Exhibit A5

VANDERWALL ENGINEERING

# Hydrology Report to Determine Area of Influence for Cultivation Irrigation Wells

for

Lake Coco Farms

Project Site Location:
APN: 005-006-07 & 005-013-01
3547 & 3417 Hendricks Road
Lakeport, CA 95453

December 21, 2021

REGISTERED PROFESSIONAL ENGINEER
WILLIAM VANDERWALL
C 62560
EXP 12/31/23
CIVIL
STATE OF CALIFORNIA

Prepared for:

Lake County
Community Development Department
255 North Forbes Street
Lakeport, CA 95453

VANDERWALL ENGINEERING

## INTRODUCTION

The purpose of this study is to provide adequate information of the water usage and the impacts to the surrounding area for a proposed commercial cannabis cultivation site. The site is proposing a maximum 287,320 sq.ft. (6.59 acre) of commercial cannabis canopy area.

The parcels on which the project and wells are located are owned and managed by Lake Coco Holdings LLC which is owned by Micheal Sebour and Jolene Strange.

This report estimates the amount of water available and recharge rate during a drought year from the existing well. In addition, this report estimates the radius of influence to the surrounding area and estimates the cumulative impacts where interference is with existing wells.

This report has been prepared to comply with the County of Lake Ordinance 3106, "AN URGENCY ORDINANCE REQUIREING LAND USE APPLICANTS TO PROVIDE ENHANCED WATER ANALYSIS DURING A DECLARED DROUGHT EMERGENCY" approved by the Lake County Board of Supervisors on July 7, 2021.

## STUDY LIMITATIONS

The yield of wells cannot be estimated with precision because of the uncertainty with the aquifer and the amount of rain percentage of rainfall that percolates through the ground. Therefore, conservative estimates and assumptions are used in this report.

This study is based on the following information and assumptions.

- Cooper – Jacob well equation
- Well Completion Reports obtained from Lake County EHD and CA Dept. of Water Resources Database
- Well Yield Test and Drillers Reports
- Rainfall for a drought year is 20% of annual precipitation
- Aquifer is uniform throughout the wells area of influence


Civil Engineering
Wm. VanDerWall, R.C.E. 62560
3745 E. Main Street • Kelseyville, CA 95451 • (707) 279-4887
www.vdwengr.com • contact@vdwengr.com

# WELL

Well #1 is the well that will be used for irrigating the proposed cultivation project. A 1000 ft radius was placed around the radius of influence of well #1. A radius of influence was calculated for all wells that fell within the 1000 ft radius. In this case, well #2 did not have a well drillers report on file with the state or county. Therefore, an assumed conservative 300' radius was used. Well #3 fell just outside the 1000' radius but did have a well drillers report on file, so for data gathering purposes, a radius of influence was calculated for that well. See Well Area of Influence Map in Appendix B.1 and see the Surrounding Area Map in Appendix B.2. All wells were located using information gathered via site visit, the County of Lake Environmental Health Department, and the CA Department of Water Resources. See well descriptions below.

## WELL #1

- Southern vicinity of APN: 005-013-01.
- See Appendix B for well maps.
- Total drill depth of 52 feet.
- The capacity of the well is at least 120 gpm.
- Use: "Lake Coco Farms" Commercial Cannabis Irrigation.

## WELL #2

- Western vicinity of APN: 005-013-21.
- See Appendix B for well maps.
- Total drill depth is N/A.
- The capacity of the well is N/A.
- Use: Domestic.

## WELL #3

- Northwest vicinity of APN: 005-014-26.
- See Appendix B for well maps.
- Total drill depth is estimated at 300 feet.
- The capacity of the well is 10 gpm.
- Use: Domestic.



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## WELL RADIUS OF INFLUENCE

The well radius of influence (cumulative impact) is estimated by the Cooper-Jacob equation:

$$R_{(well)} = \sqrt{\frac{2.24584Tt}{S}}$$

Where,

$R_{(well)}$ = Radius of Influence (m)
t = time (days)
T = transmissivity ($m^2$ / day)
S = water storage capacity (%) unitless

$$T = K * b$$

Where,

K = 2.0 E-4 m/s for Basalt porosity
b = (Total Drill Depth of Well) – (pump depth below clay layer)
t = 1 day = 86,400 sec
S = 0.15

Therefore;

$R_{(1)}$ => 44 m = 143 feet
$R_{(2)}$ => 91 m = 300 feet
$R_{(3)}$ => 137 m = 449 feet

There is no intersection between the radius of influence of any well. See Well Area of Influence Map in Appendix B.1.



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# WATER USAGE

The proposed project has a total canopy area of 287,320 sq.ft. (6.59 acre), 10,000 sq.ft (0.23 acre) immature plant area, and a 80'x120' processing facility for 5 employees during grow season and 10 employees during harvest season. These values were used for calculating the total water usage in gallons per year. See calculations below.

## WATER USAGE FOR WELL #1

The total water usage of the canopy area is estimated by the square footage of the canopy multiplied by the ft/year needed for a single cannabis plant. The ft/yr is estimated to be similar to a tomato plant, which is 20in/year or 1.66 ft/year. For immature plants, that value is cut in half from 1.66 ft/year to 0.83 ft/year. For processing buildings, a harvest season is defined to be a 13-week period, therefore, there is a 39-week non-harvest period per year.

$$W_{Irrigation} = A * (ft/yr)$$

$W_{Irrigation}$ = (6.59 acres) * (43,560 sf/acres) * (1.66 ft/year) * (7.48 gal/cf)
$W_{Irrigation}$ = **3,564,371 gal/year**

$W_{Irrigation\ Immature\ Plant}$ = (0.23 acres) * (43,560 sf/acres) * (0.83 ft/year) * (7.48 gal/cf)
$W_{Irrigation\ Immature\ Plant}$ = **62,200 gal/year**

$W_{Processing\ Building}$ (Harvest) = (10 employees) * (15 (gals/employee)/day) * (5 days/week) * (13 weeks/year) = 9,750 gal/year

$W_{Processing\ Building}$ (Non-Harvest) = (5 employees) * (15 (gals/employee)/day) * (5 days/week) * (39 weeks/year) = 14,625 gal/year

$W_{Processing\ Building}$ = 9,750 + 14,625 = **24,375 gal/year**

Total Water Usage = $W_{Irrigation}$ + $W_{Irrigation\ Immature\ Plant}$ + $W_{Processing\ Building}$

= 3,564,371 gal/year + 62,200 gal/year + 24,375 gal/year

= **3,650,946 gal/year**



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## AQUIFER RECHARGE

The proposed project has an estimated total annual water usage of 3,650,946 gallons per year.

