NORTHPOINT
CONSULTING GROUP, INC.

TECHNICAL MEMORANDUM

FROM: Annje Dodd, PhD, PE
NorthPoint Consulting Group, Inc.

TO: Humboldt County Planning and Building Department

RE: 2121, LLC – Groundwater Well Evaluation

DATE: **December 11, 2024**

The purpose of this Technical Memorandum (TM) is to provide an assessment to demonstrate that utilizing the existing, permitted well (Lat/Long: 40.672473, -124.236619) for the subject project will not impact surrounding wells. The well is located on APN 308-131-012 near Loleta, California (Figure 1).

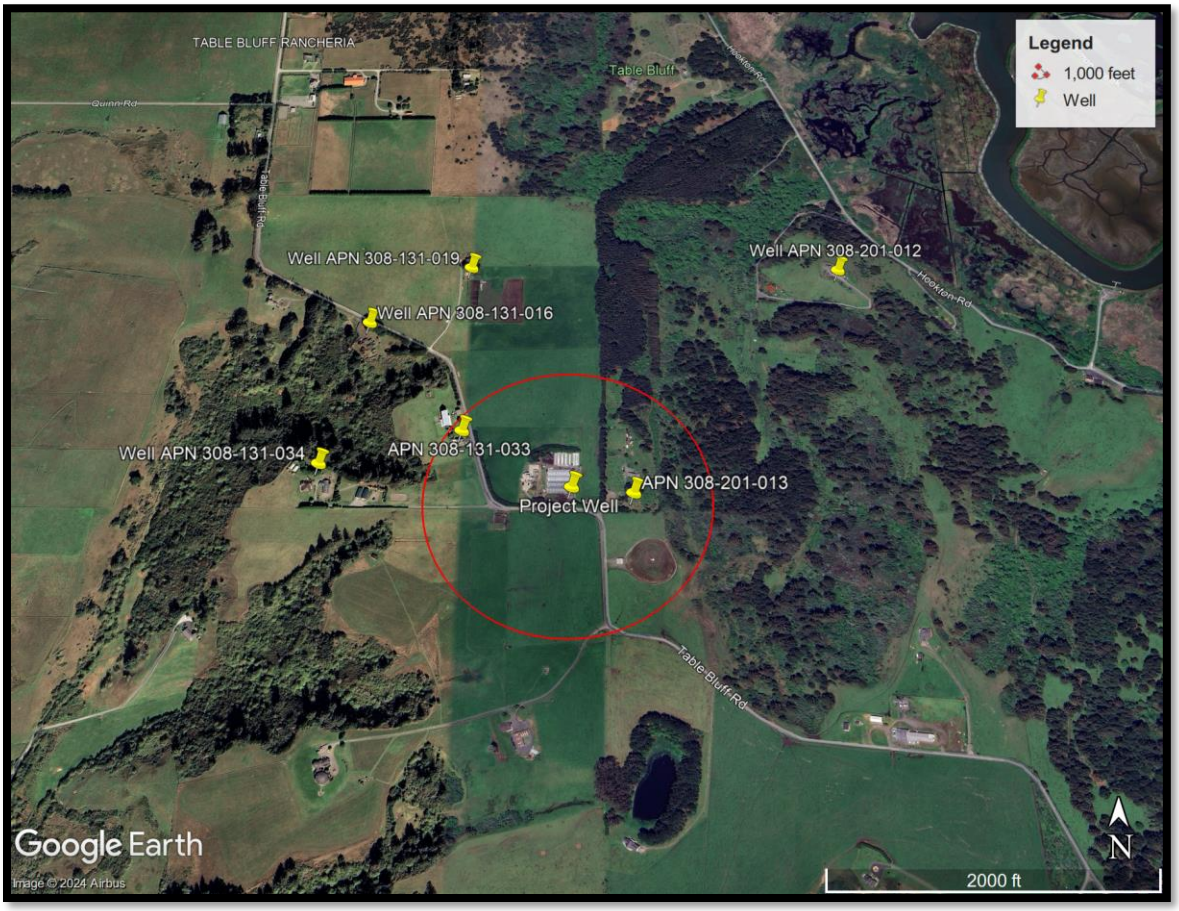


Figure 1. Project well and surrounding wells.

