkelia californica*
Klamath weed	*Hypericum perforatum*
Iris	*Iris sp.*
Rush	*Juncus sp.*
Prickly wild lettuce	*Lactuca serriola*
Whisker brush	*Leptosiphon ciliatus*
Narrowleaf cottonrose	*Logfia gallica*
Wooly fruited lomatium	*Lomatium dasycarpum*
Pink honeysuckle	*Lonicera hispidula*
Miniature lupine	*Lupinus bicolor*
Horehound	*Marrubium vulgare*

Daffodil	*Narcissus sp.*
Baby blue eyes	*Nemophila menziesii var. menziesii*
Goldback fern	*Pentagramma triangularis*
Knobcone pine	*Pinus attenuata*
Sugar pine	*Pinus lambertiana*
Ponderosa pine	*Pinus ponderosa*
Rusty popcorn flower	*Plagiobothrys nothofulvus*
California plantain	*Plantago erecta*
Henderson's shooting stars	*Primula hendersonii*
Douglas-fir	*Pseudotsuga menziesii*
Bracken	*Pteridium aquilinum*
California scrub oak	*Quercus berberidifolia*
Canyon live oak	*Quercus chrysolepis*
California black oak	*Quercus kelloggii*
Valley oak	*Quercus lobata*
Interior live oak	*Quercus wislizeni*
Oracle oak	*Quercus x morehus*
Western buttercup	*Ranunculus occidentalis*
Lemonade berry	*Rhus trilobata*
California rose	*Rosa californica*
Cut-leaf blackberry	*Rubus laciniatus*
Curly dock	*Rumex crispus*
Willow	*Salix sp.*
Blue elderberry	*Sambucus nigra var. caerulea*
Purple sanicle	*Sanicula bipinnatifida*
Bugle hedge nettle	*Stachys ajugoides*
Common snowberry	*Symphoricarpos albus var. laevigatus*
Tall sock destroyer	*Torilis arvensis*
Poison-oak	*Toxicodendron diversilobum*
Salsify	*Tragopogon porrifolius*
Pink clover	*Trifolium hirtum*
Clover	*Trifolium sp.*
California bay	*Umbellularia californica*
Stinging nettles	*Urtica dioica var. holosericea*
Common mullein	*Verbascum thapsus*
Giant chain fern	*Woodwardia fimbriata*
Centaury	*Zeltnera sp.*

APPENDIX 3: SITE PHOTOS









































































Appendix N: Wetland Site Assessment

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS
828 MISSION AVENUE, SAN RAFAEL, CA 94901 • 415.925.2000 • WWW.H-BGROUP.COM

April 15, 2021 Sent via Email

Mikel Alcantar, Chief Operations Officer
Intangible Paradise LLC
m_alcantar@outlook.com

Subject: Wetland Site Assessment at 8531 High Valley Road, Clearlake Oaks, Lake County, California

Dear Mr. Alcantar:

At the request of Intangible Paradise LLC, Huffman-Broadway Group, Inc. (HBG) conducted an Aquatic Resource Delineation (ARD) on a 51-acre portion of the 158-acre parcel located at 8531 High Valley Road in Clearlake Oaks, Lake County California (APN 006-003-34).

The purpose of the ARD was to do determine the presence or absence of aquatic resources that may be subject to: (1) State Water Resources Control Board (SWRCB) regulations under the Porter-Cologne Water Quality Control Act; (2) California Department of Fish and Wildlife (CDFW) under Fish and Game Code 1602; (3) and U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (US EPA) regulation under Section 404 of the Clean Water Act (CWA).

1.0 SCOPE OF WORK & GENERAL SITE DESCRIPTION

The aquatic resource delineation was conducted in accordance with the State Water Resources Control Board's State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (WOS) adopted April 2, 2019; Department of Defense Code of Federal Regulations (CFR) definitions of Waters of the U.S.[1] (WOUS), the Corps of Engineers Wetland Delineation Manual[2] (Corps 1987 Manual), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0[3] (Arid West Manual) and supporting USACE guidance documents[4].

The 51-acre Study Area encompasses the northwestern boundary of the 158-acre parcel. The topography is steep with slopes ranging from 10-50% and elevation of approximately 2,800 feet above mean sea level. The Study Area consists of a well-maintained dirt road and a PG&E

[1] Department of Defense, 1986
[2] US Army Corps of Engineers, 1987
[3] US Army Corps of Engineers, 2008
[4] US Army Corps of Engineers, 1992a, & 1992b

power line corridor that transects the property from southeast to northwest. Three small intermittent creeks drain north-west toward Clear Lake and one intermittent creek at the northwestern corner drains west toward Clear Lake. The Study Area supports two palustrine emergent wetlands near the western boundary and one palustrine emergent wetland and a riparian habitat in line with two of the intermittent creeks. A review of the Natural Resources Conservation Service (NRCS) soil survey maps for Lake County shows two soil types occurring in the Study Area. The majority of the Study Area consist of Millsholm-Squawrock-Pomo complex which is a well-drained soil found on 30 to 50 percent slopes. Along the eastern, southern, and northwestern boundary, soils are classified as Speaker-Marpa-Sanhedrin gravelly loams which are also well drained soils found on 30 to 50 percent slopes.

The latitude and longitude of the approximate center of the Study Area is 39.079660 N and -122.757532 W and encompasses U.S. Geological Survey (USGS) 7.5 min Mountain Clearlake Oaks (1996); and Lucerne (1996). Refer to Exhibit 1, Figure 1 for the USGS Topographic Map and Figure 2 for the Aquatic Resource Delineation Map. Refer to Exhibit 2 for the Wetland Determination Data Forms.

2.0 DELINEATION METHOD

The focus of HBG's investigation was to identify and map areas meeting the definition of wetlands and other WOUS and WOS. Data used to verify the extent and location of WOUS and WOS included: (1) high resolution aerial imagery; (2) USGS topographic survey data; (3) Biological Resources Assessment conducted by Natural Investigation Company, Inc. in 2020; (4) direct observations through ground truthing; and (5) collection of soil, vegetation, and hydrology field data. High resolution satellite imagery used in the analysis was sourced from Google Earth Pro. Point and polygon data was documented using a hand-held Trimble Geo XH Global Positioning System unit with sub-meter accuracy after geoprocessing and incorporated into an HBG project specific database using ESRI ArcGIS software. A detailed field study was conducted on April 9, 2021 to:

1. Determine if indicators of an Ordinary High Water Mark (OHWM) are present and document the location(s) of the OHWM along creeks;
2. Determine the presence or absence of wetland vegetation, hydric soil, and hydrology indicators of wetland conditions and determine if field indicators of wetland conditions may be "significantly disturbed" or "naturally problematic"; and
3. Determine the extent and location of any areas that may be considered "Riparian Habitat" outside of the OHWM of the creeks.

3.0 TECHNICAL FINDINGS

The following sections discuss hydrophytic vegetation, hydric soil, and wetland hydrology conditions observed at the Study Area during the field survey and indicators used to map the and OHWM. Wetland Determination Data Forms for the Arid West Region documenting this information are in Exhibit 2. Sample Point locations and the extent and location of aquatic resources are shown on Exhibit 1, Figure 2.

Soil, hydrology, and vegetation conditions were not significantly disturbed, conditions were not problematic, and normal circumstances were present.

Hydric Soils:
Soils found with hydric field indicators were a depleted mineral soil with prominent brownish redox concentrations along the pore lining and ped face. Soil texture varied from sandy loam to sandy clay loam. Within Sample Point 6 (SP-6) the hydric soil indicator was a depleted matrix (F3) with a matrix color of 10YR4/1 with 30% 7.5YR4/6 redoximorphic concentrations along the pore lining and ped face.


SP-6. 10YR4/1 with 30% 7.5YR4/6 redox concentrations

Wetland Hydrology & OHWM:
The Primary hydrology indicators identified in the wetlands were Sediment Deposits (B2). The source of the water is likely a combination of subsurface water table moving to the surface during the rainy season and direct precipitation. The subsurface water table is not supported by snow melt as there is no snow melt in this area. The duration of water is likely intermittent due to the absence of water observed this spring.

The OHWMs found within the creeks were scour along the banks, and drift deposits in the form of pine needles wrapped around rocks and fallen tree branches within the creeks. The OHWM averaged 2-3 feet wide. The source of the surface water is likely direct precipitation and is intermittent in duration due to the absence of surface water observed during the spring site visit.

Wetland Vegetation:
The Palustrine Emergent Wetland habitat was dominated by nearly 100% of a Juncus species, possibly *Juncus patens.* Other wetland indicator plants commonly found throughout the Study Area included pennyroyal (*Mentha pulegium*) and carex and juncus species. Vegetation found within the Riparian Habitat included willows (*Salix sp.*) California bay (*Umbellularia californica*) and poison oak (*Toxicodendron diversilobum*).

4.0 AQUATIC RESOURCES AND JURISDICTIONAL FINDINGS

This section presents the findings of this delineation with respect to the identification and geographic extent of habitat areas found that meet technical criteria as wetlands and /or other waters (e.g., creeks), and if those aquatic resources may be subject to USACE jurisdiction under CWA 404 as defined by the Final Rule, SCWB WOS, or are subject to FGC 1602.

Aquatic Resources were identified within the Study Area that met the criteria of a wetland and /or other waters (e.g., creeks). This determination is based on an analysis of the technical findings in Section 3.0, which describe the collective presence of hydric soil, wetland hydrology, and hydrophytic vegetation indicators as required by the Corps' 1987 Manual, the Arid West Manual, and USACE guidance documents. Wetlands were classified using the Federal Geographic Data Committee classification system. In addition, several intermittent creeks were identified based on indicators of an OHWM and presence of a well-defined bed and bank. Refer to Exhibit 1, Figure 2 for the Aquatic Resource Delineation Map, and Table 1 below for a summary of aquatic resources and acreages.

Table 1. Aquatic Resources Within the Study Area

FGDC Classification	Type of Surface Water Flow	Area (acres)
Palustrine Emergent Wetlands	Intermittent	0.11
Riverine / Intermittent Creeks[5]	Intermittent	0.10

The Palustrine Emergent Wetlands and Intermittent Creeks may be subject to regulations and USACE and US EPA under Section 404 of the CWA and SWRCB regulations. The Intermittent Creeks and abutting Riparian Habitat are subject to CDFW FGC 1602 and SWRCB regulations.

[5] FGDC classifies this water as a "riverine" but CDFW may classify it as an intermittent creek.

If you have any questions regarding this Wetland Site Assessment, please contact me at 415-385-4106 or rperrera@h-bgroup.com.

Sincerely,

Robert Perrer

Digitally signed by Robert F. Perrera

Date: 2021.04.15 12:51:49 -07'00'

Robert F. Perrera
Wetland Regulatory Scientist

Enclosures

Exhibit 1. Figures 1-2
Exhibit 2. Wetland Determination Data Forms

Cc
Mr. Meili Liu, Property Owner, meililiu369@gmail.com

REFERENCES

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Exhibit 1

Figures 1-2

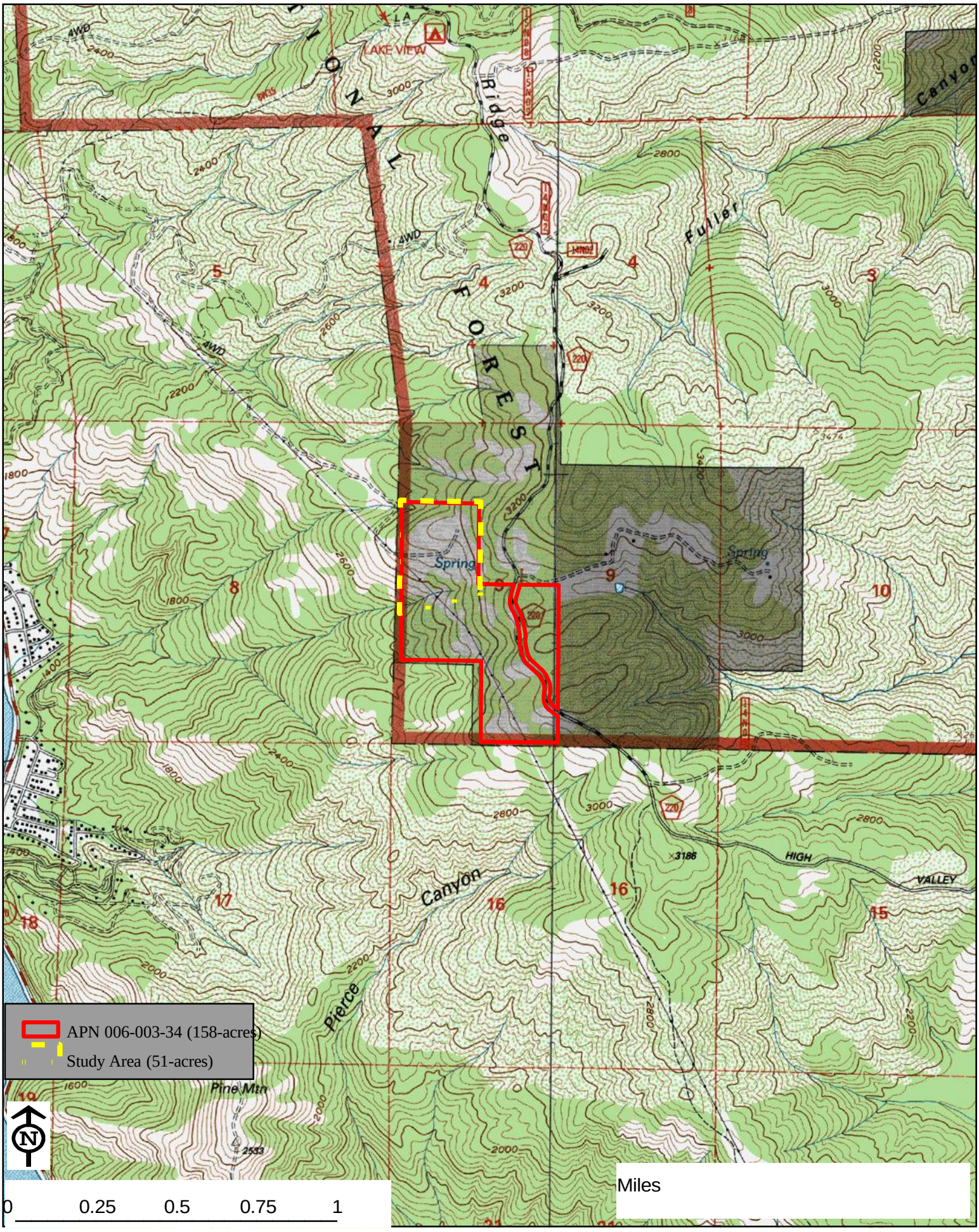

Figure 1. USGS Topographic Map
8531 High Valley Road, APN 006-003-34
Clearlake Oaks, Lake County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Basemap Source: USGS Quadrangle Maps Clearlake Oaks (1996); and Lucerne (1996)

Figure 1. USGS Topographic Map
8531 High Valley Road, APN 006-003-34
Clearlake Oaks, Lake County, California

Aerial Imagery: NAIP 2020

Figure 2. Aquatic Resourc

8531 High Valley Road, APN 006-003-34 Clearlake Oaks, Lake County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Exhibit 2.