The calculations of Aquifer Recharge are based on the tributary area to the radius of influence of Well #1. Per Well Recharge Area Map shown in Appendix B.3, the total recharge area is 1,556,024 sf.

Given: Annual Precipitation, P = 32 inches per year, assume a drought year is 20% of the annual precipitation, yields 6.4" (0.54165 ft) of rainfall. (Note: Rainfall of 2021 was 9" per NOAA for Lake County)

Volume of water for recharge = Area x Drought Precipitation x Coefficient of Seepage.

V = (1,556,024 sf) x (0.54165 ft/yr) x (7.48 gal/cf) x (0.7)

V = 4,413,007 gal/year

4,413,007 > 3,650,946 therefore the well is adequate to handle the 6.59 acres of cultivation in a drought year.

## CONCLUSION

Per our calculations and assumptions, the project has more than adequate water supply for the proposed irrigation use. Even in a drought year, our estimates show that the well has the capacity to handle the proposed water irrigation needs of the project, without impacting the surrounding neighbor's wells.

## DISCLAIMER

Our calculations are based on data that has been made available to Vanderwall Engineering through state and county records as of 12/21/2021. All supporting data has been provided in this report. There is no way to guarantee future conditions. If new supporting data is provided, calculations would need to be redone to take into account for said data.



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# Appendix

A. Well Pump Test and Well Location/Plot Plans

B. Maps

B1. Well Area of Influence Map
B2. Surrounding Aerial Map
B3. Well Recharge Area

# Appendix

# A

ORIGINAL
File Original, Duplicate and Triplicate with the
REGIONAL WATER POLLUTION
CONTROL BOARD No. 5
(Insert appropriate number)

# WATER WELL DRILLERS REPORT

(Sections 7076, 7077, 7078, Water Code)

THE RESOURCES AGENCY OF CALIFORNIA

Do Not Fill In
Nº 107967

State Well No.
Other Well No. 14/10-10

WELL #1

## (2) LOCATION OF WELL:

County LAKE Owner's number, if any—
R. F. D. or Street No. T14N, R10W, SEC 10
EAST OF MARSCHALL RANCH HOME

## (3) TYPE OF WORK (check):

New well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
*If abandonment, describe material and procedure in Item 11.*

## (4) PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

## (5) EQUIPMENT:

Rotary ☐
Cable ☒
Dug Well ☐

## (6) CASING INSTALLED:

SINGLE ☒ DOUBLE ☐
From 0 ft. to 53 ft. 12 Diam. .188 Gage or Wall

If gravel packed

| Diameter of Bore | from ft. | to ft. |
|---|---|---|
| | | |

Type and size of shoe or well ring 3/8 X 12
Size of gravel:
Describe joint BUTT WELD

## (7) PERFORATIONS:

Type of perforator used FACTORY
Size of perforations 3 in., length, by 1/8 in.
From 40 ft. to 52 ft. 6 Perf. per row 4 Rows per ft.

## (8) CONSTRUCTION:

Was a surface sanitary seal provided? ☐ Yes ☒ No To what depth ft.
Were any strata sealed against pollution? ☐ Yes ☐ No If yes, note depth of strata
From ft. to ft.
Method of Sealing

## (9) WATER LEVELS:

Depth at which water was first found 28 ft.
Standing level before perforating — ft.
Standing level after perforating 15 ft.

## (10) WELL TESTS:

Was a pump test made? ☐ Yes ☒ No If yes, by whom? BAIL TEST
Yield: 120 gal./min. with 2 ft. draw down after 1/2 hrs.
Temperature of water COLD Was a chemical analysis made? ☐ Yes ☒ No
Was electric log made of well? ☐ Yes ☒ No

## (11) WELL LOG:

Total depth 52 ft. Depth of completed well 52 ft.
Formation: *Describe by color, character, size of material, and structure.*

| ft. | to ft. | |
|---|---|---|
| 0 | 5 | SOIL |
| 5 | 24 | BROWN CLAY / SOME ROCKS |
| 24 | 28 | SOFT BROWN CLAY |
| 28 | 32 | BROWN HARD PAN |
| 32 | 38 | BROWN CLAY |
| 38 | 39 | BROWN HARD PAN |
| 39 | 52 | CEMENTED GRAVEL |

CONFIDENTAL LOG
Water Code Sec. 7080

Work started 8/14/67, Completed 8/14 1967

WELL DRILLER'S STATEMENT:
*This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.*

NAME J.W. HUTTON (Person, firm, or corporation) (Typed or printed)
Address LAKEPORT

[SIGNED] J.W. Hutton
Well Driller
License No. 153912 Dated 8/15, 1967

87649 5-63 25M QUIN ① △ SPO DWR 188 (REV. 3-54)

**Cramer Enterprises**
977 20th st.
Lakeport, CA 95453 US
(707) 349-8575
eric.cramer@yahoo.com
http://www.cramerent.com

# Invoice 2622

WELL #1

| BILL TO | SHIP TO |
|---|---|
| Jolene Strange<br>Lake Coco Holdings LLC<br>4260 North State St<br>Ukiah, CA 95482 USA | Jolene Strange<br>Lake Coco Holdings LLC<br>3547 Hendricks Rd<br>Lakeport, CA 95453 USA |