WATER DEMAND

Per the projects Cultivation and Operations Plan, the proposed cultivation operation proposes an annual irrigation demand of 266,300 gallons (0.82 acre-feet (AF)) (Table 1). The peak daily irrigation demand is approximately 2,400 gallons with plants being watered every other day during peak season, July through September.

Table 1: Estimated annual water demand (gallons).

Month	Cultivation
January	7,500
February	7,500
March	10,000
April	15,000
May	30,000
June	36,000
July	38,400
August	38,400
September	36,000
October	25,000
November	15,000
December	7,500
Total	**266,300**

WATER SUPPLY PLAN

According to the owner/operator, during cultivation (which requires the largest water demand) plants are watered every other day, up to 4 times per week during peak season, July through September. Water is pumped from the well to the water storage tanks and topped off 2-3 times per week during cultivation season. During peak water use, the maximum daily demand is 2,400 gallons. At 30 gpm, this would require under 1.4 hours of pumping to top off the tanks.

WATER STORAGE

The proposed onsite water storage is four (4) 5,000-gallon tanks, for a total storage capacity of 20,000 gallons. This represents about 8.3 days of storage during peak daily demand, which is expected to occur July through September.

SOURCE WELL INFORMATION

The well was drilled in July of 1982 by Rich Well Drilling for the purpose of irrigation for a commercial orchid flower farm (Attachment 1). A grid powered, 5 horsepower (HP) submersible pump installed on the well by Watson Well Service at a depth of about 388.5 feet. Watson Well Service estimated that the well was drilled to a depth of 406 ft (source: phone call with Watson Well Service).

On October 25 and 29, 2024 Fisch Drilling and Pump conducted two separate water production tests with drawdown and recovery (Attachment 2). The nearest neighboring well was monitored, as part of the October 29th well test, with a Heron Instruments Inc. Groundwater Data Logger during the well test and for an additional 70 hours after cessation of pumping. During the October 25th test, the well was pumped at an average of about 28.0 gallons per minute (gpm) for 11.7 hours with a total drawdown of 9.1 ft. The well recovered quickly, 11 minutes after the cessation of pumping. During the October 29th test, the well was

pumped at an average of about 30.5 gpm for 11.7 hours with a total drawdown of 7.1 ft. The well recovered quickly, 4 minutes after the cessation of pumping.

In January 2020, Watson Well Service conducted a water production test with drawdown and recovery (Attachment 3). During the January 2020 test, the well was pumped at 33 gpm for 8.0 hours with a total drawdown of 6 ft. No well recovery information was provided.

SURROUNDING WELL INFORMATION

According to the Department of Water Resources (DWR) Well Completion Report (WCR) Map Application Website, the project well is located on the eastern edge of PLSS Section H03N02W01 and the western edge of PLSS Section H03N01W06. There are a total of ten (10) WCRs reported in the DWR WCR Map Application database in these two PLSS sections, of these one is a duplicate, three are over 3,000 feet from the project well, two have no location information and were drilled at a depth of 50 feet or less. The remaining four are mapped on Figure 1. Well depths range from 270 feet below ground surface (bgs) to 402 feet bgs, with an average depth of 347 feet bgs. Yields estimated at the time of drilling range between 2 gpm and 25 gpm, with an average of 14 gpm. Screened intervals range between 260 ft bgs and 420 ft bgs, within a combination of yellow sand with sparce gravel, shells, and silty sand.

The project well and the closest neighboring wells on APN 308-131-033 and APN 308-201-013 are not included in the WCR Map Application database. The well nearest to the project well, approximately 430 feet west of the project well, is on APN 308-201-013.

During the water production test conducted on October 29, 2024, Fisch Drilling and Pump monitored the well depth on APN 308-201-013 with a Heron Instruments dipper-Log 128+ which has an accuracy of ±0.01 meters (0.0328 ft). This well was monitored during the pump test and an additional 3-days beyond the pump test, ending on November 1st at 2:53 PM. The maximum drawdown observed in the well was 0.34 feet (Figure 2). The natural fluctuation in depth, not attributable to pumping, is usually around 6 inches (0.5 feet) and can be attributed to changes in barometric pressure (Figure 3). The observed fluctuations in the neighboring well are within natural fluctuations.