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM -Arid West Region

ProjecVSite: 8531 High Valley Road Project City/County: Clearlake Oak/ Lake County Sampling Date: 4-9-2021

Applicant/Owner: Mikel Alcantar Intangible Paradise LLC / Meili Liu State: CA Sampling Point: SP-1

lnvestigator(s): Robert F. Perrera Section, Township, Range: N A----------

Landform (hillslope, terrace, etc.): Hills/Mountains Local relief (concave, convex, none): c=o n ca v e ---- Slope (%): __ 5_

Subregion (LRR): C - Mediterranean California Lat: 39.079487 Long: -122.756474 Datum: _N_A

Soil Map Unit Name: Millsholm-Squawrock-Pomo complex, 30 to 50 percent slopes Are NWI classification: ..;.N.;.;.A-'--------- (If

climatic *I* hydrologic conditions on the site typical for this time of year? Yes_:/_____ No _ no, explain in Remarks.)

Are Vegetation _ , Soil _ , or Hydrology _ significantly disturbed? Are "Normal Circumstances" present? Yes_{_____ No _

Are Vegetation _ , Soil _ , or Hydrology _ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ---	No - -	**Is the Sampled Area**
Hydric Soil Present?	Yes ---	No _ _	**within a Wetland?** **Yes ---** **No _ _**
Wetland Hydrology Present?	Yes ---	No - -	

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 3x3)	Absolute % Cover	Dominant S12ecies?	Indicator Status
1. Pinus ponderosa	50	Yes	FACU
2.			
3.			
4.			
	50 = Total Cover		
SaQling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3x3)			
1. Elymus glaucus	30	Yes	FACU
2. Cynosurus echinoides	4Q	Yes	UPL
3. Carex sp	20	Yes	FAC
4. Juncus sg possibly gatens	10	No	FACW
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum % Cover of Biotic Crust			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total% Cover of: MultiQly by:

OBL species x 1 =

FACW species x2=

FAC species x3=

FACU species x4=

UPL species x5=

Column Totals: (A) (B)

Prevalence Index =BIA=

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is :53.0[1]
- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes __** **No _ _**

Remarks:

3x3 sample due to the narrow width of the swale like feature.

SOIL Sampling Point: __ S P - 1 _

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Redox Features Color (moist)		Type[1]	Loc[2]	Texture	Remarks
0-4	10YR3L2		7.5YR4L6	_2___	C	**P_L_**	Sandy L	
4-13	7.5YR4L3	.2L_	7.5YR4L6	_2___	C	M	Sandy **L**	

[1]Tvpe: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _ Histosol (A1)
- _ Histic Epipedon (A2)
- _ Black Histic (A3)
- _ Hydrogen Sulfide (A4)
- _ Stratified Layers (A5) **(LRR C)**
- _ 1 cm Muck (A9) **(LRR D)**
- _ Depleted Below Dark Surface (A11)
- _ Thick Dark Surface (A12)
- _ Sandy Mucky Mineral (S1)
- _ Sandy Gleyed Matrix (S4)
- _ Sandy Redox (S5)
- _ Stripped Matrix (S6)
- _ Loamy Mucky Mineral (F1)
- _ Loamy Gleyed Matrix (F2)
- _ Depleted Matrix (F3)
- _ Redox Dark Surface (F6)
- _ Depleted Dark Surface (F7)
- _ Redox Depressions (F8)
- _ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- _ 1 cm Muck (A9) **(LRR C)**
- _ 2 cm Muck (A10) **(LRR B)**
- _ Reduced Vertie (F18)
- _ Red Parent Material (TF2)
- _ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes __ No _ _

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Prima!}'. Indicators (minimum of one reguired; check all that ai;ii;ily)

- _ Surface Water (A1)
- _ High Water Table (A2)
- _ Saturation (A3)
- _ Water Marks (B1) **(Nonriverine)**
- _ Sediment Deposits (B2) **(Nonriverine)**
- _ Drift Deposits (B3) **(Nonriverine)**
- _ Surface Soil Cracks (B6)
- _ Inundation Visible on Aerial Imagery (B7)
- _ Water-Stained Leaves (B9)
- _ Salt Crust (B11)
- _ Biotic Crust (B12)
- _ Aquatic Invertebrates (B13)
- _ Hydrogen Sulfide Odor (C1)
- _ Oxidized Rhizospheres along Living Roots (C3)
- _ Presence of Reduced Iron (C4)
- _ Recent Iron Reduction in Tilled Soils (C6)
- _ Thin Muck Surface (C7)
- _ Other (Explain in Remarks)

Seconda!Y Indicators (2 or more reguired)

- _ Water Marks (B1) **(Riverine)**
- _ Sediment Deposits (B2) **(Riverine)**
- _ Drift Deposits (B3) **(Riverine)**
- _ Drainage Patterns (B10)
- _ Dry-Season Water Table (C2)
- _ Crayfish Burrows (C8)
- _ Saturation Visible on Aerial Imagery (C9)
- _ Shallow Aquitard (D3)
- _ FAG-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes __ No_ _ Depth (inches):

Water Table Present? Yes __ No_:{_ Depth (inches):

Saturation Present? (includes capillary frinQe) Yes __ No_ _ Depth (inches):

Wetland Hydrology Present? Yes _ _ No _ _

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This is a short swale feature approx. 30 feet long with no signs of surface flows.

WETLAND DETERMINATION DATA FORM -Arid West Region

Project/Site: 8531 High Valley Road Project City/County: Clearlake Oak/ Lake County

Sampling Date: 4-9-2021 Applicant/Owner: Mikel Alcantar Intangible

Paradise LLC / Meili Liu State: CA Sampling Point: SP-2

lnvestigator(s): Robert E. Perrera Section, Township, Range: ...:N:..:.A.., _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): c o n=ca=v e

Hills/Mountains Subregion (LRR): C - Mediterranean California Lat: 39.079240 Long: -122.756792 Datum: _N_A-'----

Slope (%): _]Q__

Soil Map Unit Name: Millsholm-Squawrock-Pomo complex, 30 to 50 percent slopes NWI classification: -'-N'''A-'---------

Are climatic/ hydrologic conditions on the site typical for this lime of year? Yes __:f__ No _ (If no, explain in Remarks.)

Are Vegetation _, Soil _, or Hydrology _ significantly disturbed? Are "Normal Circumstances" present? Yes_ No _

Are Vegetation _, Soil _, or Hydrology _ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophylic Vegetation Present?	Yes _ _	No ___
Hydric Soil Present?	Yes ___	No
Wetland Hydrology Present?	Yes ___	No _ _

Is the Sampled Area within a Wetland? Yes ___ No

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 1.)	Absolute % Cover	Dominant S12ecies?	Indicator Status
2.			
1. Juncus SQ. Qossibly Qatens	70	Yes	FACW
2. Centurea solstitialis	1Q	No	UPL
3. Elymus caOut-medusea	10	No	UPL
4. Unknown (had not flowered yet) 5.	5	No	FAC
6.			
7.			
8.			

= Total Cover

Sa12ling/Shrub Stratum (Plot size:)

1.
2.
3.
4.
5.

= Total Cover

Herb Stratum (Plot size: 3x3)

100 = Total Cover

Woody Vine Stratum (Plot size: 1.)

2.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multi[lly by:	
OBL species	x1=	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = BIA=

Hydrophytic Vegetation Indicators:

..:L Dominance Test is >50%

_ Prevalence Index is :53.0[1]

_ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be

SOIL Sampling Point: - S P- 2 -

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	_.?&_	Redox Features Color (moist)	_.?&_	_lyQL	Loc[2]	Texture	Remarks
0-12	7.SYR3L3	__22__	7.SYR4L6	_1___	C___	M__	Sandt **L**	
		--		----------				
		-----		----------				
		-----		----------				
		-----		----------				
		-------		----------				
		-----		----------				
		-----		----------				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _ Histosol (A1)
- _ Histic Epipedon (A2)
- _ Black Histic (A3)
- _ Hydrogen Sulfide (A4)
- _ Stratified Layers (A5) **(LRR C)**
- _ 1 cm Muck (A9) **(LRR D)**
- _ Depleted Below Dark Surface (A11)
- _ Thick Dark Surface (A12)
- _ Sandy Mucky Mineral (S1)
- _ Sandy Gleyed Matrix (S4)
- _ Sandy Redox (S5)
- _ Stripped Matrix (S6)
- _ Loamy Mucky Mineral (F1)
- _ Loamy Gleyed Matrix (F2)
- _ Depleted Matrix (F3)
- _ Redox Dark Surface (F6)
- _ Depleted Dark Surface (F7)
- _ Redox Depressions (F8)
- _ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- _ 1 cm Muck (A9) **(LRR C)**
- _ 2 cm Muck (A10) **(LRR B)**
- _ Reduced Vertie (F18)
- _ Red Parent Material (TF2)
- _ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No - -

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Prima!Y Indicators (minimum of one reguired; check all that atmly)

- _ Surface Water (A1)
- _ High Water Table (A2)
- _ Saturation (A3)
- _ Water Marks (B1) **(Nonriverine)**
- _ Sediment Deposits (B2) **(Nonriverine)**
- _ Drift Deposits (B3) **(Nonriverine)**
- _ Surface Soil Cracks (B6)
- _ Inundation Visible on Aerial Imagery (B7)
- _ Water-Stained Leaves (B9)
- _ Salt Crust (B11)
- _ Biotic Crust (B12)
- _ Aquatic Invertebrates (B13)
- _ Hydrogen Sulfide Odor (C1)
- _ Oxidized Rhizospheres along Living Roots (C3)
- _ Presence of Reduced Iron (C4)
- _ Recent Iron Reduction in Tilled Soils (C6)
- _ Thin Muck Surface (C7)
- _ Other (Explain in Remarks)

Seconda!Y Indicators *(2* or more reguired)

- _ Water Marks (B1) **(Riverine)**
- _ Sediment Deposits (B2) **(Riverine)**
- _ Drift Deposits (B3) **(Riverine)**
- _ Drainage Patterns (B10)
- _ Dry-Season Water Table (C2)
- _ Crayfish Burrows *(CB)*
- _ Saturation Visible on Aerial Imagery (C9)
- _ Shallow Aquitard (D3)
- _ FAG-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes __ No__.:{_ Depth (inches): Water Table Present? Yes __ No_ _ Depth (inches):

Saturation Present? (includes caoillarv frinae) Yes __ No__.:{_ Depth (inches):

Wetland Hydrology Present? Yes ___ No - -

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This a short swale feature, likely a head cut or slumping from previous wet years. NoOHWM.

WETLAND DETERMINATION DATA FORM -Arid West Region

Project/Site: 8531 High Valley Road Project City/County: Clearlake Oak/ Lake County

Sampling Date: 4-9-2021 Applicant/Owner: Mikel Alcantar Intangible

Paradise LLC / Mei Ii Liu State: CA Sampling Point: SP-3

lnvestigator(s): Robert F. Perrera Section, Township, Range: ..:.N A-' ----------

Landform (hillslope, terrace, ~~etc.):~~ Hills/Mountains Local relief (concave, convex, none): c o n ca v e Slope (%): _z_Q_

Subregion (LRR): C - Mediterranean California Lat: 39.079021 Long: - 122.756949 Datum: ..:..N.:..:.A..:.. _

Soil Map Unit Name: Millsholm-Squawrock-Pomo complex, 30 to 50 percent slopes NWI classification: ..:.N.:..cA_,_____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _ :f_____ No _ (If no, explain in Remarks.)

Are Vegetation _ , Soil _ , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes_

Are Vegetation _ , Soil _ , or Hydrology naturally problematic? :{_ No _ (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No _ _	**Is the Sampled Area within a Wetland?** **Yes ___** **No _ _**
Hydric Soil Present?	Yes ___	No _ _	
Wetland Hydrology Present?	Yes ___	No	
Remarks:			

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant S12ecies?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sagling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3x3)			
1. Juncus SQ. Qossibl':,l Qatens	30	Yes	FACW

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

2. Centurea solstitialis	3Q	No	UPL
3. Ely<mus ca12ut-medusea	30	No	UPL
4. Sedge SQ	10	No	FAC
5.			
6.			
7.			
8.			

100 = Total Cover

Woody Vine Stratum (Plot size:)

1.

2.

= Total Cover

% Bare Ground in Herb Stratum % Cover of Biotic Crust

Remarks:

3x3 sample due to the narrow width of the swale feature. The juncu be water stressed.