| DATE | PLEASE PAY | DUE DATE |
|---|---|---|
| 03/27/2020 | $3,187.62 | 04/03/2020 |

| DESCRIPTION | QTY | RATE | AMOUNT |
|---|---|---|---|
| Wants us to do a well inspection. Would like to be emailed regarding whether or not the Ag suitability tests for boron, and would like to know if she needs to be on site for the inspection.<br><br>Arrived on site on 4/2/20 and performed two well tests per realtor Iris Angeleri. She is calling customer for permission and asked for Ag suitability, nitrate, bacti, and a production test for both wells. She said that the customer would like to put a rush on the test results and doesn't care how much it costs. Started the test on Ag/House well. It is a 12" steel well that also has a 1HP pump for the main house. Used a 5HP 3 phase 230v pump for the Ag to do the test in the same well. Performed the well test at 102 Gpm and the well only drew down to 10' from a static of 7' and it fully recovered in 7 seconds.<br><br>Well yield test log is attached<br><br>HP: 5 hp 230 3 phase. Diameter: 12". Static: 7'. Depth: 88'. Iron: 2.0. Hardness: 10. Ph: 6.5. | 1 | 1,200.00 | 1,200.00 |
| 4/2/20 Went to second well to perform the other test and found that the well gives water to the guest house. It is a 12" steel well with a static of 7.6 and a draw down of only 8.7 at 30 Gpm. It is a 1 HP pump in this well and at the end of the test it fully recovered in 22 seconds.<br><br>Well yield test log is attached<br><br>HP: 1 hp sub. Diameter: 12. Static: 7.6. Depth: 77'. Iron: 20. Hardness: 11. Ph: 6.8. | 1 | 650.00 | 650.00 |
| Agricultural Suitability Water Analysis - Rushed | 2 | 495.00 | 990.00T |
| Bacti water sample - Rushed | 2 | 85.00 | 170.00T |

Eric Cramer

DRINKING WATER SECTION

# WELL YIELD TEST LOG

Name of PWS: Jolene Strange/Michael Sebour/ Lake Coco Holdings LLC

Well Name: Domestic Well 3547 Hendricks Rd

Depth to Pump[1] (ft): 77

Static Water Level[1] (ft): 7.6

| Date | Time | Elapsed Time (Hrs.;Min.) | Pumping Rate (gpm) | Water Level[1] (feet) | Drawdown[2] (feet) | Comments |
|---|---|---|---|---|---|---|
| 04/02/20 | 15:20 | 1 min | 30 | | 7.6 | clear |
| | 15:21 | 1 min | 30 | | 8.6 | |
| | 15:22 | 1 min | 30 | | 8.7 | |
| | 15:23 | 1 min | 30 | | 8.7 | |
| | 15:24 | 1 min | 30 | | 8.7 | |
| | 15:25 | 1 min | 30 | | 8.7 | |
| | 15:30 | 5 min | 30 | | 8.7 | |
| | 15:35 | 5 min | 30 | | 8.7 | |
| | 15:40 | 5 min | 30 | | 8.7 | |
| | 15:45 | 5 min | 30 | | 8.7 | |
| | 15:50 | 5 min | 30 | | 8.7 | |
| | 16:00 | 5 min | 30 | | 8.7 | |
| | 16:05 | 5 min | 30 | | 8.7 | |
| | 16:10 | 5 min | 30 | | 8.7 | |
| | 10:25 | 15 min | 30 | | 8.7 | |
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| | Recovered | fully to 7.6' in 22 seconds | | | | |
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| | | | | | | |

[1] Measured from the established ground surface. [2] Water level minus static level.

Estimated well yield @ 30 GPM on this date 4/2/2020. Well yield subject to change at anytime

DRINKING WATER SECTION

# WELL YIELD TEST LOG

Name of PWS: Jolene Strange/Michael Sebour/ Lake Coco Holdings LLC

Well Name: Ag Well 3547 Hendricks Rd

Depth to Pump[1] (ft): 88

Static Water Level[1] (ft): 7

| Date | Time | Elapsed Time (Hrs.;Min.) | Pumping Rate (gpm) | Water Level[1] (feet) | Drawdown[2] (feet) | Comments |
|---|---|---|---|---|---|---|
| 04/02/20 | 13:15 | 1 min | 102 | | 7 | Brown iron color |
| | 13:16 | 1 min | 102 | | 9' | |
| | 13:17 | 1 min | 102 | | 9.7 | |
| | 13:18 | 1 min | 102 | | 9.9 | |
| | 13:19 | 1 min | 102 | | 9.9 | |
| | 13:20 | 5 Min | 102 | | 9.9 | |
| | 13:25 | 5 min | 102 | | 9.9 | Clearing |
| | 13:30 | 5 min | 102 | | 10 | |
| | 13:35 | 5 min | 102 | | 10 | Clear |
| | 13:40 | 5 min | 102 | | 10 | |
| | 13:45 | 5 min | 102 | | 10 | |
| | 13:50 | 10 min | 102 | | 10 | |
| | 14:00 | 5 min | 102 | | 10 | |
| | 14:05 | 5 min | 102 | | 10 | |
| | 14:10 | 5 min | 102 | | 10 | |
| | 14:15 | 5 min | 102 | | 10 | |
| | 14:20 | 10 min | 102 | | 10 | |
| | 14:30 | 10 min | 102 | | 10 | |
| | 14:40 | 10 min | 102 | | 10 | |
| | | | | | | |
| | | | | | | |
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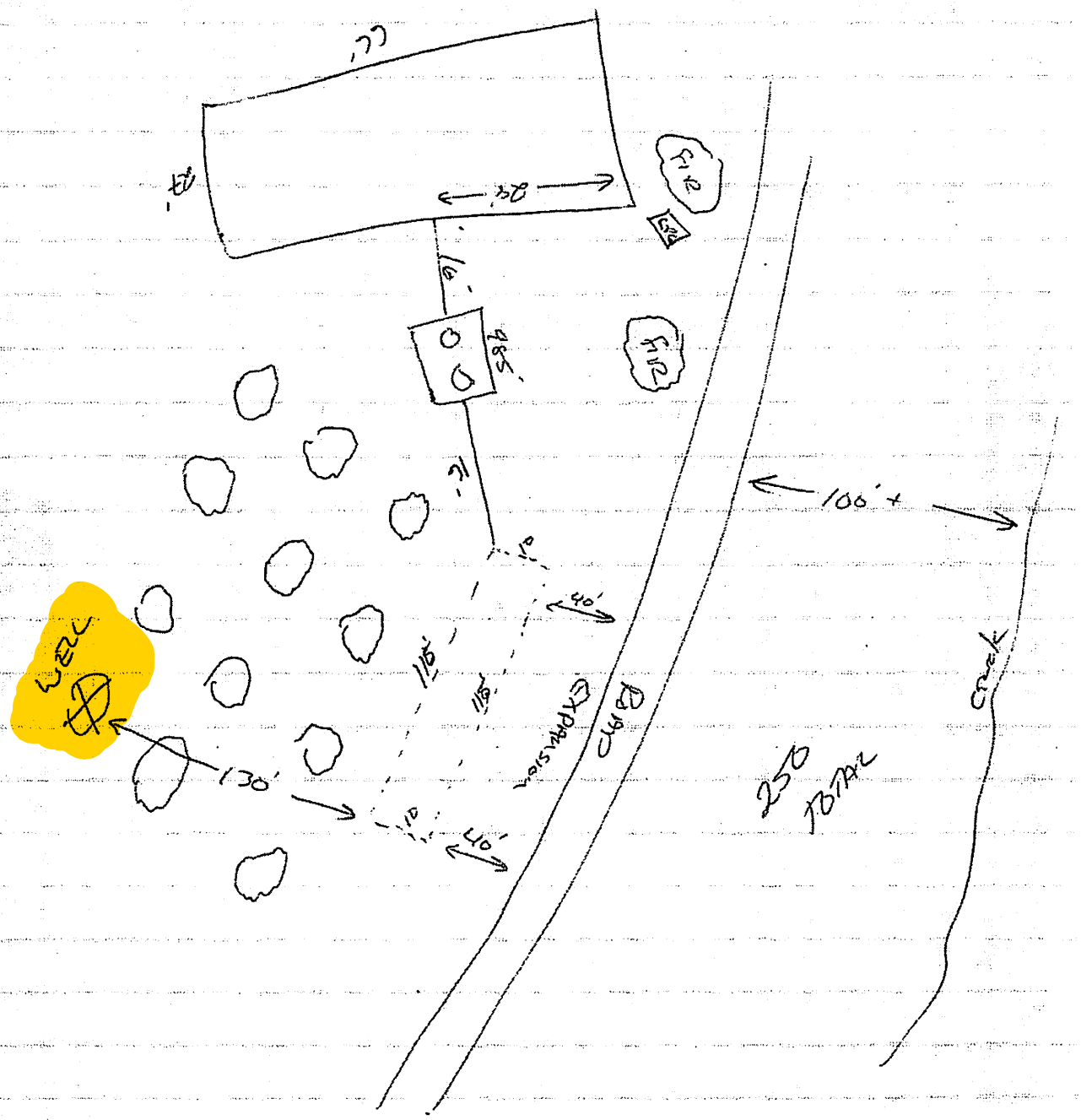
| | | | | | | |
| | | | | | | |
| | Recovered fully to 7' in 8 seconds | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