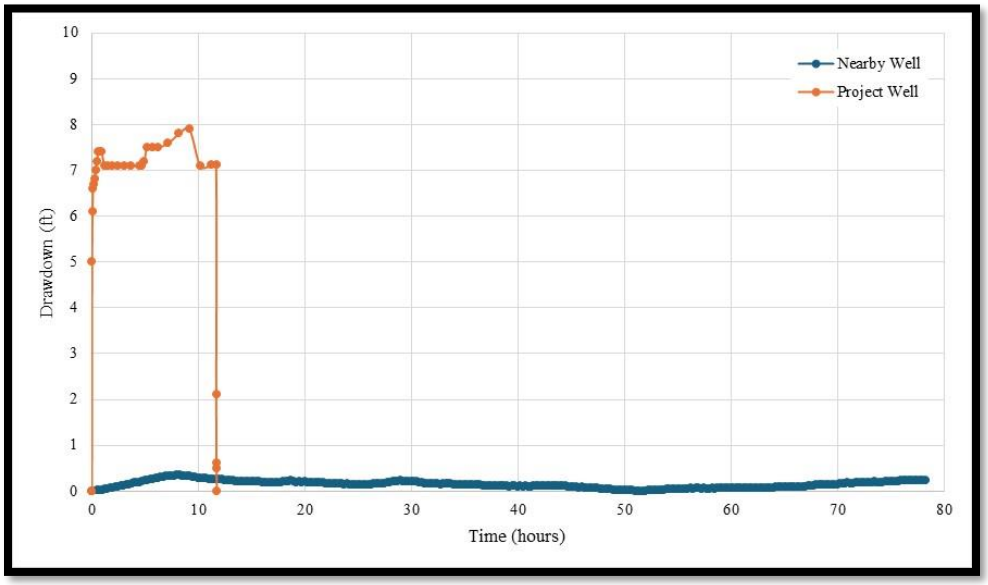


Figure 2. Drawdown observed during October 29, 2024 well production test.

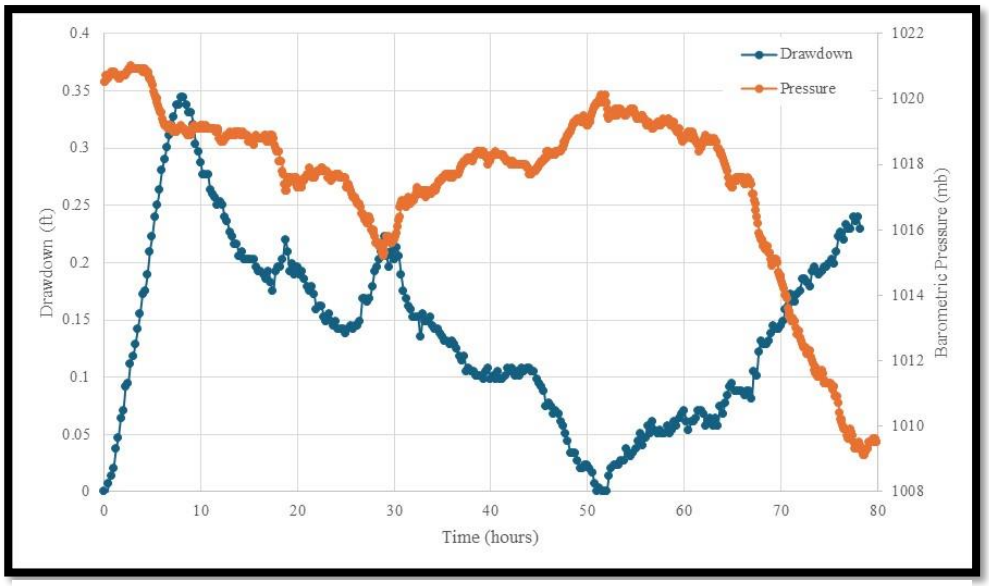


Figure 3. Observed drawdown in nearby well and observed barometric pressure at the North Spit, Eureka, CA (NOAA Tides and Currents).

WELL DRAWDOWN AND RADIUS OF INFLUENCE

The drawdown in a groundwater well is the difference between the water level in a well when it is pumping and when pumping has ceased. The radius of influence is the distance where the drawdown due to groundwater extraction is negligible (less than 6 inches). The Theis equation was developed to model the response of a confined aquifer to pumping (Fetter, 2001[1]) and can be used to estimate drawdown at a specific distance from each well based on the project's pumping demand. Transmissivity (T) was estimated herein using the Cooper-Jacob Method for confined aquifers (Gupta, 2017[2]) and the well pump test results. The storativity was determined by calibrating to the observed drawdown at the nearby well, located approximately 430 ft to the east of the project well (Figure 1). Calculations are attached (Attachment 4).