Prevalence Index =BIA=

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is :S3.0[1]
- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

s was not in a healthy state appeared to

SOIL Sampling Point: --=S,_P--=3'--_

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.SYR3L3	22	7.5YR4L6	1	C	M	Sandy L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Linina, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _ Histosol (A1)
- _ Histic Epipedon (A2)
- _ Black Histic (A3)
- _ Hydrogen Sulfide (A4)
- _ Stratified Layers (A5) **(LRR C)**
- _ 1 cm Muck (A9) **(LRR D)**
- _ Depleted Below Dark Surface (A11)
- _ Thick Dark Surface (A12)
- _ Sandy Mucky Mineral (S1)
- _ Sandy Gleyed Matrix (S4)
- _ Sandy Redox (S5)
- _ Stripped Matrix (S6)
- _ Loamy Mucky Mineral (F1)
- _ Loamy Gleyed Matrix (F2)
- _ Depleted Matrix (F3)
- _ Redox Dark Surface (F6)
- _ Depleted Dark Surface (F7)
- _ Redox Depressions (F8)
- _ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- _ 1 cm Muck (A9) **(LRR C)**
- _ 2 cm Muck (A10) **(LRR 8)**
- _ Reduced Vertie (F18)
- _ Red Parent Material (TF2)
- _ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _ _ No _ _

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primaey Indicators (minimum of one reguired; check all that aQQly)

- _ Surface Water (A1)
- _ High Water Table (A2)
- _ Saturation (A3)
- _ Water Marks (B1) **(Nonriverine)**
- _ Sediment Deposits (B2) **(Nonriverine)**
- _ Drift Deposits (B3) **(Nonriverine)**
- _ Surface Soil Cracks (B6)
- _ Inundation Visible on Aerial Imagery (B7)
- _ Water-Stained Leaves (B9)
- _ Salt Crust (B11)
- _ Biotic Crust (B12)
- _ Aquatic Invertebrates (B13)
- _ Hydrogen Sulfide Odor (C1)
- _ Oxidized Rhizospheres along Living Roots (C3)
- _ Presence of Reduced Iron (C4)
- _ Recent Iron Reduction in Tilled Soils (C6)
- _ Thin Muck Surface (C7)
- _ Other (Explain in Remarks)

Secondaey Indicators (2 or more required)

- _ Water Marks (B1) **(Riverine)**
- _ Sediment Deposits (B2) **(Riverine)**
- _ Drift Deposits (B3) **(Riverine)**
- _ Drainage Patterns (B10)
- _ Dry-Season Water Table (C2)
- _ Crayfish Burrows (C8)
- _ Saturation Visible on Aerial Imagery (C9)
- _ Shallow Aquitard (D3)
- _ FAG-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No _f___ Depth (inches):

Water Table Present? Yes ___ No _f_ Depth (inches):

Saturation Present? Yes ___ No _f_____ Depth (inches): /includes caoillarv frinae)

Wetland Hydrology Present? Yes _ _ No _ _

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This a short swale feature, likely head cut or slumping from previous wet years.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: 8531 High Valley Road Project City/County: Clearlake Oak/ Lake County Sampling Date: 4-9-2021

Applicant/Owner: Mikel Alcantar Intangible Paradise LLC / Mei Ii Liu State: CA Sampling Point: SP-4

lnvestigator(s): Robert E. Perrera Section, Township, Range: ...:N.:.:.A...,

Landform (hillslope, terrace, ~~etc.~~): Hills/Mountains Local relief (concave, convex, none): c=o n=ca v e ---- Slope (%): ---1Q

Subregion (LRR): C - Mediterranean California Lat: 39.079021 Long: - 122.756949 Datum: _N_A-'-----

Soil Map Unit Name: Millsholm-Squawrock-Pomo complex, 30 to 50 percent slopes NWI classification: ...:.N..:..:A-'---------

Are climatic/ hydrologic conditions on the site typical for this time of year? Yes _f_____ No __ (If no, explain in Remarks.)

Are Vegetation __, Soil __, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes_____

Are Vegetation _, Soil __, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No — —	**Is the Sampled Area within a Wetland?** **Yes ___** **No**
Hydric Soil Present?	Yes ___	No — —	
Wetland Hydrology Present?	Yes — —	No ___	

Remarks:

This is the headwater of what may have been in the past during average or above average rainfall or is currently forming over time an intermittent creek. The channel extends with signs of drift deposits/OHWM for approx. 100 liner feet from this point.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: SxS)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix sp	70	Yes	FAC
2.			
3.			
4.			
	= Total Cover		
SaQling/Shrub Stratum (Plot size: SxS)			
1. Umbellularia californica	5	Yes	FAC
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: SxS)			
1. Pteridium aguilinum	30	Yes	FACU
2. Cynosurus echinoides	2Q	Yes	UPL
3. Elymus caput-medusea	20	Yes	UPL
4. Mentha i;iulegium	10	No	OBL
5. Geranium sp	10	No	FAC
6.			
7.			
	-		

Dominance Test worksheet:

Number of Dominant That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (8)

Percent of Dominant Species That Are OBL, FACW, or FAC: 30 (A/8)

8.

1 0 0 = Total

Cover

Prevalence Index worksheet:

Total % Cover of: MultiQIY

by: OBL species x 1 =

FACW species x2=

FAC species x3=

FACU species _____ x4= _____

UPL species x5=

Column Totals: _____ (A) _____ (8)

Prevalence Index = 8/A = _____

Hydrophytic Vegetation Indicators:

_ Dominance Test is >50%

_ Prevalence Index is :53.0[1]

_ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Woody Vine Stratum (Plot size: SxS)

1. Toxicodendron diversilobum 20 Yes FACU

2.

_____ = Total Cover

Hydrophytic Vegetation Present? **No** _ _ **Yes** ___

% Bare Ground in Herb Stratum 10

% Cover of Biotic Crust _____ Remarks:

SOIL

Sampling Point: - SP --4 _

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	_%_	Redox Features Color (moist)	_%_	-..TulliL_	Loe'	Texture	Remarks
0-11	10YR3L2	2L	10YR3L6	_1	C	M	Sandy L	
11-13	NA	fil	NA		NL_	_lffi	i:1eebles	Hit a gravelLi:1eeble later
		---		----------				
		-----		----------				
		-----		----------				
		-----		----------				
		-----		----------				
		-----		----------				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lininq, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _ Histosol (A1)
- _ Histic Epipedon (A2)
- _ Black Histic (A3)
- _ Hydrogen Sulfide (A4)
- _ Stratified Layers (AS) **(LRR C)**
- _ 1 cm Muck (A9) **(LRR D)**
- _ Depleted Below Dark Surface (A11)
- _ Thick Dark Surface (A12)
- _ Sandy Mucky Mineral (S1)
- _ Sandy Gleyed Matrix (S4)
- _ Sandy Redox (S5)
- _ Stripped Matrix (S6)
- _ Loamy Mucky Mineral (F1)
- _ Loamy Gleyed Matrix (F2)
- _ Depleted Matrix (F3)
- _ Redox Dark Surface (F6)
- _ Depleted Dark Surface (F7)
- _ Redox Depressions (FS)
- _ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- _ 1 cm Muck (A9) **(LRR C)**
- _ 2 cm Muck (A10) **(LRR B)**
- _ Reduced Vertie (F18)
- _ Red Parent Material (TF2)
- _ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes __ No - -

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Prima[Y Indicators (minimum of one reguired; check all that ai;mly)

- _ Surface Water (A1)
- _ High Water Table (A2)
- _ Saturation (A3)
- _ Water Marks (B1) **(Nonriverine)**
- _ Sediment Deposits (B2) **(Nonriverine)**
- _ Drift Deposits (B3) **(Nonriverine)**
- _ Surface Soil Cracks (B6)
- _ Inundation Visible on Aerial Imagery (B7)
- _ Water-Stained Leaves (B9)
- _ Salt Crust (B11)
- _ Biotic Crust (B12)
- _ Aquatic Invertebrates (B13)
- _ Hydrogen Sulfide Odor (C1)
- _ Oxidized Rhizospheres along Living Roots (C3)
- _ Presence of Reduced Iron (C4)
- _ Recent Iron Reduction in Tilled Soils (C6)
- _ Thin Muck Surface (C7)
- _ Other (Explain in Remarks)

Seconda[Y Indicators (2 or more reguired)

- _ Water Marks (B1) **(Riverine)**
- _ Sediment Deposits (B2) **(Riverine)**
- _j_ Drift Deposits (B3) **(Riverine)**
- _i_ Drainage Patterns (B10)
- _ Dry-Season Water Table (C2)
- _ Crayfish Burrows (CS)
- _ Saturation Visible on Aerial Imagery (C9)
- _ Shallow Aquitard (03)
- _ FAG-Neutral Test (05)

Field Observations:

Surface Water Present? Yes __ No__:!__ Depth (inches):

Water Table Present? Yes __ No_ _ Depth (inches):

Saturation Present? (includes caoillarv frinqe) Yes __ No_ _ Depth (inches):

Wetland Hydrology Present? Yes — — No __

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This is the headwater of what may have been in the past, or is currently forming over time, an intermittent creek. The channel extends with signs of drift deposits/OHWM for approx. 100 liner feet downstream from this point. Approximately 10 feet wide at the sample point but then steepens and narrows to 3 feet wide.

WETLAND DETERMINATION DATA FORM -Arid West Region

Project/Site: 8531 High Valley Road Project City/County: Clearlake Oak/ Lake County

Sampling Date: 4-9-2021 Applicant/Owner: Mikel Alcantar Intangible

Paradise LLC / Meili Liu State: CA Sampling Point: SP-5

lnvestigator(s): Robert F. Perrera Section, Township, Range: .., N A..,

Landform (hillslope, terrace, ~~etc.):~~ Hills/Mountains Local relief (concave, convex, none): _____ Slope (%): _.2Q __ _c_o_n_v_ex

Subregion (LRR): C - Mediterranean California Lat: 39.078376 Long: - 122.758787 Datum: ...:.N.:..:.A - --

Soil Map Unit Name: Millsholm-Squawrock-Pomo complex, 30 to 50 percent slopes NWI classification: ...:.N.:..:.A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _f_____ No _ _____ (If no, explain in Remarks.)

Are Vegetation _, Soil _, or Hydrology _ significantly disturbed? Are "Normal Circumstances" present? Yes_ :[_ No _ (If needed, explain any answers in Remarks.)

Are Vegetation _, Soil _, or Hydrology _ naturally problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No	**Is the Sampled Area within a Wetland?** **Yes ___** **No**
Hydric Soil Present?	Yes ___	No	
Wetland Hydrology Present?	Yes ___	No — —	

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Si;iecies?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sai;iling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Ell[mus ca12ut-medusea	30	Yes	UPL
2. Centurea solstitialis	2Q	Yes	UPL
3. Cl[nosurus echinatus	10	No	UPL
4. Bromus hordeaceus	10	No	FACU
5. Erodium sp	5	No	FAC
6. Juncsu sp	10	No	FAC
7.			
8.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: \			
1.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total% Cover of:	Multii;ily by:
OBL species	xi=
FACW species	x2=
FAC species	x3=
FACU species	x4=
UPL species	x5=
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- Dominance Test is >50% Prevalence
- Index is :.3.0[1]
- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

SOIL Sampling Point: - S P- 5 _

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	-1YruL Loc[2]	Texture	Remarks
0-12	10YR4L3	.1QQ_				Sandy L	

[1]Tvpe: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Linino, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _ Histosol (A1)
- _ Histic Epipedon (A2)
- _ Black Histic (A3)
- _ Hydrogen Sulfide (A4)
- _ Stratified Layers (A5) **(LRR C)**
- _ 1 cm Muck (A9) **(LRR D)**
- _ Depleted Below Dark Surface (A11)
- _ Thick Dark Surface (A12)
- _ Sandy Mucky Mineral (S1)
- _ Sandy Gleyed Matrix (S4)
- _ Sandy Redox (S5)
- _ Stripped Matrix (S6)
- _ Loamy Mucky Mineral (F1)
- _ Loamy Gleyed Matrix (F2)
- _ Depleted Matrix (F3)
- _ Redox Dark Surface (F6)
- _ Depleted Dark Surface (F7)
- _ Redox Depressions (F8)
- _ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- _ 1 cm Muck (A9) **(LRR C)**
- _ 2 cm Muck (A10) **(LRR B)**
- _ Reduced Vertie (F18)
- _ Red Parent Material (TF2)
- _ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No - -

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Prima[Y Indicators (minimum of one reguired; check all that a[l[lly)

- _ Surface Water (A1)
- _ High Water Table (A2)
- _ Saturation (A3)
- _ Water Marks (B1) **(Nonriverine)**
- _ Sediment Deposits (B2) **(Nonriverine)**
- _ Drift Deposits (83) **(Nonriverine)**
- _ Surface Soil Cracks (86)
- _ Inundation Visible on Aerial Imagery (B7)
- _ Water-Stained Leaves (B9)
- _ Salt Crust (811)
- _ Biotic Crust (812)
- _ Aquatic Invertebrates (813)
- _ Hydrogen Sulfide Odor (C1)
- _ Oxidized Rhizospheres along Living Roots (C3)
- _ Presence of Reduced Iron (C4)
- _ Recent Iron Reduction in Tilled Soils (C6)
- _ Thin Muck Surface (C7)
- _ Other (Explain in Remarks)

Seconda[Y Indicators *(2* or more required)

- _ Water Marks (81) **(Riverine)**
- _ Sediment Deposits (82) **(Riverine)**
- _ Drift Deposits (83) **(Riverine)**
- _ Drainage Patterns (810)
- _ Dry-Season Waler Table (C2)
- _ Crayfish Burrows (CS)
- _ Saturation Visible on Aerial Imagery (C9)
- _ Shallow Aquitard (D3)
- _ FAG-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes __ No _:{_ Depth (inches):

Water Table Present? Yes __ No_ _ Depth (inches):

Saturation Present? (includes capillary fringe) Yes __ No _:{_ Depth (inches):

Wetland Hydrology Present? Yes ___ No – –

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: 8531 High Valley Road Project City/County: Clearlake Oak/ Lake County

Sampling Date: 4-9-2021 Applicant/Owner: Mikel Alcantar Intangible

Paradise LLC / Mei Ii Liu State: CA Sampling Point: SP-6

lnvestigator(s): Robert F. Perrera Section, Township, Range: ..:..N A ---------- –

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope(%): __2Q

Hills/Mountains Subregion (LRR): C - Mediterranean California none/concave Lat: 39.078388 Long: - 122.758858 Datum: ..:..N.:..:.A-'------

Soil Map Unit Name: Millsholm-Squawrock-Pomo complex, 30 to 50 percent slopes Are climatic/ hydrologic conditions on the site typical for this time of year? Yes __L No _ NW! classification: ..:..N.:..:.A-'-'--------- (If no, explain in Remarks.)

Are , Soil _ , or Hydrology significantly Are "Normal Circumstances" present?

Vegetation _ , Soil _ , or Hydrology disturbed? Yes_:{_ No _ (If needed, explain any

Are naturally answers in Remarks.)

Vegetation _ problematic?

