ATTACHMENT E

Water Availability Report
2160 Ogulin Canyon Road
Cannabis Processing and Cultivation Project

The subject property is a 9.65-acre parcel located at 2160 Ogulin Canyon Road in Clearlake, California (APN 010-044-21).

The proposed project is a cannabis processing and cultivation facility that will include a 33,600 ft.² manufacturing, processing, distribution building, an attached 5,000 ft.² office and retail delivery building, and five (5) - 25' x 75' mixed light cultivation greenhouses.

A. The water source for both domestic and irrigation uses will be delivered from a new water well as noted on the site plan below. The well was drilled in late September/early October of 2021 and is approximately 300 feet deep, with a supply capacity of 100+ gallons per minute (see attached well completion report).

B. The water system will use ground water pumped from the well into a proposed new elevated 50,000-gallon water tank for distribution to the building(s) plumbing system and to the greenhouses for irrigation.

C. A water meter will be installed in the water system and water consumption will be logged. Water use efficiency will be analyzed on a regular basis and a water budget will be generated for each new grow cycle.

D. Water Demand - The California Department of Food and Agriculture (CDFA) in 2017 reported the following regarding the water use for cannabis. "According to Hammon et al. (2015), water use requirements for mixed light cannabis production (25-35 inches per year) are generally in line with water use for other agricultural crops, such as corn (20-25 inches per year), alfalfa (30-40 inches per year), tomatoes (15-25 inches per year), peaches (30-40 inches per year), and hops (20-30 inches per year).

E. Irrigation Water Demand - is from the CDFA - CalCannabis Environmental Impact Report (CDFA 2017) = 3,000 gallons per day for 1 acre of cannabis canopy. The combined land area associated with the five (5) proposed greenhouses is less than ½ acre. The daily requirement is about 1 gallon of water per minute for .5 acres of cannabis canopy (1,440 gallons per day). Using 1,440 gallons per day for .5 acre of cannabis canopy, with a grow season of 300 irrigation days annually, the annual irrigation water demand for the project is estimated to be 432,000 gallons per year.

F. Domestic Water Demand - for the light industrial warehouse and distribution land uses is estimated using the following formula: 38,600 square feet of floor area x 3.4 gallons/square foot/year = 131,240 gallons per year (+) plus 50 gallons/employee x 35 employees x 300 work days/year = 525,000 gallons /year = Total estimated water use for the 2160 Ogulin Canyon Road Processing Building = 656,240 gallons per year.

G. Total Water Demand - the estimated total water demand for the project is 1,088,240 gallons per year (Irrigation - 432,000 gallons + Domestic - 656,240 gallons).

H. Total Water Supply Capacity - the well report yield is 100 gallons per minute, which results in a supply capacity of 9+ million gallons per year (40 hours/week [2,400 minutes/week] x 52 weeks/year x 80 gallons/minute).

I. The facility will implement water conservation practices, including:

- Selection of plant varieties that are suitable for mixed light cultivation.
- The use of driplines and drip emitters (instead of spray irrigation).
- The use of mulch to reduce evaporation.
- Water application rates modified from data from soil moisture meters and weather monitoring.

- Rooftop rainwater collection (where feasible and permitted).
- Shutoff valves on hoses and water pipes.
- Daily visual inspections of irrigation systems.
- Immediate repair of leaking or malfunctioning equipment.
- Water metering and budgeting.
- Practices to prevent discharges from water supply equipment.
- Water application rates minimized as necessary to prevent runoff and water equipment leaks repaired immediately.
- Water filtration systems to be installed.
- The elevated tank will supply gravitational flow to the irrigation system. PVC pipes will deliver the water to the plants.
- Mixing tanks will be used to mix liquid fertilizers, which will then be injected into the irrigation system supply lines.
- At each planting station, black polyvinyl flexible tubes and drip emitters will be used to irrigate the plants.