Using the Theis equation, the drawdown at a specific distance from the well can be estimated based on the project's maximum daily pumping demand, 30 gpm, over a duration of 1.4 hours (time needed to top off water storage tanks). The predicted drawdown from the project's well after 1.4 hours of pumping, for various distances from the well, is provided in Figure 4. The radius of influence is less than 400 feet.

FINDINGS AND CONCLUSIONS

The purpose of this TM is to provide an assessment to demonstrate that utilizing the existing well for the subject project will not impact surrounding wells.

- The proposed annual water demand is 266,300 gallons (0.82 AF).
- Water is pumped at up to 30 gpm from the well to water storage tanks and topped off every other day during the cultivation season.
- The proposed water storage is 20,000 gallons, representing almost 8.3 days of storage during peak daily demand, which is 2,400 gallons per day, every other day.
- The project well has a yield of about 30 gpm with an existing grid powered, 5 HP pump.

[1] Fetter, C.W. 2001. Applied Hydrogeology. 4th Edition.
[2] Gupta, R.S. 2017. Hydrology and Hydraulic Systems, 4th Edition.

- On October 29, 2024, Fish Drilling and Pump conducted a 11.7-hour water production test at 30.5 gpm and monitored the nearest neighboring well during the test and for an additional 3-days after cessation of the test. The maximum drawdown observed was 0.34 feet, which is within natural fluctuations.
- The radius of influence was estimated using the Theis equation assuming a pumping rate of 30 gpm for 1.4 hours. The radius of influence is the distance from the well where drawdown is negligible and is the maximum distance from the well up to which pumping has an influence. The radius of influence is estimated to be about less than 400 feet. The nearest offsite well is located 430 feet to the east, outside the influence of the well.
- With the above, it can be concluded that using the proposed water source for the proposed irrigation activities would not have an impact on the surrounding wells.