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No ___	**Is the Sampled Area within a Wetland?** **Yes** **No ___**
Hydric Soil Present?	Yes	No ___	
Wetland Hydrology Present?	Yes	No ___	

Remarks:

Coyote brush lined the boundary of this wetland seep

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant S1;2ecies?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sa1;2ling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Juncus SQ	100	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total% Cover of:	Multi1;2ly by:	
OBL species	x 1 =	
FACW species	x2=	
FAC species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

_:/ Dominance Test is >50%

_ Prevalence Index is :53.0[1]

8.	_ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
Woody Vine Stratum (Plot size: _____) 100 = Total Cover	_ Problematic Hydrophytic Vegetation[1] (Explain)
1.	[1]1ndicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
2.	
_____ = Total Cover	**Hydrophytic Vegetation Present?** **Yes** _ _ **No _ _**
% Bare Ground in Herb Stratum_____ % Cover of Biotic Crust _____	
Remarks:	

SOIL Sampling Point: S P - 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Redox Features %	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.5	10YR4L1						Sandy	color reflects garent material
0.5-8	10YR4L1		7.5YR4L6				Sandy L	grominent redox

[1]Tvoe: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Linina, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _ Histosol (A1)
- _ Histic Epipedon (A2)
- _ Black Histic (A3)
- _ Hydrogen Sulfide (A4)
- _ Stratified Layers (AS) **(LRR C)**
- _ 1 cm Muck (A9) **(LRR D)**
- _ Depleted Below Dark Surface (A11)
- _ Thick Dark Surface (A12)
- _ Sandy Mucky Mineral (S1)
- _ Sandy Gleyed Matrix (S4)
- _ Sandy Redox (SS)
- _ Stripped Matrix (S6)
- _ Loamy Mucky Mineral (F1)
- _ Loamy Gleyed Matrix (F2)
- _ Depleted Matrix (F3)
- _ Redox Dark Surface (F6)
- _ Depleted Dark Surface (F7)
- _ Redox Depressions (FS)
- _ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- _ 1 cm Muck (A9) **(LRR C)**
- _ 2 cm Muck (A10) **(LRR B)**
- _ Reduced Vertie (F18)
- _ Red Parent Material (TF2)
- _ Other (Explain in Remarks)

[3]1ndicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes _ _ No _ _ _

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Prima[Y Indicators (minimum of one reguired; check all that aQQly)

- _ Surface Water (A1)
- _ High Water Table (A2)
- _ Saturation (A3)
- _ Water Marks (B1) **(Nonriverine)**
- _ Sediment Deposits (B2) **(Nonriverine)**
- _ Drift Deposits (B3) **(Nonriverine)**
- _ Surface Soil Cracks (B6)
- _ Inundation Visible on Aerial Imagery (B7)
- _ Water-Stained Leaves (B9)
- _ Salt Crust (B11)
- _ Biotic Crust (B12)
- _ Aquatic Invertebrates (B13)
- _ Hydrogen Sulfide Odor (C1)
- _ Oxidized Rhizospheres along Living Roots (C3)
- _ Presence of Reduced Iron (C4)
- _ Recent Iron Reduction in Tilled Soils (C6)
- _ Thin Muck Surface (C7)
- _ Other (Explain in Remarks)

Seconda[Y Indicators (2 or more reguired)

- _ Water Marks (B1) **(Riverine)**
- _ Sediment Deposits (B2) **(Riverine)**
- _ Drift Deposits (B3) **(Riverine)**
- _ Drainage Patterns (B10)
- _ Dry-Season Water Table (C2)
- _ Crayfish Burrows (CS)
- _ Saturation Visible on Aerial Imagery (C9)
- _ Shallow Aquitard (03)
- _ FAG-Neutral Test (05)

Field Observations:

Surface Water Present? Yes _ _ No _ _ Depth (inches):

Water Table Present? Yes _ _ No _ [_ _ Depth (inches):

Saturation Present? (includes caoillarv frinael Yes _ _ No _ _ Depth (inches):

Wetland Hydrology Present? Yes _ _ No _ _ _

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -Arid West Region

Project/Site: 8531 High Valley Road Project City/County: Clearlake Oak/ Lake County Sampling Date: 4-9-2021

ApplicanUOwner: Mikel Alcantar Intangible Paradise LLC / Meili Liu State: CA Sampling Point: SP-7

lnvestigator(~~s~~): ~~Robert F.~~ Perrera Section, Township, Range: ''''''N A-'----------

Landform (hillslope, terrace, ~~etc.~~): ~~----~~ Hills/Mountains Local relief (concave, convex, none): - =c=o-""n.,_ve=x., Slope (%): _1Q_

Subregion (LRR): C- Mediterranean California Lat: 39.081094 Long: -122.757452 Datum: –

..:...N.c..A.c.... _ Soil Map Unit Name: Millsholm-Squawrock-Pomo complex, 30 to 50 percent slopes NW! classification: _N_A_____ __

Are climatic / hydrologic conditions on the site typical for this lime of year? Yes___}!_ No ___ (If no, explain in Remarks.)

Are Vegetation _	, Soil _	, or Hydrology _	significantly disturbed?	Are "Normal Circumstances" present? Yes _____{_ No _
Are Vegetation _	, Soil _	, or Hydrology _	naturally problematic?	(If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No _ _	**Is the Sampled Area within a Wetland?** **Yes ___ No**
Hydric Soil Present?	Yes ___	No _ _	
Wetland Hydrology Present?	Yes ___	No _ _	
Remarks:			

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 1.)	Absolute % Cover	Dominant S12ecies?	Indicator Status
2.			
3.			
4.			
	= Total Cover		
Sagling/Shrub Stratum (Plot size: 1.)			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: SxS)			
1. Elymus caQut-medusea	40	Yes	UPL
2. Centurea solstitialis	4Q	Yes	UPL
3. Bromus hordeaceus	20	Yes	UPL
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 1.)			
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species Thal Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species Thal Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total% Cover of:	Multigly by:
OBL species	x1=
FACW species	x2=
FAC species	x3=
FACU species	x4=
UPL species	x5=
Column Totals: (A)	(B)

Prevalence Index = BIA= _____

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is $3.0 [1]
- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophylic Vegelation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic

SOIL Sampling Point: __ S""P'---'-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	___..%_	Redox Features Color (moist)	___..%_____	Loc[2]	Texture	Remarks
0-12	10YR4L4	.1illL				Sand:i CL	Sand:i Cla:i Loam WL Pebbles
		---					and vel
		--.					

		-----					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _ Histosol (A1)
- _ Histic Epipedon (A2)
- _ Black Histic (A3)
- _ Hydrogen Sulfide (A4)
- _ Stratified Layers (A5) **(LRR C)**
- _ 1 cm Muck (A9) **(LRR D)**
- _ Depleted Below Dark Surface (A11)
- _ Thick Dark Surface (A12)
- _ Sandy Mucky Mineral (S1)
- _ Sandy Gleyed Matrix (S4)
- _ Sandy Redox (S5)
- _ Stripped Matrix (S6)
- _ Loamy Mucky Mineral (F1)
- _ Loamy Gleyed Matrix (F2)
- _ Depleted Matrix (F3)
- _ Redox Dark Surface (F6)
- _ Depleted Dark Surface (F7)
- _ Redox Depressions (F8)
- _ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- _ 1 cm Muck (A9) **(LRR C)**
- _ 2 cm Muck (A10) **(LRR B)**
- _ Reduced Vertie (F18)
- _ Red Parent Material (TF2)
- _ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No _ _

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Prima[Y Indicators (minimum of one reguired; check all that ai;mly)

- _ Surface Water (A1)
- _ High Water Table (A2)
- _ Saturation (A3)
- _ Water Marks (B1) **(Nonriverine)**
- _ Sediment Deposits (B2) **(Nonriverine)**
- _ Drift Deposits (B3) **(Nonriverine)**
- _ Surface Soil Cracks (B6)
- _ Inundation Visible on Aerial Imagery (B7)
- _ Water-Stained Leaves (B9)
- _ Salt Crust (B11)
- _ Biotic Crust (B12)
- _ Aquatic Invertebrates (B13)
- _ Hydrogen Sulfide Odor (C1)
- _ Oxidized Rhizospheres along Living Roots (C3)
- _ Presence of Reduced Iron (C4)
- _ Recent Iron Reduction in Tilled Soils (C6)
- _ Thin Muck Surface (C7)
- _ Other (Explain in Remarks)

Seconda[Y Indicators (2 or more required)

- _ Water Marks (B1) **(Riverine)**
- _ Sediment Deposits (B2) **(Riverine)**
- _ Drift Deposits (B3) **(Riverine)**
- _ Drainage Patterns (B10)
- _ Dry-Season Water Table (C2)
- _ Crayfish Burrows (CS)
- _ Saturation Visible on Aerial Imagery (C9)
- _ Shallow Aquitard (D3)
- _ FAG-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes __ No __:f__ Depth (inches):

Water Table Present? Yes __ No __:f__ Depth (inches):

Saturation Present? (includes capillary fringe) Yes __ No_ _ Depth (inches):

Wetland Hydrology Present? Yes ___ No _ _

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -Arid West Region

Project/Site: 8531 High Valley Road Project City/County: Clearlake Oak/ Lake County

Sampling Date: 4-9-2021 Applicant/Owner: Mikel Alcantar Intangible

Paradise LLC / Mei Ii Liu State: CA Sampling Point: SP-8

lnvestigator(s): Robert F. Perrera Section, Township, Range: _N_A

Landform (hillslope, terrace, etc.): Hills/Mountains Local relief (concave, convex, none): c=o n ve=x ---------- Slope (%): _j_Q_

Subregion (LRR): C - Mediterranean California Lat: 39.080122 Long: - 122.758743 Datum: -'-N""""A _

Soil Map Unit Name: Millsholm-Squawrock-Pomo complex, 30 to 50 percent slopes NWI classification: ""'N'''A-'-- ---------

Are climatic/ hydrologic conditions on the site typical for this time of year? Yes _L No _ (If no, explain in Remarks.)

Are Vegetation _ , Soil _ , or Hydrology _ significantly disturbed? Are "Normal Circumstances" present? Yes No _ naturally problematic? (If needed, explain any answers in Remarks.)

Are Vegetation _ , Soil _ , or Hydrology _

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No _ _	**Is the Sampled Area within a Wetland?** **Yes ___** **No**
Hydric Soil Present?	Yes ___	No _ _	
Wetland Hydrology Present?	Yes ___	No _ _	
Remarks:			

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Sgecies?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sagling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.	= Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Elymus caQut-medusea	40	Yes	UPL
2. Centurea solstitialis	4Q	Yes	UPL
3. Bromus hordeaceus	20	Yes	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAG: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAG: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multigly by:
OBL species	x1=
FACW species	x2=
FAG species	x3=
FACU species	x4= UPL
Column Totals: (A)	(B)
species	x5=

4.

5.

6.

7.

8.

Woody Vine Stratum (Plot size:) 100 = Total Cover

1.

2.

= Total Cover

% Bare Ground in Herb Stratum % Cover of Biotic Crust Remarks:

Prevalence Index = BIA=

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is :53.0
- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic **Vegetation Present?** **Yes** **No**

SOIL

Sampling Point: ---=S P- 8'--_

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Redox Features Color (moist)	Loc[2]	Texture	Remarks
0-12	10YR4/4			Sandy CL	Sandy Clay Loam w/ Pebbles and gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _ Histosol (A1)
- _ Histic Epipedon (A2)
- _ Black Histic (A3)
- _ Hydrogen Sulfide (A4)
- _ Stratified Layers (AS) **(LRR C)**
- _ 1 cm Muck (A9) **(LRR D)**
- _ Depleted Below Dark Surface (A11)
- _ Thick Dark Surface (A12)
- _ Sandy Mucky Mineral (S1)
- _ Sandy Gleyed Matrix (S4)
- _ Sandy Redox (SS)
- _ Stripped Matrix (S6)
- _ Loamy Mucky Mineral (F1)
- _ Loamy Gleyed Matrix (F2)
- _ Depleted Matrix (F3)
- _ Redox Dark Surface (F6)
- _ Depleted Dark Surface (F7)
- _ Redox Depressions (F8)
- _ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- _ 1 cm Muck (A9) **(LRR C)**
- _ 2 cm Muck (A10) **(LRR B)**
- _ Reduced Vertie (F18)
- _ Red Parent Material (TF2)
- _ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No _ _

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Prima[Y Indicators (minimum of one reguired; check all that aggly)

- _ Surface Water (A1)
- _ High Water Table (A2)
- _ Saturation (A3)
- _ Water Marks (81) **(Nonriverine)**
- _ Sediment Deposits (82) **(Nonriverine)**
- _ Drift Deposits (83) **(Nonriverine)**
- _ Surface Soil Cracks (86)
- _ Inundation Visible on Aerial Imagery (87)
- _ Water-Stained Leaves (89)
- _ Salt Crust (811)
- _ Biotic Crust (812)
- _ Aquatic Invertebrates (813)
- _ Hydrogen Sulfide Odor (C1)
- _ Oxidized Rhizospheres along Living Roots (C3)
- _ Presence of Reduced Iron (C4)
- _ Recent Iron Reduction in Tilled Soils (C6)
- _ Thin Muck Surface (C7)
- _ Other (Explain in Remarks)

Seconda[Y Indicators *(2* or more reguired)

- _ Water Marks (81) **(Riverine)**
- _ Sediment Deposits (82) **(Riverine)**
- _ Drift Deposits (83) **(Riverine)**
- _ Drainage Patterns (810)
- _ Dry-Season Water Table (C2)
- _ Crayfish Burrows (C8)
- _ Saturation Visible on Aerial Imagery (C9)
- _ Shallow Aquitard (D3)
- _ FAG-Neutral Test (DS)

Field Observations:

Surface Water Present? Yes __ No_ _ Depth (inches):

Water Table Present? Yes __ No _ *:f* __ Depth (inches):

Saturation Present? (includes caoillary frinae) Yes __ No_ _ Depth (inches):

Wetland Hydrology Present? Yes ___ No _ _

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM -Arid West Region

Project/Site: 8531 High Valley Road Project City/County: Clearlake Oak/ Lake County Sampling Date: 4-9-2021

Applicant/Owner: Mikel Alcantar Intangible Paradise LLC / Mei Ii Liu State: CA Sampling Point: SP-9

lnvestigator(s): Robert F. Perrera Section, Township, Range: N=A----------

Landform (hillslope, terrace, etc.): Hills/Mountains Local relief (concave, convex, none): c=o nv e=x ---- Slope (%): __ 5_

Subregion (LRR): C - Mediterranean California Lat: 39.0080765 Long: -122.756719 Datum: _N_A'----

Soil Map Unit Name: Millsholm-Squawrock-Pomo complex, 30 to 50 percent slopes NWI classification: -'-N=A-'---------

Are climatic *I* hydrologic conditions on the site typical for this time of year? Yes_{_ No __ (If no, explain in Remarks.)