I. Groundwater – The following information is from: ***Lake County Watershed Protection District Lake County Groundwater Management Plan - March 31, 2006 - page 2-24 to 27.*** The project site is in the Burns Valley Groundwater Basin. Burns Valley Basin is in the Shoreline Inventory Unit. The Franciscan Formation borders the Burns Valley Basin on the north, Clear Lake borders the basin on the west, and the Cache Formation borders the basin on the south and east.

Water-Bearing Formations:

Quaternary Alluvium

The valley lowlands contain stream channel gravel and adjacent floodplain deposits. These lowland deposits are Quaternary Alluvium and are composed of silt, sand, and gravel. The southern end of the valley has a maximum thickness of approximately 50 feet (DWR 2003). Groundwater in this formation is unconfined and typically provides water for domestic use.

Quaternary Terrace Deposits

Quaternary Terrace Deposits have been deposited on the sides of the alluvial plain in the Burns Valley Basin. The terrace deposits are approximately 15 feet above the valley

floor and slope up the valley to a similar elevation as the foothill exposures of the Cache Formation. Groundwater in this formation is not well understood.

Lower Lake Formation

The Lower Lake Formation, consisting of lake deposits, underlies the alluvial and terrace deposits in the Burns Valley Basin. The formation consists of fine sands, silts, and thick interbeds of marl and limestone (Rymer 1981) and has a maximum thickness of 200 feet (DWR 2003). The formation has low permeability and provides water to wells at up to a few hundred gallons per minute (DWR 2003).

Groundwater Hydrogeology

The Watershed Protection District monitors one well in the Burns Valley Basin. The monitoring well indicates that groundwater levels fluctuate from 2 feet below ground surface in the spring to 10 feet below ground surface in the fall. The well also indicates that water levels rose in the Burns Valley Basin in 1981-1983. No information on groundwater movement is available. DWR estimates the useable storage capacity to be 1,400-acre feet (DWR 1960). Average-year agricultural groundwater demand in the Burns Valley basin is approximately 14 acre-feet per year.

Groundwater Quality/Inelastic Land Surface Subsidence

DWR monitors a number of wells for water quality in the Burns Valley Basin. Monitoring is not extensive enough to determine trends in groundwater quality nor the overall character of groundwater in the basin. Information was not available from DHS for the Burns Valley Groundwater Basin. Current information regarding inelastic land surface subsidence is unavailable.