[1] Measured from the established ground surface. [2] Water level minus static level.

Estimated well yield @ 102 GPM on this date 04/02/2020. Well yield subject to change at anytime

005-013-01

WELL #1



APPROVED
LAKE COUNTY HEALTH DEPT.
Date: 4-10-92
Environmental Health Specialist

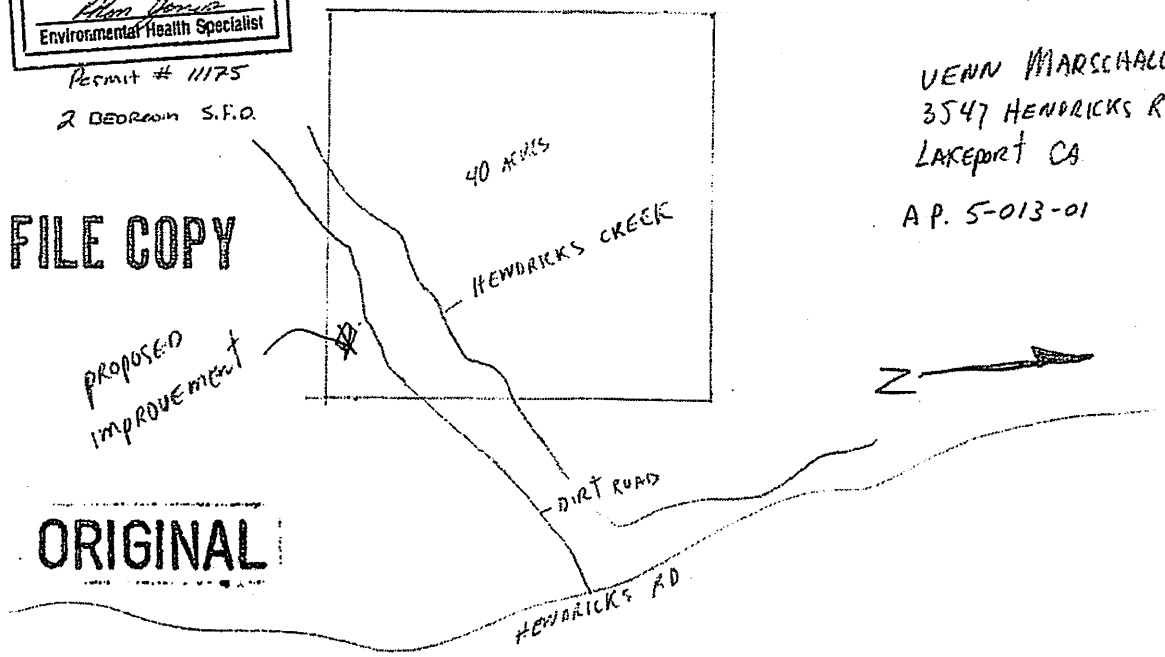
Permit # 11175
2 BEDROOM S.F.D.