Are Vegetation _ , Soil __ , or Hydrology __ significantly disturbed? Are "Normal Circumstances" present? Yes__{_____ No _

Are Vegetation __ , Soil __ , or Hydrology __ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _ _	No ---	**Is the Sampled Area within a Wetland?** **Yes ___** **No**
Hydric Soil Present?	Yes ___	No	
Wetland Hydrology Present?	Yes ___	No — —	

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Sgecies?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sagling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5x5)			
1. Juncus SQ gossible gatens	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAG: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAG: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multigly_ by:	
OBL species	x 1 =	
FACW species	x2=	
FAG species	x3=	
FACU species	x4=	
UPL species	x5=	
Column Totals: (A)		(B)

Prevalence Index = BIA=

Hydrophytic Vegetation Indicators:

_{_ Dominance Test is >50%

_ Prevalence Index is $3.0[1]

_ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes _ _** **No __**

Remarks:

Juncus patch appears to be water stressed

SOIL

Sampling Point: ---=S,_P---=9 _

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Redox Features Color (moist)	....TuruL	Loc[2]	Texture	Remarks
0-12	10YR4L4	..lQQ__			Sandy L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore LininQ, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- _ Histosol (A1)
- _ Histic Epipedon (A2)
- _ Black Histic (A3)
- _ Hydrogen Sulfide (A4)
- _ Stratified Layers (A5) **(LRR C)**
- _ 1 cm Muck (A9) **(LRR D)**
- _ Depleted Below Dark Surface (A11)
- _ Thick Dark Surface (A12)
- _ Sandy Mucky Mineral (S1)
- _ Sandy Gleyed Matrix (S4)
- _ Sandy Redox (S5)
- _ Stripped Matrix (S6)
- _ Loamy Mucky Mineral (F1)
- _ Loamy Gleyed Matrix (F2)
- _ Depleted Matrix (F3)
- _ Redox Dark Surface (F6)
- _ Depleted Dark Surface (F7)
- _ Redox Depressions (FS)
- _ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- _ 1 cm Muck (A9) **(LRR C)**
- _ 2 cm Muck (A10) **(LRR 8)**
- _ Reduced Vertie (F18)
- _ Red Parent Material (TF2)
- _ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No _ _

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primar.y Indicators (minimum of one reguired; check all that aQQly)

- _ Surface Water (A1)
- _ High Water Table (A2)
- _ Saturation (A3)
- _ Water Marks (B1) **(Nonriverine)**
- _ Sediment Deposits (B2) **(Nonriverine)**
- _ Drift Deposits (B3) **(Nonriverine)**
- _ Surface Soil Cracks (B6)
- _ Inundation Visible on Aerial Imagery (B7)
- _ Water-Stained Leaves (B9)
- _ Salt Crust (B11)
- _ Biotic Crust (B12)
- _ Aquatic Invertebrates (B13)
- _ Hydrogen Sulfide Odor (C1)
- _ Oxidized Rhizospheres along Living Roots (C3)
- _ Presence of Reduced Iron (C4)
- _ Recent Iron Reduction in Tilled Soils (C6)
- _ Thin Muck Surface (C7)
- _ Other (Explain in Remarks)

Secondar.y Indicators (2 or more reguired)

- _ Water Marks (B1) **(Riverine)**
- _ Sediment Deposits (B2) **(Riverine)**
- _ Drift Deposits (B3) **(Riverine)**
- _ Drainage Patterns (B10)
- _ Dry-Season Water Table (C2)
- _ Crayfish Burrows (CS)
- _ Saturation Visible on Aerial Imagery (C9)
- _ Shallow Aquitard (D3)
- _ FAG-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes __ No _f_ Depth (inches):

Water Table Present? Yes __ No _f_ Depth (inches):

Saturation Present? (includes capillary frinQe) Yes __ No_ _ Depth (inches):

Wetland Hydrology Present? Yes ___ No - -

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix O: Plant Survey

2021 Plant Survey for the Proposed 8531 High Valley Road Cannabis Cultivation Operation Town of Clearlake Oaks, Lake County, California

Prepared for:

Meili Liu, Owner
Liu Farm
2931 Schyler St.
Oakland CA, 94602

Prepared by:

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

828 Mission Avenue San
Rafael, CA 94901
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thuffman@h-bgroup.com

July 2021

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Citation: Huffman-Broadway Group, Inc. *2021 Plant Survey for the Proposed 8531 High Valley Road Cannabis Cultivation Operation Town of Clearlake Oaks, Lake County, California.* Prepared for Meili Liu, Owner. Liu Farm, 2931 Schyler St., Oakland CA, 94602. 17 pages plus Appendices. July 2021.

1.0 Introduction

Protocol surveys for special status plant species and sensitive natural communities were conducted by Huffman-Broadway Group, Inc. (HBG) during the spring and summer of 2021 for a proposed cannabis cultivation operation near the town of Clearlake Oaks, Lake County, California. Special status plant species and sensitive natural communities are defined as those listed by the:

1. Federal Endangered Species Act as endangered, threatened, or proposed or a candidate for listing.
2. California Endangered Species Act as endangered, threatened, rare, or proposed for listing, under the California Endangered Species Act of 1970.
3. California Native Plant Protection Act as rare.
4. California Department of Fish and Wildlife (CDFW) as a Species of Special Concern.
5. California Native Plant Society in Rank Categories 1A, 1B, or 2.
6. California Fish and Game Code (§1901) designated as endangered or rare, pursuant to the Code.
7. California Fish and Game Code (§3511, §4700, or §5050), designated as fully protected, pursuant to the Code.

Section 2.0 below provides a project description, location and biological setting, Section 3.0 discusses survey methodology, Section 4.0 describes survey results, and Section 5.0 provides an assessment of potential project impacts to special status species and sensitive natural communities.

2.0 Project Site Location and Description

2.1 Project Description

Kizzle Inc. is proposing a cannabis cultivation operation (Project) to be located within a 51.0- acre portion of Lake County, California land parcel APN 006-003-34 (158 acres). The objective of protocol plant surveys is to avoid special status plant species and sensitive natural communities if found present within the Project area. The 51.0 acre Study Area boundary is designed to allow for various alternative locations for project development should special status plant species or habitats be found. Project development / ground disturbing activities are being proposed for an approximately 12.5 acre project area within the Study Area. The project development area would consist of roadway access and parking areas, supply stockpile areas, loading / unloading areas, cultivation areas, and an approximately 10,000 gallon water tank.
Ground disturbance necessary to construct the facility will primarily occur within non-native grassland areas with some encroachment into adjacent forested areas.

2.2 Project Location

The 51.0-acre Study Area is approximately 0.5 mile to the northwest from the entrance gate at 8531 High Valley Road, Town of Clearlake Oaks, Lake County, California. The Study Area approximate center point Latitude is 39.079759 North and the Longitude is 122.758007 West within the Lucerne (1996) USGS Quadrangle Maps at Section 9, Township T14N, and Range 8W. Figure 1 is a Project Site location map; Figure 2 shows the location of the plant survey area (Study Area) overlaid onto the USGS Quadrangle Maps Clearlake Oaks (1996) and Lucerne (1996); and Figure 3 is a Maxar Technologies August 26, 2020 satellite image of the Project Site showing Study Area conditions.

2.3 Biological Setting

2.3.1 Land Use. Review of historical Google Earth Pro aerial imagery from December 20, 1985 to August 15, 2018 and an August 26, 2020 satellite image from Maxar Technologies indicate that land use on the site has not changed in decades. There appears to be no history of agricultural use on the property other than perhaps grazing and a small row cropped area in the Northeastern portion of the grassland habitat (Figure 3). The 158-acre land parcel (APN 006-003-34) containing the Study Area together with other adjacent privately owned lands are surrounded by the Mendocino National Forest. Surrounding private land uses include private estates, timberland, recreation, and grazing land.

2.3.2 Topographic Relief. The project area has a very strong to steep sloping land surface ranging from approximately 30 to 50 percent generally level terrain with elevations ranging from 2,600 to 3,080 feet NAVD 88 (Figure 2).

2.3.3 Hydrology. Stormwater runoff and stream discharges flow across the Study Area in a westerly direction towards Clear Lake (Figure 2) (USGS 2021). Evidence of active seeps and a spring area were found associated with the wetland and creek areas within the Study Area.

2.3.4 Soils. Based on review of the U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey, two soil types occur in the Study Area (Figure 4). These soils are Millsholm-Squawrock-Pomo complex, 30 to 50 percent slopes, and Speaker-Marpa- Sanhedrin gravelly loams, 30 to 50 percent slopes. All of these soil associations have well drained soils.

2.3.5 Vegetation. Following the nomenclature provided by the *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database* (CDFW 2019), three terrestrial natural communities: forest, grassland, and marsh, occur in the Study Area:

1. 87.010.00 *Pinus ponderosa* (Ponderosa Pine Forest)
2. 42.020.03 *Elymus caput-medusae* (Medusahead grassland)
3. 45.560.00 *Juncus* sp. (Rush marshes)

The following detailed descriptions are modified from those provided by Natural Investigations Company, Inc., (2020) based on their on-site biological survey work.

Forest. Much of the Study Area is characterized by forest habitat, dominated by ponderosa pine (*Pinus ponderosa*) with California black oak (*Quercus kelloggii*) also prominent. Numerous additional tree species were observed sharing the canopy including Douglas-fir (*Pseudotsuga menziesii*), knobcone pine (*Pinus attenuata*), sugar pine (*Pinus lambertiana*), canyon live oak (*Quercus chrysolepis*), interior live oak (*Quercus wislizeni*) and California bay (*Umbellularia californica*). The understory was highly variable, with little vegetation where the canopy was dense, and shrubs and grasses common where openings were found. Typical understory plants include common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), poison-oak (*Toxicodendron diversilobum*), California fescue (*Festuca californica*), hedgehog dogtail grass (*Cynosurus echinoides*), blue wildrye (*Elymus glaucus*), sweet pea (*Lathyrus vestitus*) and wavy leaved soap plant (*Chlorogalum pomeridianum*). This vegetation can be classified as "87.010.00 *Pinus ponderosa* (Ponderosa Pine Forest) (CDFW 2019)" or as the Holland Type "Upland Coast Range Ponderosa Pine Forest".

Grassland. The numerous openings within the ponderosa pine forest are vegetated with annual grassland habitat. This vegetation is comprised largely of non-native grasses and native and non-native herbs including medusahead (*Elymus caput-medusae*), yellow star-thistle (*Centaurea solstitialis*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), filaree (*Erodium brachycarpum*), slender wild oat (*Avena barbata*) and clarkia (*Clarkia gracilis*). This vegetation can be classified as the "87.010.00 42.020.03 *Elymus caput-medusae* (Medusahead grassland) (CDFW 2019)" or as the Holland Type "Non-native Grassland".

Marsh. Four wetlands were observed within the Study Area. A wetland near the center of the parcel is supported by flow from a spring. The other three wetlands appear to be supported by seeps. Freshwater marsh vegetation is found downhill from the spring and each seep. The composition of the vegetation within each wetland is

variable, but typically includes Pacific rush (*Juncus effusus*), Toad rush (*Juncus bufonids*), coyote brush (*Baccharis pilularis*), hedge nettle (*Stachys ajugoides*), bull thistle (*Cirsium vulgare*) and stinging nettles (*Urtica dioica ssp. holosericea*). Willows (*Salix lasiolepis*), giant chain fern (*Woodwardia fimbriata*), and California mugwort (*Artemisia douglasiana*) are present at the spring. This vegetation can be classified as "45.560.00 *Juncus* sp. (Rush marshes) (CDFW 2019)" or as the Holland Type "Coastal and Valley Freshwater Marsh".

3.0 Survey Methodology

This section describes the methodology used for the 2021 protocol botanical surveys within the Study Area.

3.1 Special Status Plant and Habitat Surveys

3.1.1 Special-Status Plant Surveys. Surveys were performed on April 23, May 19, and June 18, 2021 in accordance with state and federal plant survey protocols (CDFG 2018 and USFWS 2005). The methodology specifically followed the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* prepared by the CDFW dated March 20, 2018. A reference site and references to *Calflora Calphotos* and *Calflora What Plant Grows Here*, and the Jepson Herbarium Collection were viewed prior to and during the survey period. Plant inventory lists of species observed during plant surveys is also required. The description of the methodology below follows the requirements listed in the above-referenced 2018 CDFW survey methodology.

3.1.2 Special-Status Habitat Surveys. An aquatic resources delineation was conducted within the Study Area (Figure 3) by HBG Wetland Regulatory Scientist, Robert Perrera, during the winter and spring of 2021 following the methodology described in the Corps of Engineers'(Corps) 1987 *Wetlands Delineation Manual*; the Corps' 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*; supporting Corps and US EPA guidance documents regarding the identification and delineation of Ordinary High Water; and the new Navigable Waters Protection Rule that became effective June 22, 2020. Mr. Perrera also followed the State Water Resources Control Board (SWRCB) April 2, 2019 *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (State Water Resources Control Board, 2019) and current CDFW guidance regarding identification and delineation of lake and streambed boundaries.

3.1.3 Timing of Botanical Surveys. Survey protocol requires that botanical surveys be conducted at times of the year when plants are flowering or fruiting (i.e., when plants will be both evident and identifiable). Survey field visits are required to be spaced throughout the growing season to include early-, mid-, and late-season surveys to best capture the floristic diversity at a level to determine if special status plants are present. The timing of the 2021 protocol field surveys was based on consideration of both the blooming period for the special status species which were identified as having a potential to occur within the Study Area (see Table 1) and soil moisture conditions which allow for adequate plant growth.

3.1.4 Use of Existing Botanical Field Surveys

HBG reviewed the following report that had been prepared for the Project Site in 2020:

> Natural Investigations Company, Inc. 2020. *Biological Resources Assessment for the Cannabis Cultivation Operation at 8531 High Valley Road, Clearlake Oaks, California*. Prepared for Meili Liu. March 28, 2020.

The above report provided useful information about the property, descriptions of plant communities and plant species present, and information regarding special status plant species and sensitive natural communities.

3.1.5 Botanical Survey References

References used during this survey are as follows:

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California, The Resources Agency, Department of Fish and Game, Sacramento, California.
Lanner, R. M. 2002. *Conifers of California*. Cachuma Press, Los Olivos, California. 274 pp.

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State Water Resources Control Board. 2019. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. Adopted April 2, 2019.

Sawyer, J. O., T. Keeler-Wolf and J.M. Evens. 2009. *A Manual of California Vegetation. Second Edition*. In cooperation with The Nature Conservancy and the California Department of Fish and Game. California Native Plant Society. Sacramento, California.