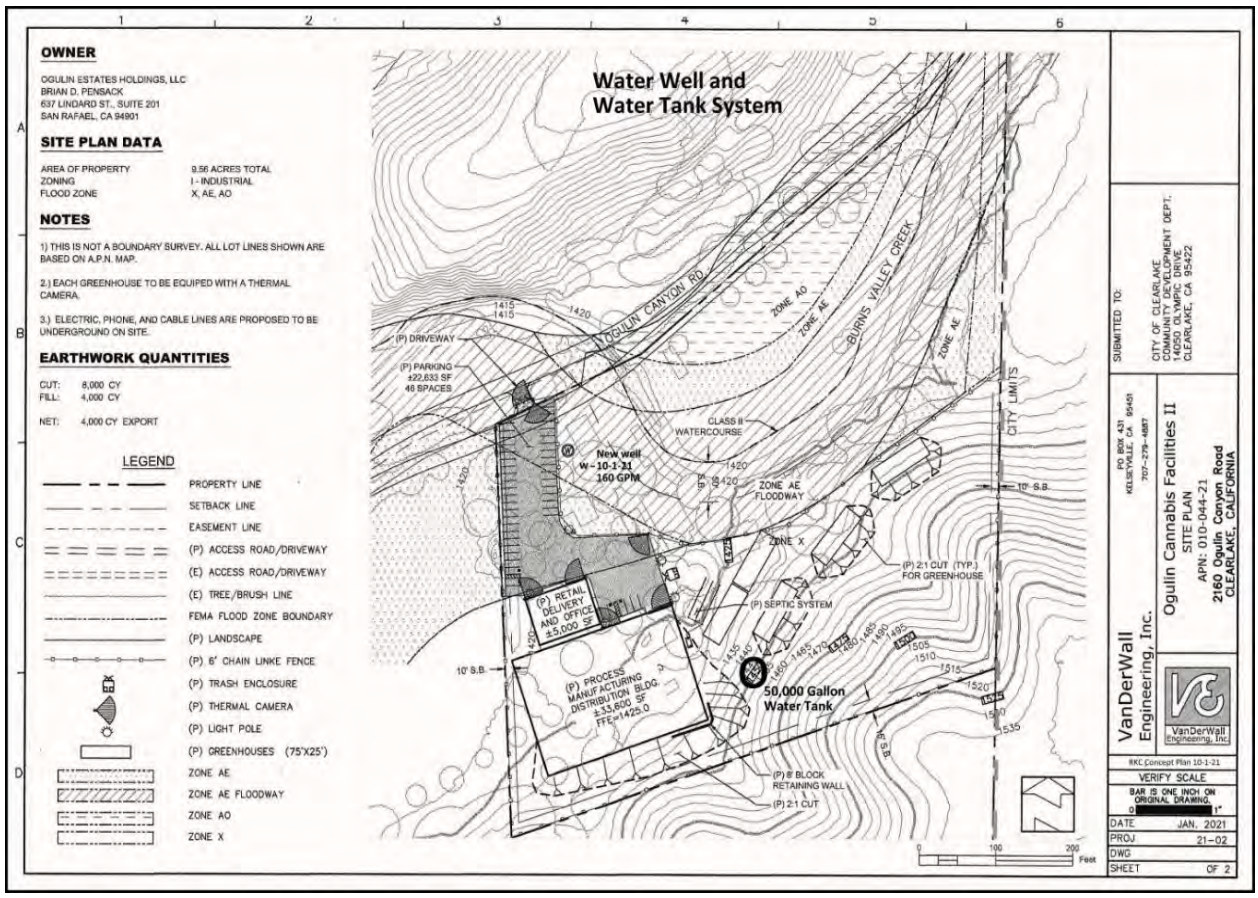
Groundwater Wells

There are 86 domestic wells and 13 irrigation wells in the Burns Valley Basin. Approximately 50 percent of domestic wells are shallower than 75 feet deep, and approximately 50 percent of irrigation wells are shallower than 250 feet deep.

Conclusion - Water Availability

Based on the fact that the new well will have a supply capacity of over 9,000,000 gallons per year and that the estimated water demand for the project is 1,088,240 gallons per year, there is adequate water availability for the project.

Water Availability Report
2160 Ogulin Canyon Road
Cannabis Processing and Cultivation Project



Richard Knoll Consulting
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richardk2255@hotmail.com

October 14, 2021

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

Denise Pomeroy
Health Services Director

Erin Gustafson
Public Health Officer

Jasjit Kang
Environmental Health Director

SEAL WITHOUT WITNESS

Permit Number: WE 5718-AG

Site Address: 2160 Ogulin Canyon RD Clearlake CA. 95422

Assessor's Parcel No: 010 - 044 - 21

Owner Name: Ogulin Hills Holdings LLC

Date: 10/1/21

REASON FOR SEAL WITHOUT WITNESS:

☐ **Emergency Seal – Explain:** _____

☒ **Inspector unable to witness**

☐ **Other:** _____

IMPERMEABLE LAYER in which annular space terminates:

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

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

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

DRILLING CONTRACTOR SIGNATURE: _____

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

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

File Original with DWR

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

Page 1 of 1
Owner's Well Number 2
Date Work Began 9-29-21 Date Work Ended 10-1-21
Local Permit Agency Lake County Environmental Health
Permit Number WE-5718AC Permit Date 9-28-21

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

Geologic Log

Orientation ● Vertical ○ Horizontal ○ Angle Specify
Drilling Method Air Rotary Drilling Fluid NA