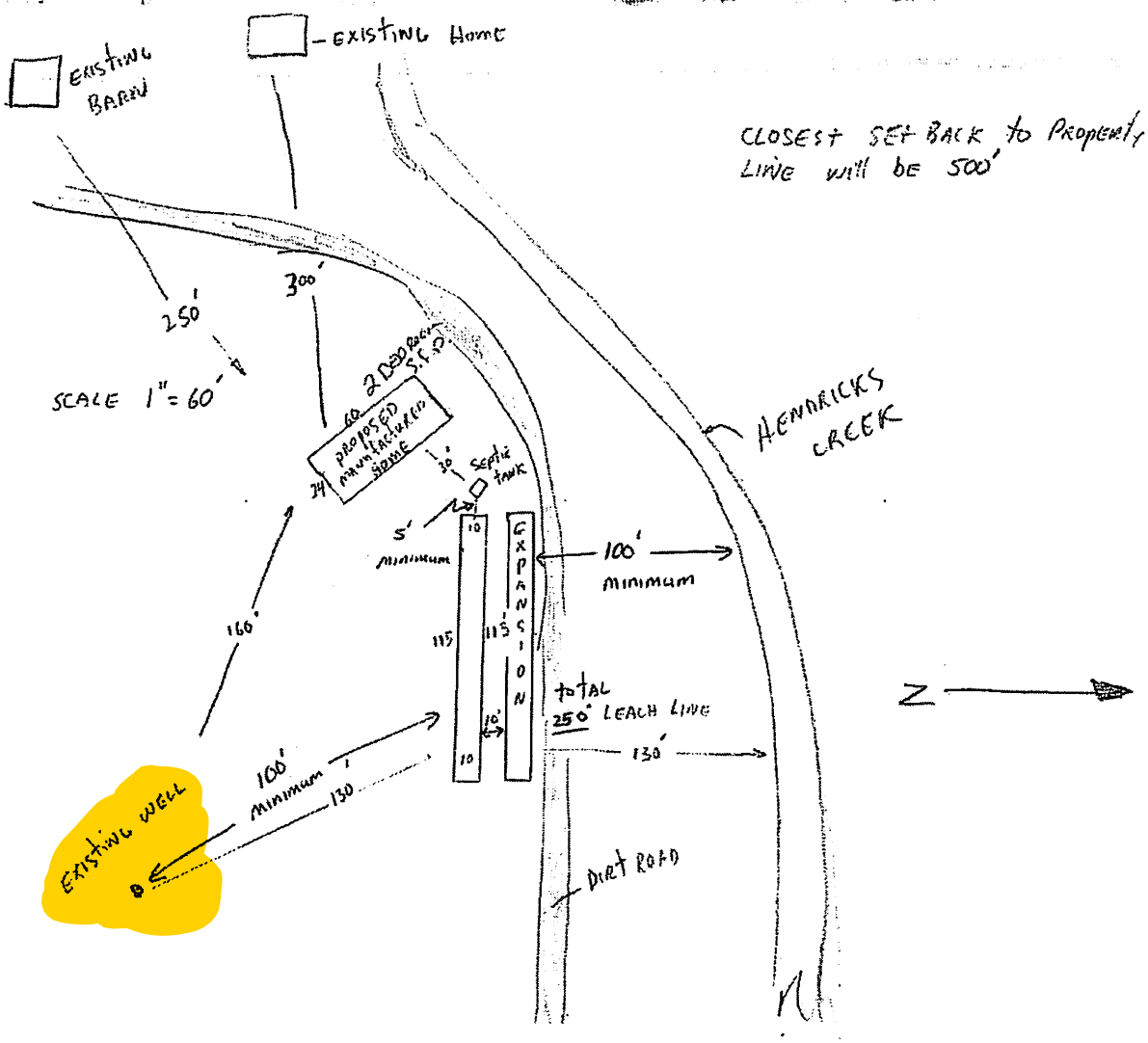
FILE COPY

ORIGINAL

LOCATION MAP Not to SCALE

VENN MARSCHALL
3547 HENDRICKS RD
LAKEPORT CA
A.P. 5-013-01



**ORIGINAL**
**File with DWR**

**RECEIVED**
MAR 29 1999

STATE OF CALIFORNIA
# WELL COMPLETION REPORT
*Refer to Instruction Pamphlet*

No. 705635

Page ____ of ____
Owner's Well No. ____
Date Work Began 10-10-98, Ended 10-15-98
Local Permit Agency Lake County Environmental Health
Permit No. WE1599 Permit Date 10-9-98

DWR USE ONLY — DO NOT FILL IN
14N/10W-10M
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

WELL #3

## GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD Rotary FLUID Air

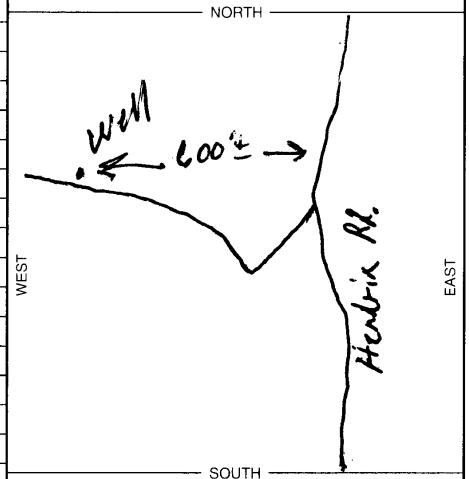
| DEPTH FROM SURFACE Ft. | to Ft. | DESCRIPTION *Describe material, grain size, color, etc.* |
|---|---|---|
| 0 | 4 | Brn. Gravelly Soil |
| 4 | 63 | Red Gravelly Clay |
| 63 | 80 | Blue Shale |
| 80 | 92 | Purple Shale |
| 92 | 115 | Bluegreen + Black Shale |
| 115 | 145 | Hard Gray Shale |
| 145 | 156 | Purple Shale |
| 156 | 222 | Green Shale |
| 222 | 226 | Blue-gray gritic clay |
| 226 | 268 | Purple Shale |
| 268 | 300 | Gray + Green Shale |

TOTAL DEPTH OF BORING 300 (Feet)
TOTAL DEPTH OF COMPLETED WELL 300 (Feet)

## WELL LOCATION

Address 3075 Hindrix Rd.
City Lakeport
County Lake
APN Book 005 Page 014 Parcel 26
Township 14N Range 10W Section 10
Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

## LOCATION SKETCH




*Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary.* ***PLEASE BE ACCURATE & COMPLETE.***

## ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

## PLANNED USES (✓)

WATER SUPPLY
X Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

## WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 280 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL ___ (Ft.) & DATE MEASURED ___
ESTIMATED YIELD * 10 (GPM) & TEST TYPE Air Lift
TEST LENGTH 1 (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
** May not be representative of a well's long-term yield.*

## CASING (S)

| DEPTH FROM SURFACE Ft. | to Ft. | BORE-HOLE DIA. (Inches) | TYPE (✓) BLANK | SCREEN | CON-DUCTOR | FILL PIPE | MATERIAL / GRADE | INTERNAL DIAMETER (Inches) | GAUGE OR WALL THICKNESS | SLOT SIZE IF ANY (Inches) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 63 | 9 | X | | | | PVC F480 | 4½ | SDR26 | |
| 63 | 260 | 7 | X | | | | PVC F480 | 4½ | SDR26 | |
| 260 | 300 | 7 | | X | | | PVC F480 | 4½ | SDR26 | 2X1/8 |