Stuart, J. D., and J. O. Sawyer. 2001. *Trees and Shrubs of California*. California Natural History Guides. University of California Press, Berkeley, California. 467 pp.

United States Department of Agriculture, Natural Resources Conservation Service. 2020. *Custom Soil Resource Report for Proposed 8531 High Valley Road Cannabis Cultivation Operation Town of Clearlake Oaks, Lake County, California*. Web Soil Survey Staff.

US Army Corps of Engineers Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. US Army Engineer Waterways Experiment Station, Vicksburg, MS.

US Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0), ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: US Army Engineer Research and Development Center.
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University Herbarium and Jepson Herbarium, University of California at Berkeley. Internet database available at http://ucjeps.berkeley.edu/interchange.html .

University of California at Berkeley. 2020b. *CalPhotos*. Biodiversity Sciences.

3.2 HBG Botanical Field Surveyor and Surveyor Qualifications

Terry Huffman, PhD, conducted the 20 April 23, May 19, and June 18, 2021 botanical field surveys. His resume is in Appendix 1. Based on his 47 years of experience conducting botanical and wetland surveys, including 36 years conducting such surveys in California, Dr. Huffman meets the criteria required by the Survey Protocol (CDFW 2018):

3.2.1 Knowledge of Plant Taxonomy and Natural Community Ecology

. Terry is a professionally trained botanist. He has a bachelor's degree in both Biology and Education from Henderson State University, Arkadelphia, Arkansas, and Master's (MS) and Doctorate (PhD) degrees in Botany from the University of Arkansas, Fayetteville. All three degrees included course work and research in the field of plant taxonomy. In addition to defending his doctoral thesis and prior to receiving his PhD, Terry was tested regarding his knowledge in five separate botanical disciplines – plant anatomy; plant physiology; phycology; plant ecology, and plant taxonomy. His research studies for both his MS and PhD theses focused on plant ecology studies related to wetland systems. His botanical training and research led to his development

in 1976 of the definition of wetlands that is used by the Corps and USEPA in their Section 404 Clean Water Act Regulatory Program and the multiparameter approach methodology used to delineate the geographical extent of wetland boundaries (combined use of wetland vegetation, soil, and hydrology indicators), a methodology that was peer reviewed by the National Academy of Sciences and has been in use throughout the United States since 1987 (Corps 1987 Delineation Methodology).

3.2.2 Familiarity with Plants of the Region, Including Special Status Plants. Terry was first introduced to the vegetation of the Bay Area in 1976 while working as a research botanist for the Corps. In 1981 he became a private biological consultant specializing in wetlands consulting. Over the years he has become familiar with California vegetation including both wetland and associated adjacent upland plant species. This familiarity includes frequently working with vegetation in Lake and the adjacent Sonoma County. Consulting wetland scientist work in Lake, Napa, and Sonoma Counties has resulted in Terry's familiarity with special status species such as Sonoma sunshine, Burke's goldfields, and Sebastopol meadowfoam. Terry has become an avid California botanist and is a lifetime member of the Jepson Herbarium. He also teaches an annual workshop course on wetlands and other waters jurisdictional delineation methodology, which includes plant identification, and periodically takes Jepson workshop courses on various botanical subjects.

3.2.3 Familiarity with Natural Communities of the Region, Including Sensitive Natural Communities. Terry is familiar with the natural communities, including sensitive natural communities, of the region. Specific recent project experience in Lake, Napa, and Sonoma Counties are discussed below. Dr. Huffman is the Land Manager of the Zero Todd Road CTS Mitigation Site; the Horn 6 and Windmill Permittee Responsible Mitigation sites; all of which have special status plant and animal species and natural communities present within these conservation areas. He is also the owner and Land Manager of the Springtown Natural Community Reserve, Alameda County, and the Land Manager for the Goldfields Conservation Bank, Solano County.

3.2.4 Experience with the CNDDB, BIOS, and Survey of California Vegetation Classification and Mapping Standards. Terry is familiar with the publicly accessible databases and reports associated with CDFW's CNDDB and BIOS (and use of BIOS Viewer), and California Vegetation Classification and Mapping Standards. He utilizes information from these databases, on-line Calflora and the Jepson Herbarium in conducting botanical surveys and preparing biological assessment reports, including those surveys and impact studies for the local projects described below. An on-line generated USFWS species list (IPaC Trust Resources Report) was also referenced during this survey.

3.2.5 Experience Conducting Floristic Botanical Field Surveys as Described in This Document, or Experience Conducting Such Botanical Field Surveys under the Direction of an Experienced Botanical Field Surveyor. Terry has conducted botanical field surveys to develop plant lists, presence / absence determinations for special status species, and vegetation mapping since the early-1970s. Terry was trained to conduct floristic plant surveys by botanists Drs. Daniel Marsh

and Elizabeth Brinkley, Henderson State University, Arkadelphia, Arkansas and Drs. Delzie Demaree, Dwight M. More, Edward B. Smith, Gary E. Tucker, and Edward E. Dale, University of Arkansas, Fayetteville. Dr. Huffman began conducting plant surveys in the San Francisco Bay area in 1977 while working for the U.S. Army Corps of Engineers as an Army Officer and research scientist then settled in California in 1981, first in the San Diego area, and then moved in 1983 to the San Francisco Bay area where he began conducting floristic plant surveys as a private consultant.

With respect to regional experience, recent plant surveys in Lake County include the Lands End Community Sediment Removal Project, Highway 53 Cannabis Farm project, and Seigler Canyon Cannabis Farm project. Surveys in Napa County included: Anderson, Giovannoni, Green Island, Hard Six, Napa Oaks, Shady Oaks, Truchard Winery, and Ahmann Ranch development projects. Survey within Sonoma County include the Graton Rancheria Casino and Hotel Project, Rohnert Park; Graton Rancheria Dowdell Commercial property east of the casino, Rohnert Park; Wilfred Avenue Improvement Project, Rohnert Park and Sonoma County; Dowdell Business Park Warehouse project, Rohnert Park; DenBeste Warehouse Building Skylane Boulevard and Aviation Boulevard, Santa Rosa; proposed Urban Infill Development Project Site at 816, 818, 819, and 824 Aston Avenue, Santa Rosa; Horn 6 and Windmill Permittee Responsible Mitigation sites, Rohnert Park; and R & B Company 3858 and 3874 Santa Rosa Avenue.

3.2.6 Familiarity With Federal, State, and Local Statutes and Regulations Related to Plants and Plant Collecting

. Having worked as a biologist within his consulting practice over 36 years, Terry is familiar with the federal Endangered Species Act; National Environmental Policy Act; California Endangered Species Act; Native Plant Protection Act; California Environmental Quality Act; Natural Community Conservation Planning Act; California Desert Native Plants Act; and tree protection ordinances within the County.

3.2.7 Experience Analyzing the Impacts of Projects on Native Plant Species and Sensitive Natural Communities

. Terry has prepared or assisted in the preparation of ESA biological assessments and CEQA biological surveys that included assessment of potential project impacts on native plant species and sensitive natural communities. Recent regional experience includes impact assessments made in association with the plant surveys conducted in Lake, Sonoma, and Napa counties described Subsection 3.1.5, above.

3.3 Survey Preparation

Prior to conducting the field surveys, Dr. Terry Huffman of HBG consulted on-line the current California Natural Diversity Data Base (CNDDB), the USFWS Endangered Species Program Species List, and Calflora to develop a target list of sensitive plant species and sensitive natural communities potentially present within the Study Area.

3.4 Special Status Plants with a Potential to Occur in the Region

The results of a 10-mile radius CNDDB search for special status plants documented as occurring within the vicinity of the Project Site is provided in Table 1 below. The table also provides information regarding flowering period, descriptions of general habitat and microhabitat

conditions where the documented plant species have been found within the region, and a determination by the investigator, based on these habitat conditions, if there is the potential for suitable habitat to be present within the Study Area.

An informal on-line USFWS consultation was made using the IPaC Trust Resource Report System (https://ecos.fws.gov/ipac/)which generates lists of federal special status species using regional and watershed information but does not provide site specific information as compared to the CNDDB. One federally-listed endangered plant species was identified as a result of this query, Burke's Goldfields (*Lasthenia burkei*).

Based on review of the CNDDB and USFWS database search result, no special-status species have been documented to occur within the Study Area (see Table 1). The database indicates that there are several federal, state, and CEQA listed species which have been found with a 10- mile radius of the Study Area. Review of general and microhabitat site conditions indicate that some of these plant species have the potential to be present within the Study Area.

Table 1. Special-Status Plant Species Reported by CNDDB Within 10 Miles of the Study Area

Common Name	**Scientific Name**	**Status***	**Blooming Period** (Source: Calflora)	**General Habitat** (Bold text indicates presence in Study Area)	**Microhabitat** (Bold text indicates presence in Study Area)	**Suitable Habitat?**
Big-scale balsamroot	*Balsamorhiza macrolepis*	1B.2	M, A, M, & J	Chaparral, **valley and foothill grassland**, cismontane woodland.	Sometimes on serpentine. 90-1555 m.	No
Small-flowered calycadenia	*Calycadenia micrantha*	1B.2	J, J, A, & S	Chaparral, **valley and foothill grassland, meadows, and seeps.**	Rocky talus or scree; sparsely vegetated areas. **Occasionally on roadsides**; sometimes on serpentine. 5-1500 m.	Yes
Greene's narrow- leaved daisy	*Erigeron greenei*	1B.2	M, J, J, A, & S	Chaparral.	Serpentine and volcanic substrates, generally in shrubby vegetation. 80-1005 m.	No
Burke's goldfields	*Lasthenia burkei*	FE/CE/1B.1	A, M, & J	**Vernal pools, meadows, and seeps**.	**Most often in vernal pools and swales. 15- 600 m.**	Yes
Colusa layia	*Layia septentrionalis*	1B.2	A & M	Chaparral, cismontane woodland, **valley, and foothill grassland.**	Scattered colonies in fields and grassy slopes in sandy or serpentine soil. 145-1095m.	No
Bent-flowered fiddleneck	*Amsinckia lunaris*	1B.2	M, A, M, & J	Cismontane woodland, **valley and foothill grassland**.	**50-500m**.	Yes
Serpentine cryptantha	*Cryptantha dissita*	1B.2	A, M, & J	Chaparral.	Serpentine outcrops. 330-730m.	No

Table 1. Special-Status Plant Species Reported by CNDDB Within 10 Miles of the Study Area						
Common Name	**Scientific Name**	**Status***	**Blooming Period** (Source: Calflora)	**General Habitat** (Bold text indicates presence in Study Area)	**Microhabitat** (Bold text indicates presence in Study Area)	**Suitable Habitat?**
Mayacamas popcornflower	*Plagiobothrys lithocaryus*	1A	A & M	**Meadows? Valley and foothill grassland**, cismontane woodland, chaparral?	**Moist sites. 285-450m.**	Yes
Watershield	*Brasenia schreberi*	2B.3	J, J, A, S	**Freshwater marshes and swamps.**	**Aquatic from water bodies both natural and artificial in California.**	Yes
Raiche's manzanita	*Arctostaphylos stanfordiana ssp. raichei*	1B.1	F, M, & A	Chaparral, lower montane coniferous forest.	Rocky, serpentine sites. Slopes and ridges. 450- 1000 m.	No
Konocti manzanita	*Arctostaphylos manzanita ssp. elegans*	1B.3	M, A, & M	Chaparral, cismontane woodland, lower montane coniferous forest.	Volcanic soils. 395-1615 m.	No
Anthony Peak lupine	*Lupinus antoninus*	1B.2	M, J, & J	Upper montane coniferous forest, lower montane coniferous forest.	Open areas with surrounding forest; rocky sites. 1220-2285 m.	No
Napa bluecurls	*Trichostema ruygtii*	1B.2	J, J, A, S, & O	Cismontane woodland, chaparral, **valley and foothill grassland, vernal pools**, lower montane coniferous forest.	**Often in open, sunny areas. Also has been found in vernal pools. 30-590m.**	Yes
Woolly meadowfoam	*Limnanthes floccosa ssp. floccosa*	4.2	M, A, & M	Chaparral, cismontane woodland, **valley and foothill grassland, vernal pools.**	**Vernally wet areas, ditches, and ponds. 60- 1335 m.**	Yes
Glandular western flax	*Hesperolinon adenophyllum*	1B.2	M, J, J, & A	Chaparral, cismontane woodland, **valley and foothill grassland**.	Serpentine soils; generally found in serpentine chaparral. 150-1315 m.	No
Marsh checkerbloom	*Sidalcea oregana ssp. hydrophila*	1B.2	J & A	**Meadows and seeps, riparian forest**.	**Wet soil of streambanks, meadows. 1100-2300 m.**	Yes

Brandegee's eriastrum	*Eriastrum brandegeeae*	1B.1	A, M, J, J, & A	Chaparral, cismontane woodland.	On barren volcanic soils; often in open areas. 425-840 m.	No

Table 1. Special-Status Plant Species Reported by CNDDB Within 10 Miles of the Study Area

Common Name	**Scientific Name**	**Status***	**Blooming Period** (Source: Calflora)	**General Habitat** (Bold text indicates presence in Study Area)	**Microhabitat** (Bold text indicates presence in Study Area)	**Suitable Habitat?**
Baker's navarretia	*Navarretia leucocephala ssp. Bakeri*	1B.1	A, M, J, & J	Cismontane woodland, **meadows and seeps, vernal pools, valley and foothill grassland**, lower montane coniferous forest.	**Vernal pools and swales**; adobe or alkaline soils. 5-1740 m.	Yes
Few-flowered navarretia	*Navarretia leucocephala ssp. pauciflora*	FE/CT/1B.1	M & J	Vernal pools.	Volcanic ash flow, and volcanic substrate vernal pools. 400-855 m.	No
Rincon Ridge ceanothus	*Ceanothus confusus*	1B.1	F, M, A, M, & J	Closed-cone coniferous forest, chaparral, cismontane woodland.	Known from volcanic or serpentine soils, dry shrubby slopes. 75-1065 m.	No
Bolander's horkelia	*Horkelia bolanderi*	1B.2	J, J, & A	Lower montane coniferous forest, chaparral, **meadows, valley and foothill grassland.**	**Grassy margins of vernal pools and meadows. 450-1100 m**.	Yes
Boggs Lake hedge-hyssop	*Gratiola heterosepala*	CE/1B.2	A, M, J, J, & A	**Marshes and swamps (freshwater), vernal pools.**	**Clay soils; usually in vernal pools, sometimes on lake margins. 10-2375 m.**	Yes
Indian Valley brodiaea	*Brodiaea rosea*	CE	M & J	Closed cone coniferous forest, chaparral, cismontane woodland, **valley and foothill grassland.**	Serpentinite endemic. 335-1450 m	No
Eel-grass pondweed	*Potamogeton zosteriformis*	2B.2	J & J	**Marshes and swamps.**	Ponds, lakes, **streams. 0-1860 m.**	Yes

*Definitions of Status Codes as presented in the CNDDB: FE = Federally listed as endangered; FT = Federally listed as threatened; FPE =
Federally proposed for listing as endangered; FPT = Federally proposed for listing as threatened; FC = Candidate for Federal listing; CE = California State listed as endangered; CT = California State listed as threatened; CSSC = California species of special concern; CR = California rare species; CFP = California fully protected species; CNPS (California Native Plant Society) List: 1A = Plants presumed extinct in California by CNPS; CNPS List 1B = CNPS designated rare or endangered plants in California and elsewhere; and CNPS List 2 = CNPS designated rare or endangered plants in California, but more common elsewhere.