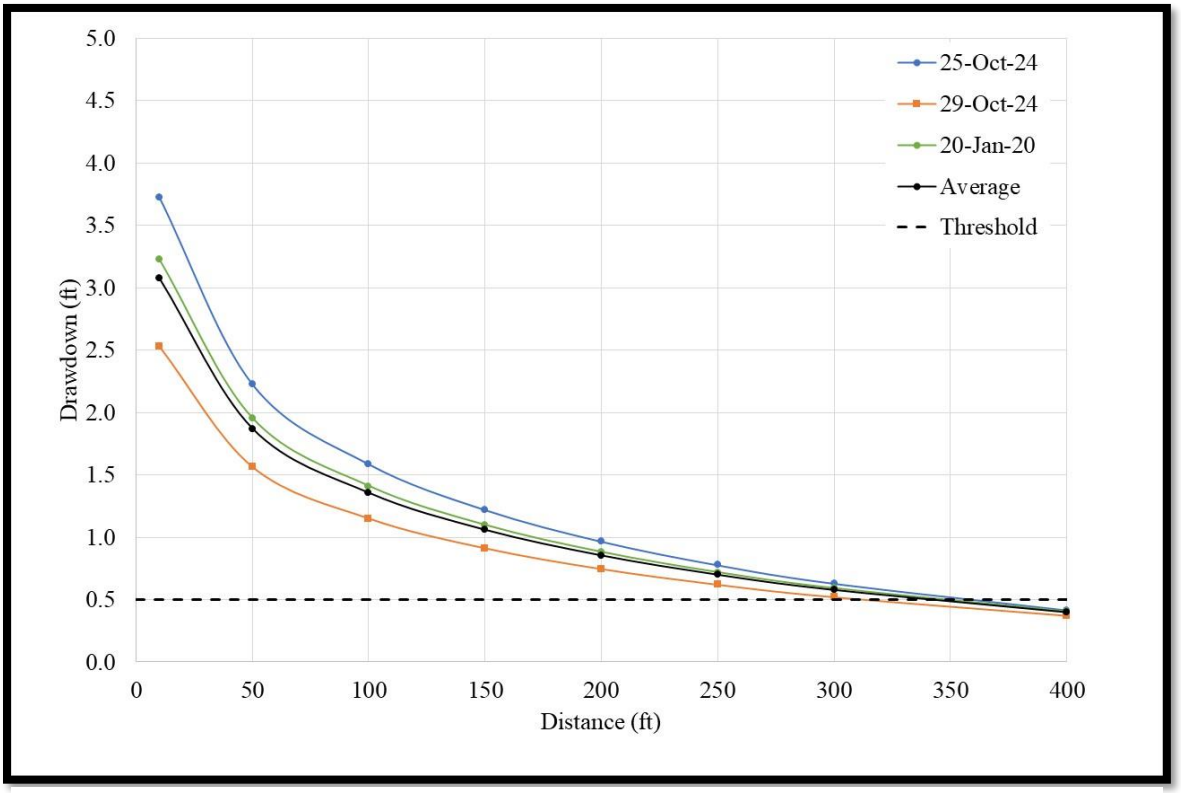


Figure 4. Estimated radius of influence associated with the project's well.

QUALIFICATIONS OF THE AUTHOR

Dr. Dodd has a PhD in Water Resources Engineering. In addition, Dr. Dodd is registered Professional Engineer with the State of California with 30-years of experience practicing and teaching Water Resources Engineering, including over 15 years of teaching, practicing, and modeling surface and groundwater hydrology.

LIMITATIONS

The study of groundwater hydrology is very complex and often relies on limited data, especially in rural areas. Recommendations and conclusions provided herein are based on professional judgment made using information of the groundwater systems and geology in Humboldt County, which is limited and allows only for a general assessment of groundwater aquifer conditions and recharge. NorthPoint Consulting Group,

Inc. is making analyses, recommendations, and conclusions based on readily available data, including studies and reports conducted by other professionals, Humboldt County, the State of California, and other consultants hired by the project proponent to prepare technical studies for the proposed project. If additional information or data becomes available for the project area, the recommendations and conclusions presented herein may be subject to change. This report has been prepared solely for the client and any reliance on this report by third parties shall be at such party's sole risk.

ATTACHMENTS

1) Project Well Information
2) Water Production Tests – Fisch Drilling and Pump
3) Water Production Test – Watson Well Service
4) Groundwater Well Calculations

Project Well Information

HUMBOLDT COUNTY HEALTH DEPARTMENT
DIVISION OF ENVIRONMENTAL HEALTH

RECEIVED
OCT 7 1982
HUMBOLDT COUNTY HEALTH DEPARTMENT

$31.00 10-7-82 Receipt #18386

529 "I" Street
Eureka, CA 95501

Phone:

APPLICATION TO CONSTRUCT, REPAIR OR DESTRUCT A WATER WELL

OWNER Sequoia Orchids- ADDRESS Table Bluff Rd, Loleta

APPLICANT J. Roy & Frae G. Wittwer - owners ADDRESS 2440 Frank St Eureka
(if other than owner)

SITE LOCATION Table Bluff Rd. Loleta A.P.# 308-131-12

DIRECTIONS PHONE # 443-4033-

DRILLING CONTRACTOR Rich Well Drilling LICENSE #

ATTACH PLOT PLAN TO THIS APPLICATION

DESIGN SPECIFICATIONS: Construction ☑ Repair ☐ Destruction ☐

Intended Use

Domestic, private ☐
Domestic, public ☐
Irrigation ☑
Industrial ☐
Other ☐

Construction

Depth (ft.) 380
Diameter (in.) 8"
Depth of Seal(ft.) 20

Distance From Well Site To:

Septic Tank Systems (ft.) 250
Sewer (ft.) —

Casing

Single ☑ Double ☐
Material Steel
Type of Joint Welded
Gravel Pack ☐ No

Type of Well

Rotary ☐
Cable ☑
Dug ☐
Other

Estimated Work Dates

Start 6/1/82
Completion 7/1/82

I hereby agree to comply with all laws and regulations of the County of Humboldt and State of California pertaining to water well construction. I will contact the County Health Department when I commence the work. Within fifteen days after completion of work I will furnish the Humboldt County Health Department a report of the work performed and notify them before putting the well into use. All well work will be completed in accordance with Department of Water Resources Bulletin 74.