## ANNULAR MATERIAL

| DEPTH FROM SURFACE Ft. | to Ft. | TYPE CE-MENT (✓) | BEN-TONITE (✓) | FILL (✓) | FILTER PACK (TYPE/SIZE) |
|---|---|---|---|---|---|
| 0 | 21 | X | | | |
| 21 | 300 | | | | Pea Gravel |

MAR 30 1999

## 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 Dan McMullen Well Drilling
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS 1487 Old Long Valley Rd. CITY Clearlake Oaks STATE CA ZIP 95423
Signed Dan L McMullen (WELL DRILLER/AUTHORIZED REPRESENTATIVE) DATE SIGNED 11-20-98 C-57 LICENSE NUMBER 533152



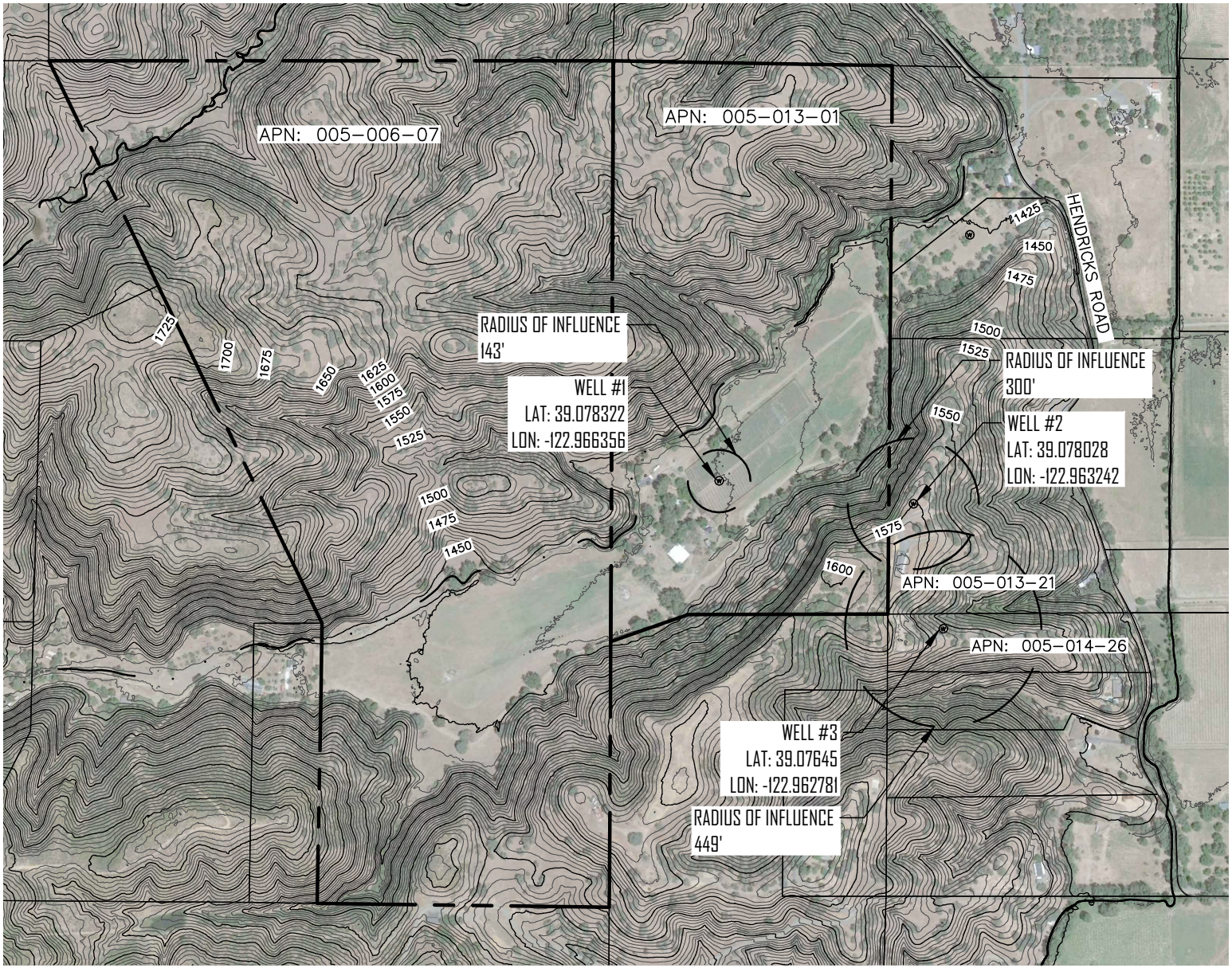
IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

# Appendix

# B

# Well Area of Influence Map

## APPENDIX B.1




5' MINOR AND 25' MAJOR CONTOUR INTERVAL

0 700 1400 Feet

SUBMITTED TO:

LAKE COUNTY COMMUNITY DEVELOPMENT DEPT.
COUNTY OF LAKE
LAKEPORT, CA


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


WELL AREA OF INFLUENCE MAP

APN's: 005-006-07 & 005-013-01

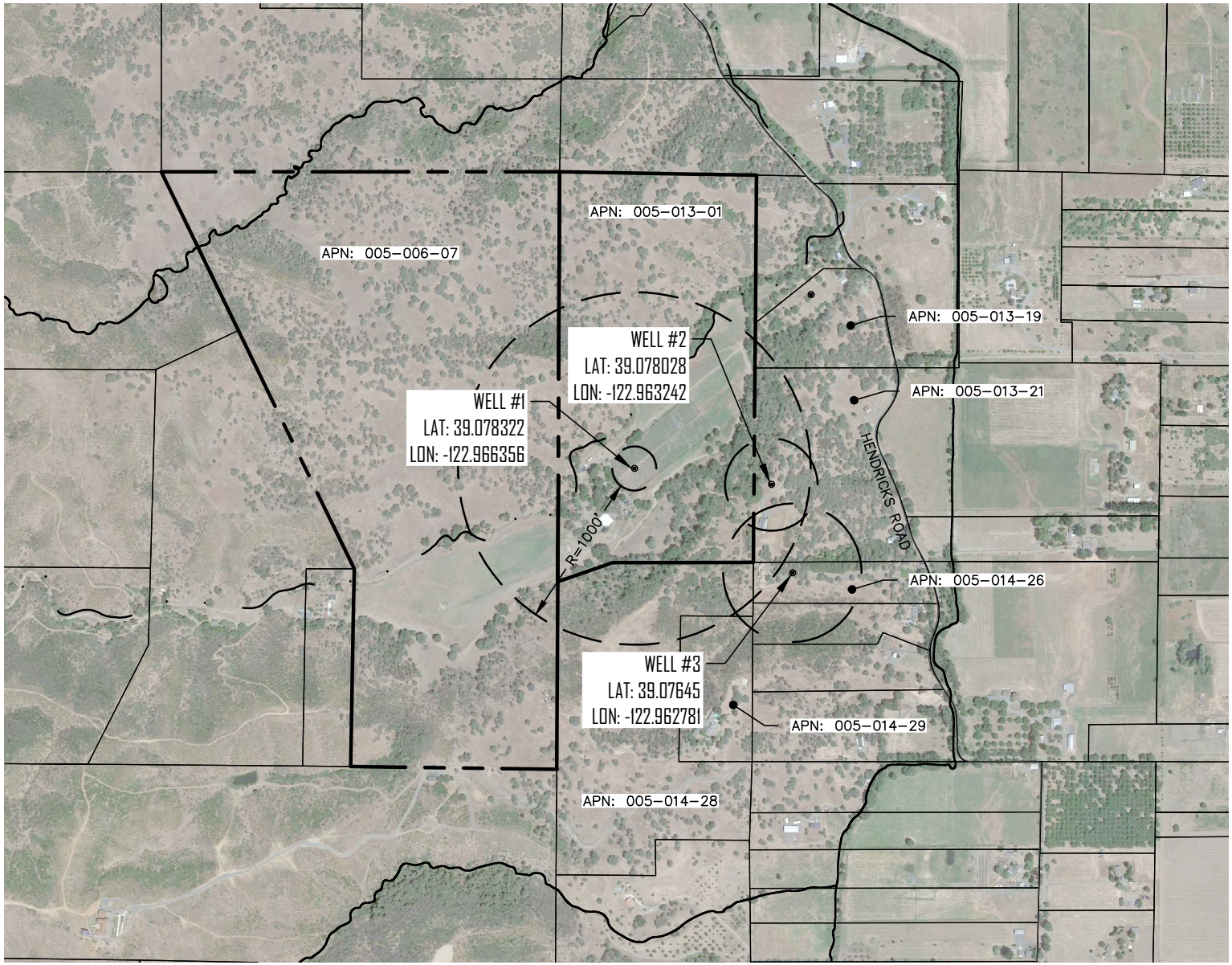
**3547 & 3417 HENDRICKS ROAD**
**LAKEPORT, CALIFORNIA**

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1/2"

| | |
|---|---|
| DATE | DEC 2021 |
| PROJ | 21-79 |
| DWG | |
| APPENDIX | B.1 |

# Surrounding Area Map

## APPENDIX B.2




0 1000 2000 Feet

SUBMITTED TO:

LAKE COUNTY COMMUNITY DEVELOPMENT DEPT.
COUNTY OF LAKE
LAKEPORT, CA


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


SURROUNDING AREA MAP

APN's: 005-006-07 & 005-013-01

**3547 & 3417 HENDRICKS ROAD**
**LAKEPORT, CALIFORNIA**

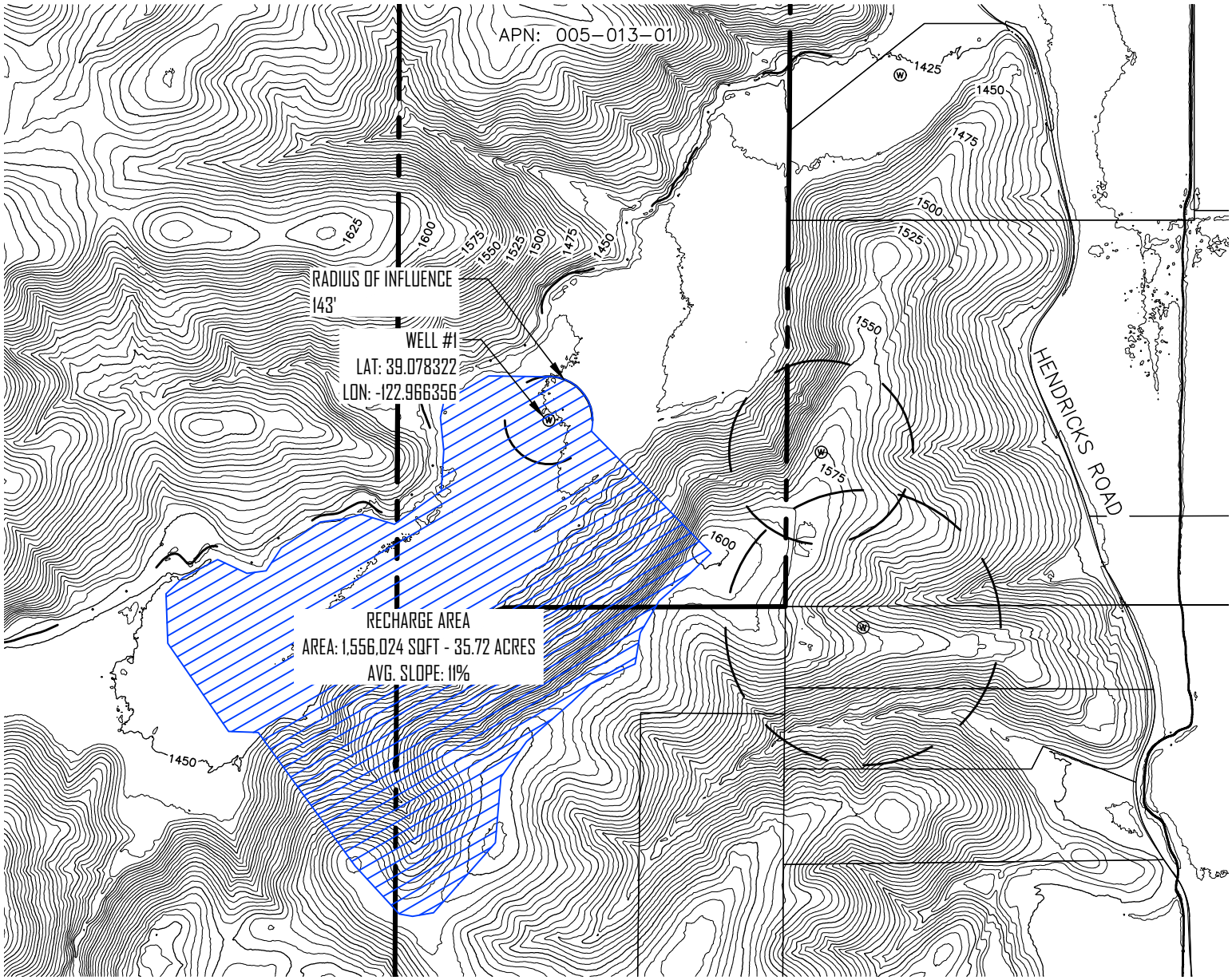
VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1/2"