3.5 Special Status Habitats with a Potential to Occur in the Region

Results of a CNDDB search for special status habitats identified the following Special Status Habitats documented as occurring within a 10-mile radius of the Study Area:

1. Clear Lake Drainage Cyprinid/ Catostomid Stream,
2. Clear Lake Drainage Seasonal Lakefish Spawning Stream,
3. Coastal and Valley Freshwater Marsh, and
4. Great Valley Mixed Riparian Forest.

Based on review of the CNDDB search no special-status species have been documented to occur within the Study Area.

3.6 Area Surveyed

Dr. Huffman conducted pedestrian surveys to allow for visual ground observations to be made throughout the various plant communities within entire 51-acre Study Area (Figures 2 and 3).

3.7 Description of Reference Site

A reference site survey was conducted where Burke's goldfields was known to grow. The purpose of the reference site survey was to determine as to whether a known local population of the target species was flowering during the survey period. For HBG's survey, Dr. Terry Huffman used a site on Highway 53 near the Town of Clear Lake as a reference site for Burke's goldfields. Burke's goldfields were found flowering in dense stands in an approximately 0.1 acre seasonal wetland on April 23, 2021.

3.8 Voucher Specimens

No voucher specimens were collected.

3.9 Survey Dates and Person-Hours

Protocol rare plant surveys on the Project Site were conducted by Terry Huffman, PhD, of Huffman-Broadway Group, Inc. in the spring and summer of 2021 during the flowering periods of target special status species when they would be identifiable. HBG botanist Dr. Terry Huffman conducted three separate surveys of the site on April 23, May 19, and June 18, 2021, spending a total of over 17 person hours on the surveys, including the reference site surveys described below.

4.0 Results

4.1 Plant Species Observed

Appendix 2 is a list of plants observed by Huffman-Broadway Group, Inc., botanist Terry Huffman, PhD, during his 2021 surveys.

4.2 Special Status Plant and Sensitive Natural Community Observations

4.2.1 Special Status Plants Observations. No special status plant species were found during the 2021 plant surveys. It should be noted that no status plant species were found during the biological survey work conducted by Natural Investigations Company, Inc., during March 2000.

4.2.2 Sensitive Natural Community Observations. No sensitive natural community types as defined by CDFW or the USFWS were found within the Study Area (Figure 5). However, seasonal wetland, creek (stream), and riparian habitats were found which are potentially subject to both the Corps and USEPA regulatory jurisdiction under Section 404 of the Clean Water Act (Code of Federal Regulations, Title 33, Part 328) and the North Coast Regional Water Quality Control Board's (RWQCB) jurisdiction under their Section 401 CWA and Porter Cologne Act regulatory programs (State Water Resources Control Board, 2019). Stream habitats are also subject to CDFW jurisdiction under their Lake and Streambed Alteration Agreement Program (*California Fish and Game Code §1601 – 1607*).

4.3 Potential for a False Negative Botanical Field Survey

Some plant species may not produce seedlings for many years until conditions are appropriate, thus resulting in the potential for false negative plant survey results. Sites with suitable habitat are those where flowering has not been observed during seasonal botanical surveys, but which may have viable seeds in the soil and additional biological, hydrological, and topographic attributes necessary to support the species.

Given extreme drought conditions present during the 2020 and 2021 survey, there is the potential for a false negative biological survey. However, this is unlikely within the wetland, creek, and riparian habitats given that wetland field indicators observed on the land surface, as part of the aquatic resources survey, provided indication that the wetlands and creek had saturated to wet soil conditions during the 2020-2021 rainy season. Underlying soils within forested and grassland habitats within the Study area are well drained and despite drought conditions it is unlikely that the special status plant species identified in Table 1 as occurring in this type of habitat would be significantly impacted by the drought given the well-drained soil conditions. In addition, grassland areas were dominated with a dense growth of non-native grasses with thatch accumulation. Give the density of the vegetation and amount of thatch buildup, the opportunity for special status species to successfully grow through and outcompete the dominant vegetation for microhabitat resources and sunlight is unlikely.

4.4 Potential Effect of Climatic Conditions on the Botanical Field Survey Results

The Study Area is in the Inner North Coast Range geographic subregion of the California Floristic Province (Baldwin et al. 2012). This region is described as having a Mediterranean-type climate, characterized by distinct seasons of hot, dry summers and wet, moderately-cold winters. The precipitation pattern has shifted in Lake County over the past several years ranging extreme to exceptional drought conditions (Hartman, 2021). Changing climatic patterns due to global warming may affect the soil moisture characteristics of the site, especially the aquatic resources (wetlands and drainages) of the small, shallow seasonal wetland on the Project Site which are dependent on spring and seep discharges.

5.0 Assessment of Potential Impacts

5.1 Significance of Special Status Plant Populations in the Project Area

Not significant. No state or federal listed special status plants were found within the Project Area / Study Area.

5.2 Significance of Sensitive Natural Communities in the Project Area

Not significant. No state or federal listed sensitive natural communities were found within the Project Area / Study Area. However, wetland, creek (stream), and riparian habitats are present within the Study Area (Figure 5) which are unique to the region, and are protected by Corps, RWQCB, and CDFW regulatory programs. These aquatic plant communities are important in terms of providing ecological functions in terms of flood control, water storage, water quality improvement, conversion of toxic to nontoxic chemical constituents, carbon sequestration, wildlife habitat, and value to society.

5.3 Direct, Indirect, and Cumulative Impacts to Special Status Plants and Sensitive Natural Communities

No direct or indirect impacts to state or federal listed special status plants or sensitive natural communities will occur since they were not found in the Study Area. Wetland, creek (stream), and riparian habitats are unique to the region and are protected by Corps, RWQCB, and CDFW regulatory programs. The project developer plans to avoid and protect these areas from disturbance. The degree and immediacy of threats to special status plants and sensitive natural communities appears to be low. A possible cumulative impact to these habitats is a lowering of the water table if significant expansion of development within the watershed occurs causing springs and seeps to no longer discharge.

5.4 Degree and Immediacy of Threats to Special Status Plants and Sensitive Natural Communities

Review of historical aerial photographs indicate that land use on the site has not changed in decades. There appears to be no history of agricultural use on the property other than perhaps grazing. No state or federal listed special status plants or sensitive natural communities were found within the Study Area. Wetland, creek (stream), and riparian habitats are unique to the region and are protected by Corps, RWQCB, and CDFW regulatory programs. The project developer plans to avoid and protect these areas from disturbance. The degree and immediacy of threats to special status plants and sensitive natural communities appears to be low.

5.5 Impact on Unoccupied Potential Habitat for Special Status Plants

The project will result in the permanent loss of approximately 12.5 acres of grassland and forested habitat that is potential habitat for special status plants.

5.6 Recommended Measures to Avoid, Minimize, or Mitigate Impacts to Special Status Plants and Sensitive Natural Communities

It is recommended that:

1. Direct effects to all wetland, creek (stream), and riparian habitats should be avoided where practicable.
2. Best Managements Practices (BMPs) for maintaining existing surface and ground water conditions should be implemented. These include avoidance of stream water diversions and over pumping of ground water wells.
3. BMPs preventing soil erosion should be applied where ground disturbing activities occur to prevent soil erosion and transport of sediment to adjacent plant communities during stormwater runoff periods.
4. An undisturbed vegetated buffer of 25 feet should be maintained between ground disturbing activities and adjacent wetland, creek (stream), and riparian areas.
5. If vegetation clearing work is to occur within the Study Area in 2022 or beyond, a special status plant survey should be performed prior to ground disturbing work.

FIGURES

Figure 1. Location Map

Figure 2. USGS Topographic Map Showing Study Area Location

Figure 3. Recent Satellite Imagery of the Project Site

Figure 4. NRCS Soil Map

Figure 5. Aquatic Resource Habitats

Figure 1. Location Map

Huffman-Broadway Group, Inc.

ENVIRONMENTAL REGULATORY CONSULTANTS

8531 High Valley Road, APN 006-003-34
Clearlake Oaks, Lake County, California

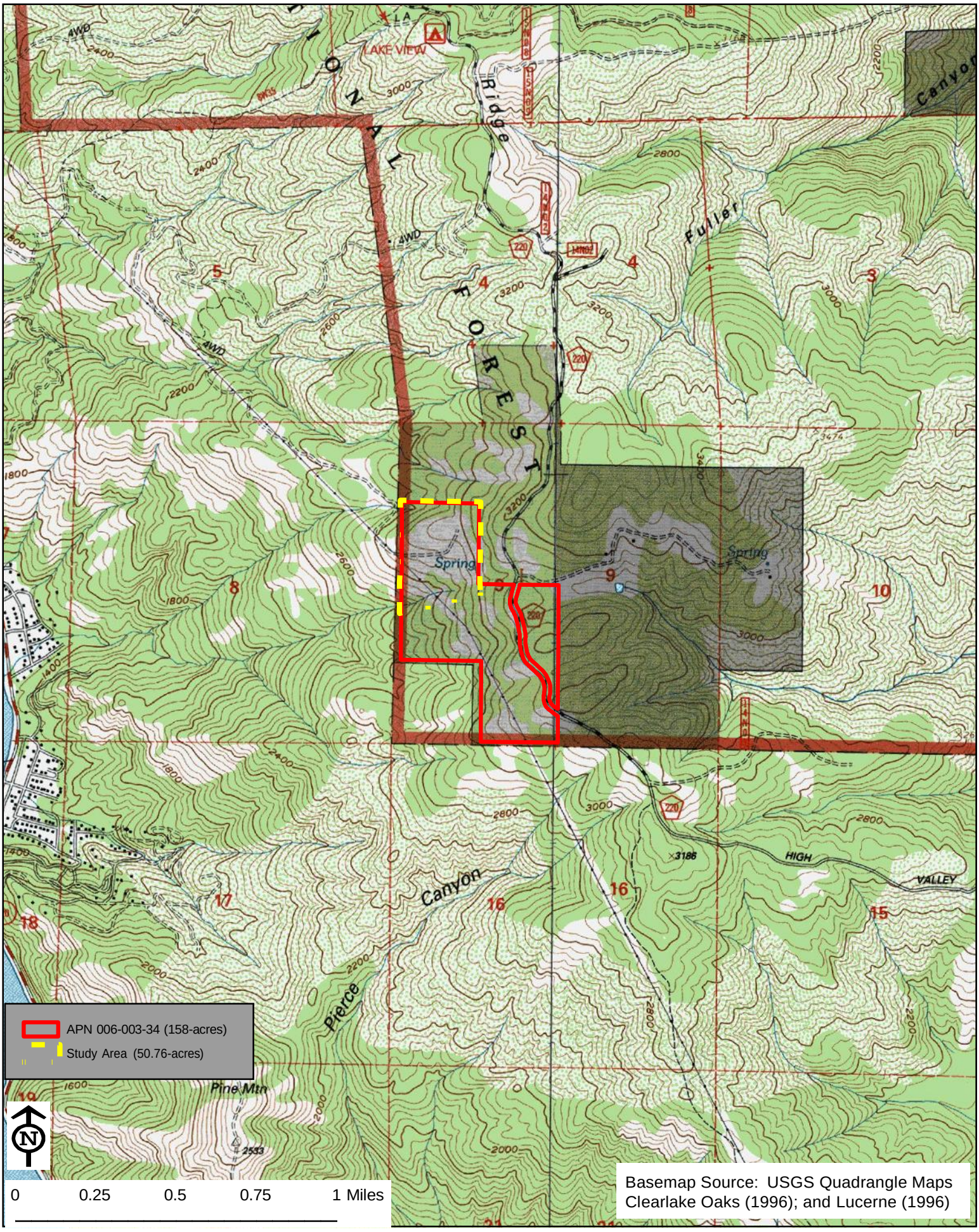

Figure 2. USGS Topographic Map Showing Study Area
8531 High Valley Road, APN 006-003-34
Clearlake Oaks, Lake County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

Figure 3. Satellite Imagery of the Project Site Showing Study Area 8531
High Valley Road, APN 006-003-34
Clearlake Oaks, Lake County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