Signed: J. R. Wittwer

FOR OFFICE USE ONLY

Permit #

Approved By John Osborn RS

Date 13 Oct 82

Site:

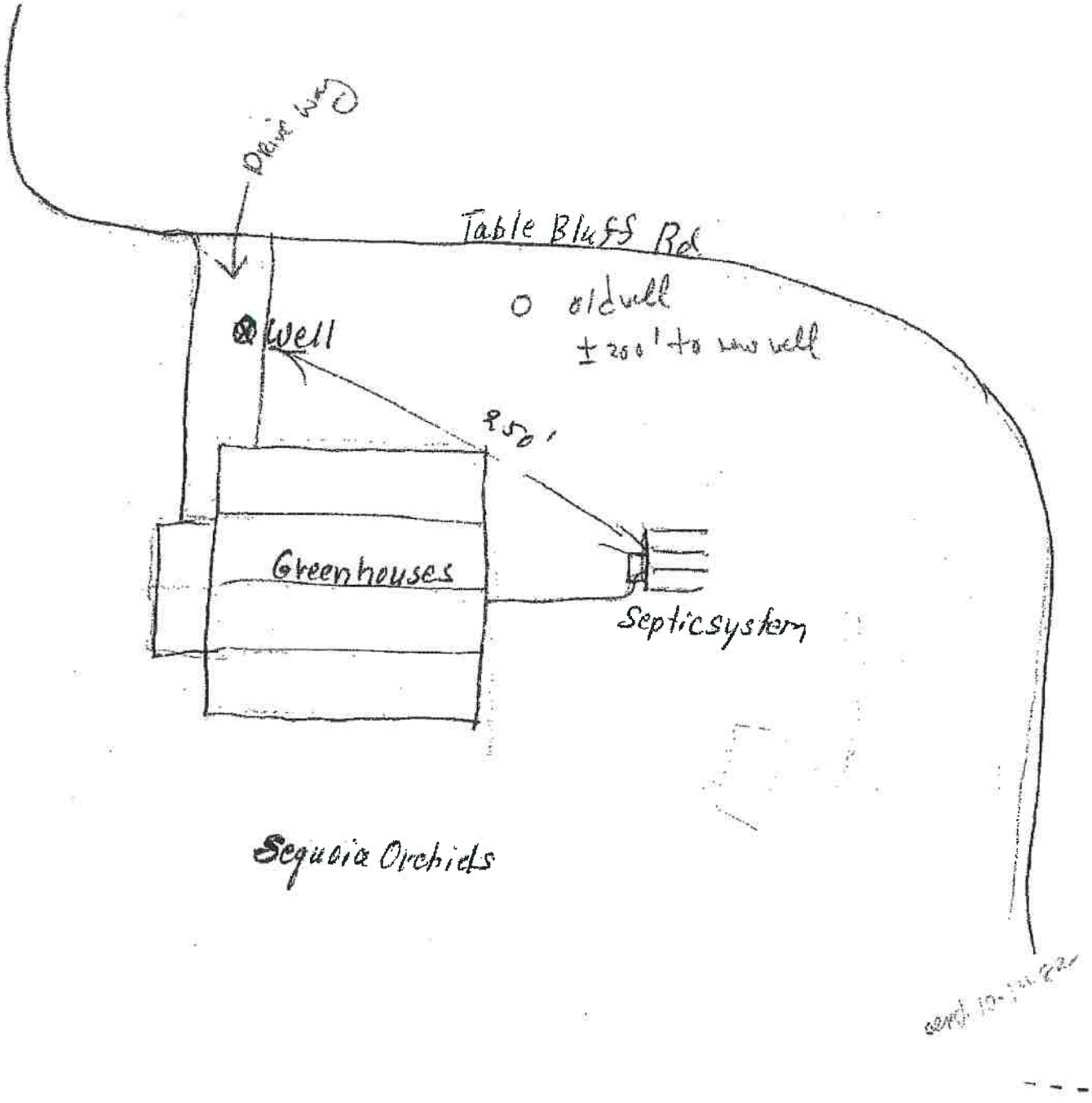
Inspections: JO (initial) 13 Oct 82 (date)

Final: (initial) (date)

WP-5 11/77

PLOT PLAN

A.P.# 308-131-12



Sequoia Orchids

DRY WEATHER WATER PRODUCTION TEST DRAWDOWN DATA

Owner: Loleta Cattle, LLC **APN:** 308-131-012

Well Location latitude: 40.67247 **Longitude: -**124.23660

_____1/4	_____1/4	_____1/4	**Section:** 35	**Township:** 4N	**Range:** 2W

Type of Water Measuring Equipment: Water Meter **Date Test Performed:** October 25, 2024

Company Performing Test: Fisch Drilling & Pump, Inc. **Measured By**: Andrew N.