| | |
|---|---|
| DATE | DEC 2021 |
| PROJ | 21-79 |
| DWG | |
| APPENDIX | B.2 |

# Well Recharge Area Map

## APPENDIX B.3




5' MINOR AND 25' MAJOR CONTOUR INTERVAL

0 500 1000 Feet

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WELL RECHARGE AREA MAP

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# DROUGHT MANAGEMENT PLAN
# LAKE COCO FARMS

The Urgency Ordinance approved by the Lake County Board of Supervisors on July 27th, 2021 (Ordinance No. 3106) requires applicants to provide a plan depicting how the applicants plan to reduce water use during a declared drought emergency. The proposed commercial cannabis cultivation operation would be composed of five A-Type 3 "Medium Outdoor" Lake County License Types, with up to 205,800 $ft^2$ of combined cannabis canopy. All water for the proposed cultivation operation would come from an existing onsite groundwater well located at Latitude 39.07832° and Longitude -122.96637° on APN 005-013-01. The proposed cultivation operation would have an annual water use requirement of approximately 9.7 to acre-feet (3,165,866 gallons).

Per the Water Conservation and Use requirements outlined in the State Water Resources Control Board's Cannabis General Order, the Applicant shall implement the following Best Practical Treatment and Control (BPTC) measures to conserve water resources:

- Regularly inspect the entire water delivery system for leaks and immediately repair any leaky faucets, pipes, connectors, or other leaks;
- Apply weed-free mulch in cultivation areas that do not have ground cover to conserve soil moisture and minimize evaporative loss;
- Implement water conserving irrigation methods (drip or trickle and micro-spray irrigation);
- Maintain daily records of all water used for irrigation of cannabis. Daily records will be calculated by using a measuring device (inline water meter) installed on the main irrigation supply line between the water storage area and cultivation area(s);
- Install float valves on all water storage tanks to keep them from overflowing onto the ground.

With the Water Conservation and Use requirements outlined above, the proposed cultivation operation would efficiently use water resources at all times. Additionally, Article 27 Section 27.11 of the Lake County Zoning Ordinance requires commercial cannabis cultivators using water from a groundwater well to install a water level monitor on their water supply well, and to regularly record readings from the continuous water level monitor. Well water level monitoring and reporting shall be performed as follows:

**Seasonal Static Water Level Monitoring**

Seasonal monitoring of well water levels provides information regarding long-term groundwater elevation trends. The water level in the onsite groundwater well shall be measured and recorded prior to the start of the cultivation season (April/May), and once in the fall (November) after the cultivation season has ended. Data reported to the Lake County Community Development Department as part of the Project's annual reporting requirements shall include a hydrograph plot of all seasonal water level measurements for the onsite groundwater well.

**Water Level Monitoring During Extraction**

The purpose of monitoring the water level in a well during extraction is to evaluate the performance of the well to determine the effect of the pumping rate on the water source during each cultivation season. This information can be used to determine the capacity and yield of the onsite groundwater well for determining pump rates and the need for water storage. The frequency of water level monitoring will depend on the source, the source's capacity, and the pumping rate. It is recommended that initially the water level be monitored twice per week or more, and that the frequency be adjusted as needed depending on the impact the pumping rate has on the well water level. Data reported to the Lake County Community Development Department as part of the Project's annual reporting requirements shall include a hydrograph plot of the water level readings during the cultivation season.

In addition to the monitoring and reporting described above, the Project's annual report shall include an analysis of the water level monitoring data, demonstrating whether or not use of the onsite groundwater well is causing significant drawdown and/or impacts to the surrounding area and what measures were taken to reduce impacts. If there are impacts, a revised Water Management Plan shall be prepared and submitted to the Lake County Community Development Department, for review and approval, demonstrating how the project will mitigate the impacts in the future.

## DROUGHT EMERGENCY RESPONSE

When a drought emergency has been declared for the area of the proposed cultivation operation, the Applicant may implement the following additional measures, as needed or appropriate to the site, to reduce water use and ensure both success of the cultivation operation and decreased impacts to surrounding areas:

- Install moisture meters to monitor how much water is in the soil at the root level and reduce watering to only what is needed to avoid excess;
- Cover the soil and drip lines with removable plastic mulch to reduce evaporation;
- Irrigate only in the early morning hours or before sunset;
- Cover plants with shaded meshes during peak summer heat to reduce plant stress and water needs;
- Add a soil amendments/ingredients to growing medium that retains water in a way to conserve water and aid plant growth/health. Soil amendments/ingredients such as peat moss, coco coir, compost, perlite, and vermiculite retain water and provide a good environment for cannabis to grow.

Additionally, to ensure both success and decreased impacts to the surrounding areas, the Applicant plans to reduce the aggregate canopy area and water usage by 10 percent or more, when a drought emergency has been declared for the region. To reduce water usage by 10 percent or more, the Applicant will not plant 20,580 $ft^2$ or more of the proposed canopy areas. The canopy areas to be left fallow will depend on when a drought emergency is declared (before or after the proposed canopy areas have been planted), and the Applicant will prioritize the preferred canopy areas over less desirable canopy areas, based on cultivation experience. By implementing the Drought Management Plan outlined above, the estimated annual water demand for the proposed cultivation operation would be reduced from approximately 3,165,866 gallons to 2,849,279 gallons during periods of drought.