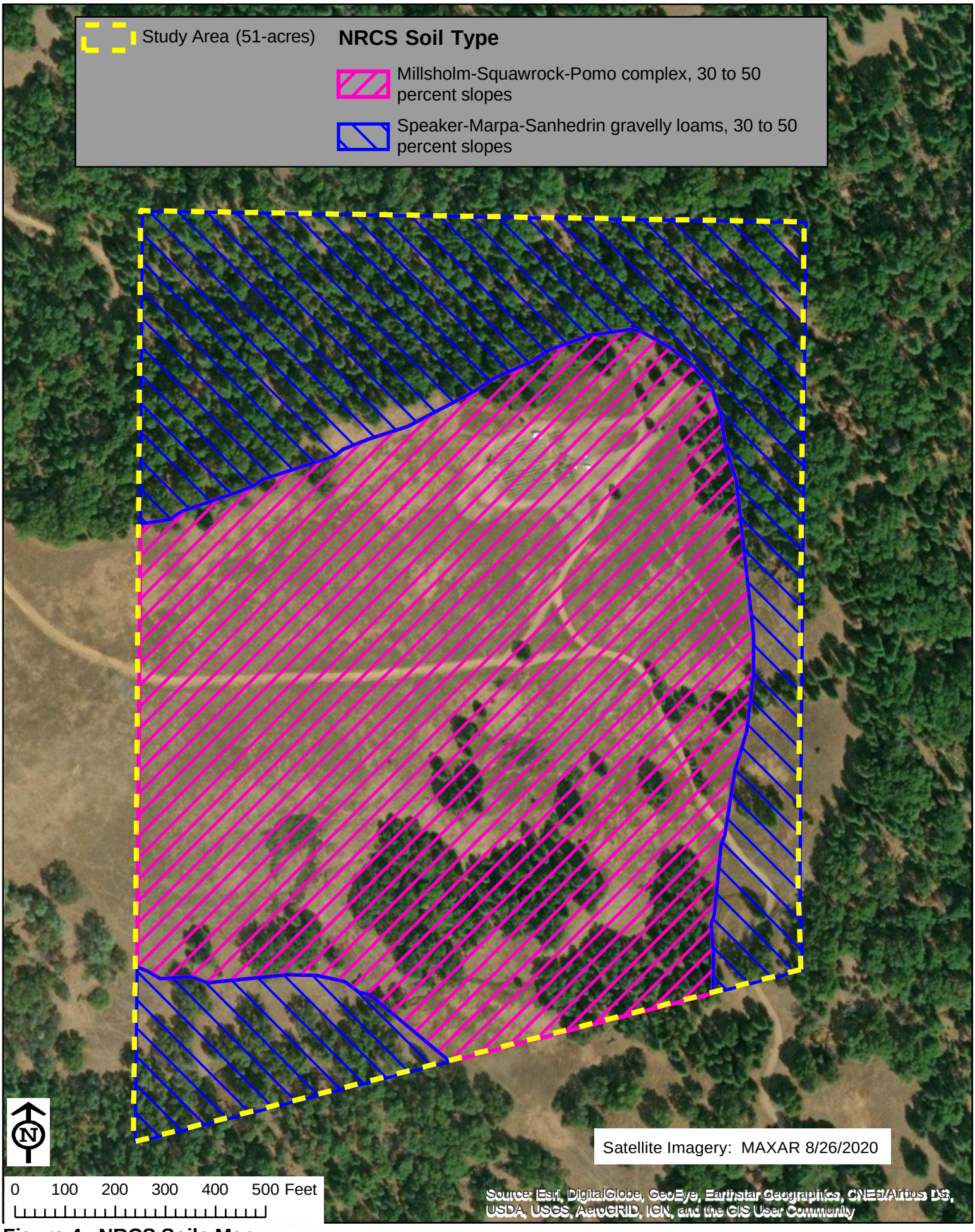

Figure 4. NRCS Soils Map

8531 High Valley Road, APN 006-003-34
Clearlake Oaks, Lake County, California

Huffman-Broadway Group, Inc.
ENVIRONMENTAL REGULATORY CONSULTANTS

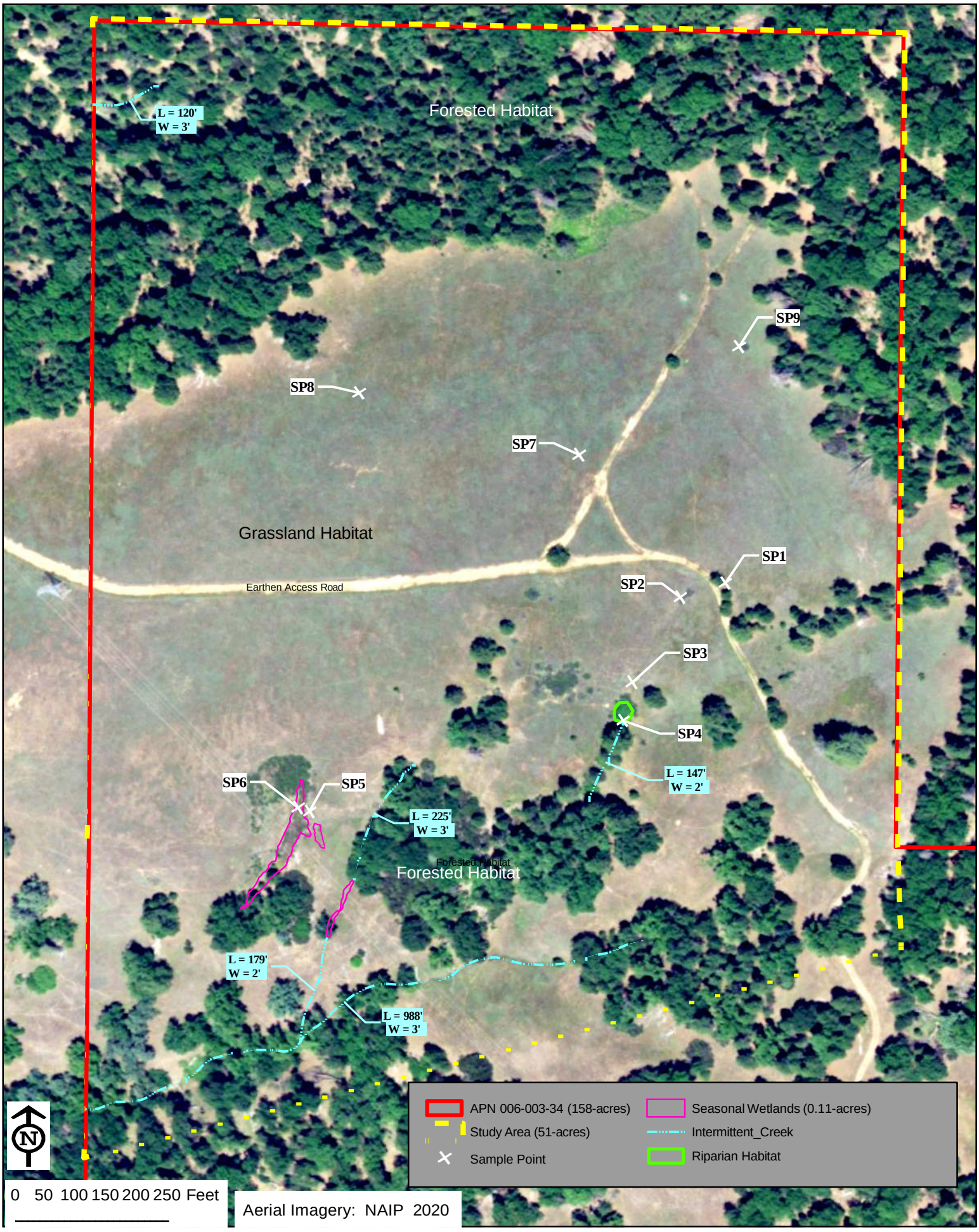

Figure 5. Aquatic Resource and Upland Grassland and Forested Habitats
8531 High Valley Road, APN 006-003-34
Clearlake Oaks, Lake County, California

Huffman-Broadway Group, Inc.
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APPENDIX 1

Terry Huffman, PhD,
Resume

RESUME: TERRY HUFFMAN, PhD
Wetland Regulatory Scientist
Lead Scientist / Project Manager

Terry has a unique combination of in-depth experience with both ecological research and with the environmental regulatory process. Prior to starting Huffman-Broadway Group, Inc., he was the US Army Corps of Engineers' (Corps) Chief Wetlands Scientist at the Corps' Environmental Laboratory in Vicksburg Mississippi, where he developed the wetlands definition used by the Corps and the US Environmental Protection Agency (US EPA). He pioneered the combined use of multiple environmental factors of wetland vegetation, soil and hydrology conditions and their identification using field indicators to determine the presence or absence of wetlands subject to regulation under the Clean Water Act. This seminal work led to the development of the wetland delineation methodology in use by the Corps and EPA today. As noted in the preface to the Corps' 1987 Wetlands Delineation Manual, Part II of the Manual is based on Terry's 1980 paper entitled "Multiple Parameter Approach to the Field Identification and Delineation of Wetlands." The Corps 1987 Manual was adopted for official use by the Corps within all divisions and districts in 1987. ln September 1992, Congress authorized the National Academy of Science to conduct a study of the methods used to identify and delineate wetlands. The National Academy of Sciences study confirmed the validity of the multiple parameter approach. As a lead technical representative for the Corps, Terry also played a major role in developing the language pertaining to wetlands in the EPA 404(b)(1) Guidelines for the discharge of dredged or fill material into waters of the US, including wetlands.

His work as a Corps employee (6 years) and as a private consultant (30 +years) has provided Terry with extensive onsite experience with virtually all types of aquatic and wetland environments and a unique understanding of the environmental permitting and compliance process throughout the US. In California, he participated as a contributing member of the California State Water Resources Control Board (RWQCB) Technical Advisory Team on wetland, stream, and riparian definitions. He provides government, NGO, and private sector training in the identification and delineation of wetland and other aquatic resource jurisdictional boundaries as defined by the environmental regulatory programs of the Corps / EPA, RWQCB, California Department of Fish and Wildlife (CDFW), San Francisco Bay Conservation and Development Commission (BCDC), California Coastal Commission (CCC), California Department of Water Resources (DWR), and California State Lands Commission (SLC) through the UC Berkeley Jepson Herbarium Workshop Program and the RWQCB's training academy.

Terry has obtained numerous authorizations over his career with the above mentioned agencies involving both surface and groundwater projects to include:

Agency	Type of Authorization
Corps	Individual and Nationwide permits and Letters of permission
USEPA	401 Water Quality Certification
RWQCBs	401 Water Quality Certification, Waste Discharge Requirements, and Ground Water Recharge Permitting
CDFW	Lake and Streambed Alteration Agreements and Incidental Take Permits
BCDC	San Francisco Bay Development Permit
CCC	Coastal Development Permit
DWR	Encroachment Permits
SLC	Encroachment Permits

Based on Dr. Huffman's broad experience he is often called on during pre-project planning / due diligence to perform gap and fatal flaw analysis regarding project feasibility. As part various agency Environmental Permitting Process, he routinely performs aquatic resource delineations and surveys for special status plant species and sensitive natural habitats following Federal and State methodologies; performs Clean Water Act alternatives analysis following USEPA 404 (b)(1) Guidelines and prepares aquatic resource and sensitive species mitigation plans following agency guidelines. He also constructs aquatic resource habitats and conducts agency required monitoring and reporting.

EDUCATION

- PhD, 1976. Botany/Wetland Community Ecology, University of Arkansas, Fayetteville
- First Lieutenant. 1976. US Army Engineer's Officer Basic Combat Engineering Course, Ft. Belvoir, VA
- MS, 1974. Botany/Plant Ecology, University of Arkansas, Fayetteville
- BSE, 1971. Dual Major: General Biology & Education, Henderson State University, Arkadelphia, AR

PROFESSIONAL AFFILIATIONS

- Association of State Wetland Managers
- Ecological Society of America
- Environmental Law Institute
- Director, Solano Land Trust
- Jepson Herbarium (Lifetime Member)
- Society of American Military Engineers
- Society of Wetland Scientists (Lifetime Member)

APPENDIX 2
Vascular Plant Species Observed in the Project Area During 2021 Rare Plant Surveys

APPENDIX 2
VASCULAR PLANT SPECIES OBSERVED IN THE STUDY AREA DURING 2021 RARE PLANT SURVEYS

Scientific Name	Common Name
Arctostaphylos manzanita ssp. manzanita	common manzanita
Artemisia douglasian	California mugwort
Avena barbata	Slender oat
Baccharis pilularis	coyote brush
Bromus diandrus	ripgut brome
Bromus hordeaceus	Soft chess
Carduus pycnocephalus	Italian thistle
Centaurea solstitialis	Yellow star thistle
Chlorogalum pomeridianum	wavy leaved soap plant
Cirsium vulgare	bull thistle
Clarkia gracilis	Clarkia
Cynosurus echinoides	hedgehog dogtail grass
Elymus caput-medusae	Medusa head
Elymus glaucus	Blue wildrye
Erodium brachycarpum	Foothill filaree
Eschscholzia californica	California poppy
Festuca californica	California fescue
Galium aparine	Common bedstraw
Helianthus bolanderi	Bolander's sunflower
Holocarpha virgata	Narrow tarplant
Hordeum brachyantherum ssp. brachyantherum	Meadow barley
Hordeum marinum	Seaside barley
Hordeum murinum	Foxtail barley
Juncus bufonids	Toad rush
Juncus effusus	Pacific rush
Lathyrus vestitus	Common Pacific pea
Lupinus bicolor	Bicolored lupine
Lysimachia arvensis	Scarlet pimpernel
Narcissus pseudonarcissus	Daffodil
Nemophila menziesii var. menziesii	Baby blue eyes
Pentagramma triangularis	Goldback fern
Pinus attenuata	Knobcone pine
Pinus lambertiana	Sugar pine

APPENDIX 2
VASCULAR PLANT SPECIES OBSERVED IN THE STUDY AREA DURING 2021 RARE PLANT SURVEYS

Scientific Name	Common Name
Pinus ponderosa	Ponderosa pine
Plagiobothrys nothofulvus	Rusty popcorn flower
Plantago erecta	California plantain
Primula hendersonii	Henderson's shooting stars
Pseudotsuga menziesii	Douglas-fir
Pteridium aquilinum	Bracken
Quercus berberidifolia	California scrub oak
Quercus chrysolepis	Canyon live oak
Quercus kelloggii	California black oak
Quercus lobata	Valley oak
Quercus wislizeni	Interior live oak
Quercus x morehus	Oracle oak
Melica californica	California melicgrass
Ranunculus occidentalis	Western buttercup
Rhus trilobata	Lemonade berry
Rosa californica	California rose
Rubus laciniatus	Cut-leaf blackberry
Rumex crispus	Curly dock
Salix lasiolepis	Arroyo willow
Sambucus nigra var. caerulea	Blue elderberry
Sanicula bipinnatifida	Purple sanicle
Stachys ajugoides	Bugle hedge nettle
Symphoricarpos albus var. laevigatus	Common snowberry
Torilis arvensis	Tall sock destroyer
Toxicodendron diversilobum	Poison-oak
Tragopogon porrifolius	Salsify
Trifolium hirtum	Pink clover

APPENDIX 2
VASCULAR PLANT SPECIES OBSERVED IN THE STUDY AREA DURING 2021 RARE PLANT SURVEYS

Scientific Name	Common Name
Trifolium microcephalum	Hairy Clover
Umbellularia californica	California bay
Urtica dioica var. holosericea	Stinging nettles
Verbascum Thapsus	Common mullein
Woodwardia fimbriata	Giant chain fern
Zeltnera muehlenbergii	Muehlenberg's centaury

Appendix P: Cultural Resource Evaluation