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

Total Depth of Boring 305 Feet
Total Depth of Completed Well 300 Feet

Well Owner

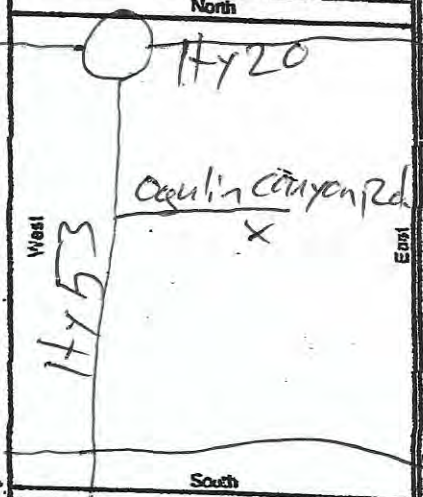
Name Oaulin Hills Holdings
Mailing Address 657 Lindaro St. Suite 201
City San Rafael State CA Zip 94901

Well Location

Address 2160 Ogulin canyon RD
City Clearlake CA County LAKE
Latitude Deg. Min. Sec. N Longitude Deg. Min. Sec. W
Datum Dec. Lat. Dec. Long.
APN Book 010 Page 044 Parcel 21
Township Range Section

Location Sketch

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



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

Activity

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

Planned Uses

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

Water Level and Yield of Completed Well

Depth to first water 80' (Feet below surface)
Depth to Static Water Level 30' (Feet) Date Measured 9-30-21
Estimated Yield * 100+ (GPM) Test Type Air Lift
Test Length 2hrs (Hours) Total Drawdown (Feet)
*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (inches)	Type	Material	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size If Any (inches)
0	80	9"	F480	PVC	sch 40	4½"	None	None
80	100	9"	F480	PVC	sch 40	4½"	Perfs	.032
100	240	9"	F480	PVC	sch 40	4½"	Blanks	N/A
240	300	9"	F480	PVC	sch 40	4½"	Perfs	.032

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	20	Concrete	SEAL
1	21	Bentonite	
21	300	Sig Rea	Gravel Pack

Attachments

☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other
Attach additional information, if 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]
C-57 Licensed Water Well Contractor
10-1-21 1009053
Date Signed C-57 License Number

DWR 188 REV 1/2005

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

OWNER

OGULIN ESTATES HOLDINGS, LLC
BRIAN D. PENSACK
637 LINDARD ST., SUITE 201
SAN RAFAEL, CA 94901

SITE PLAN DATA

AREA OF PROPERTY	9.56 ACRES TOTAL
ZONING	I - INDUSTRIAL
FLOOD ZONE	X, AE, AO

NOTES

1) THIS IS NOT A BOUNDARY SURVEY. ALL LOT LINES SHOWN ARE BASED ON A.P.N. MAP.

2.) EACH GREENHOUSE TO BE EQUIPED WITH A THERMAL CAMERA.

3.) ELECTRIC, PHONE, AND CABLE LINES ARE PROPOSED TO BE UNDERGROUND ON SITE.

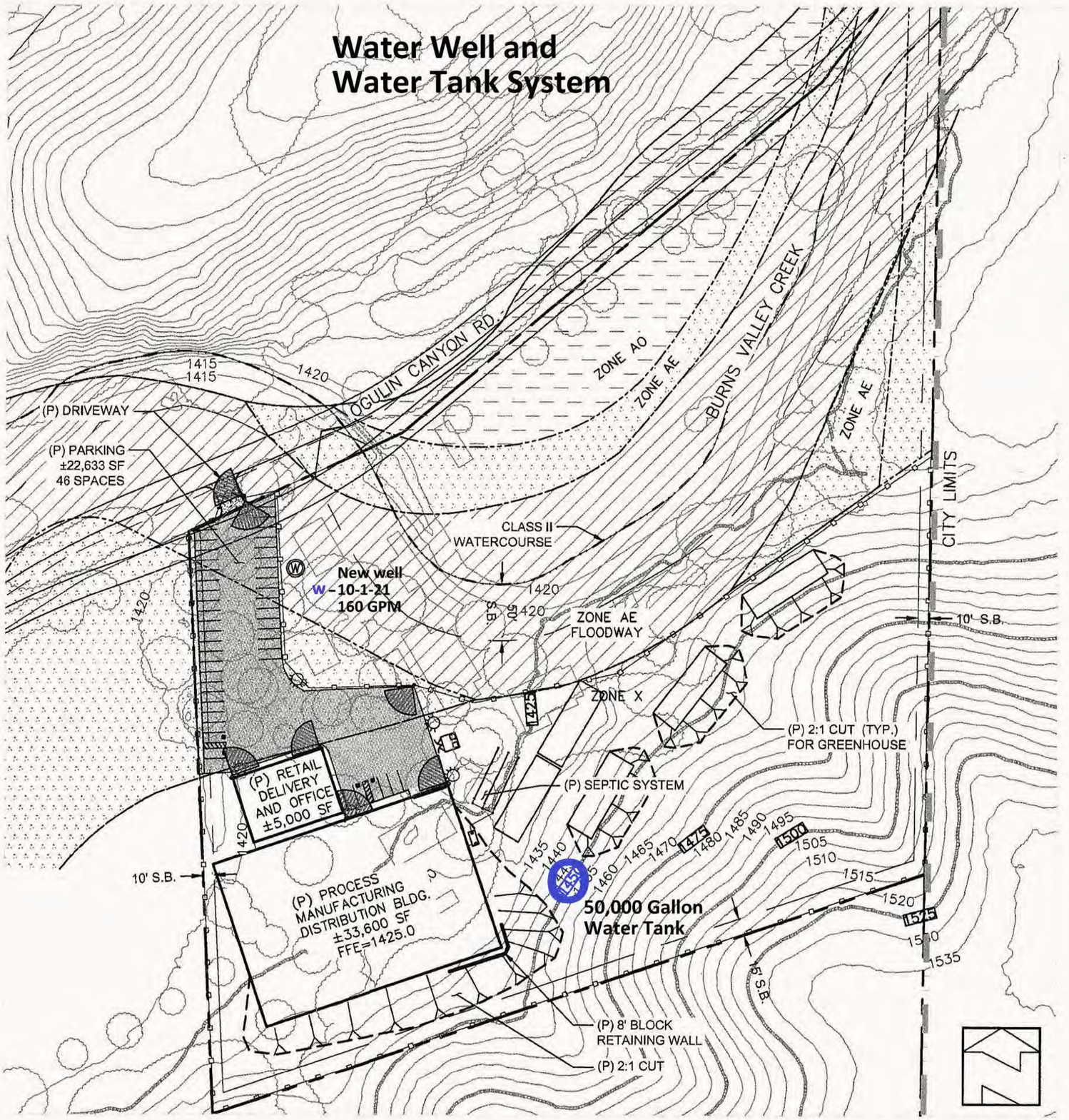
EARTHWORK QUANTITIES

CUT: 8,000 CY
FILL: 4,000 CY

NET: 4,000 CY EXPORT

LEGEND

- PROPERTY LINE
- SETBACK LINE
- EASEMENT LINE
- (P) ACCESS ROAD/DRIVEWAY
- (E) ACCESS ROAD/DRIVEWAY
- (E) TREE/BRUSH LINE
- FEMA FLOOD ZONE BOUNDARY
- (P) LANDSCAPE
- (P) 6' CHAIN LINKE FENCE
- (P) TRASH ENCLOSURE
- (P) THERMAL CAMERA
- (P) LIGHT POLE
- (P) GREENHOUSES (75'X25')
- ZONE AE
- ZONE AE FLOODWAY
- ZONE AO
- ZONE X



SUBMITTED TO:
CITY OF CLEARLAKE
COMMUNITY DEVELOPMENT DEPT.
14050 OLYMPIC DRIVE
CLEARLAKE, CA 95422

VanDerWall Engineering, Inc.
PO BOX 431
KELSEYVILLE, CA 95451
707-279-4887

Ogulin Cannabis Facilities II

SITE PLAN
APN: 010-044-21
2160 Ogulin Canyon Road
CLEARLAKE, CALIFORNIA

VanDerWall Engineering, Inc.

RKC Concept Plan 10-1-21
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	JAN. 2021
PROJ	21-02
DWG	
SHEET	OF 2