TIME DATA	WATER LEVEL DATA	DISCHARGE DATA
PUMP ON Date: 10/25/24 Time: 0900 (t_0) **PUMP OFF** Date: 10/25/24 Time: 1700 (t_1) **DURATION OF AQUIFER TEST** Pumping: 8 hrs Recovery: 11 min	**STATIC WATER LEVEL:** 323’ **MEASURING POINT:** Well head **HEIGHT OF MEASURING POINT ABOVE GROUND:** 12”	**HOW WAS DISCHARGE MEASURED?** Water Meter **DEPTH OF PUMP/AIRLINE:** 396’ Est.

Pumping Data: **Specific Capacity:**

Date	Clock Time	Time Since Pump Started (min.) t_0	Pumping Water Level Measurement (ft)	Pump Rate (discharge) gpm	Comments on Factors Affecting Test Data
10/25/24	0900	0	323.0		
10/25/24	0901	1	328.0’	0	
10/25/24	0902	2	330.0’	27.9	
10/25/24	0903	3	330.5’	28.9	
10/25/24	0904	4	331.5’	28.9	
10/25/24	0905	5	331.11’	28.9	
10/25/24	0906	6	331.11’	27.5	
10/25/24	0907	7	331.11’	28.0	
10/25/24	0908	8	331.11’	29.2	
10/25/24	0909	9	332.2’	28.1	
10/25/24	0910	10	332.2’	28.3	
10/25/24	0915	15	332.1’	28.4	
10/25/24	0920	20	332.1’	27.5	
10/25/24	0925	25	332.3’	28.2	
10/25/24	0930	30	332.3’	27.4	
10/25/24	0935	35	332.3’	27.4	
10/25/24	0940	40	332.3’	27.5	
10/25/24	0945	45	332.3’	28.4	

Date	Clock Time	Time Since Pump Started (min.) t_0	Pumping Water Level Measurement (ft)	Pump Rate (discharge) gpm	Comments on Factors Affecting Test Data
10/25/24	1000	1:00	332.3’	28.4	
10/25/24	1015	1:15	332.3’	28.4	
10/25/24	1030	1:30	332.4’	27.4	
10/25/24	1100	2:00	332.4’	26.3	
10/25/24	1130	2:30	332.5’	28.3	
10/25/24	1230	3:30	332.5’	27.5	
10/25/24	1330	4:30	332.6’	27.3	
10/25/24	1430	5:30	332.11’	27.5	
10/25/24	1530	6:30	332.11’	27.4	
10/25/24	1630	7:30	332.11’	27.6	
10/25/24	1700	8:00	332.11’	27.6	Specific Capacity Met
		8:30			
		9:30			
		10:30			
		11:30			
		12:00			
		12:30			
		13:30			
		14:30			
		15:30			
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		16:30			
		17:30			
		18:30			
		19:30			
		20:30			
		21:30			
		22:30			
		23:30			
		24:00			

DRY WEATHER WATER PRODUCTION TEST RECOVERY DATA

Owner: Loleta Cattle, LLC **APN:** 308-131-012

Well Location latitude: 40.67247 **Longitude: -**124.23660

_____1/4	_____1/4	_____1/4	**Section:** 35	**Township:** 4N	**Range:** 2W

Type of Water Measuring Equipment: Water Meter **Date Test Performed:** October 25, 2024

Company Performing Test: Fisch Drilling & Pump, Inc. **Measured By**: Matthew F.

TIME DATA	WATER LEVEL DATA	DISCHARGE DATA
PUMP ON Date: 10/25/24 Time: 0900 (t_0) **PUMP OFF** Date: 10/25/24 Time: 1700 (t_1) **DURATION OF AQUIFER TEST** Pumping: 8 hrs Recovery: 11 min	**STATIC WATER LEVEL:** 323’ **MEASURING POINT:** Well head **HEIGHT OF MEASURING POINT ABOVE GROUND:** 12”	**HOW WAS DISCHARGE MEASURED?** Water Meter **DEPTH OF PUMP/AIRLINE:** 396’ Est.

Recovery Data:

Date	Clock Time	Time Since Pump Shutoff (min.) t_1	Recovery Water Level Measurement (ft)	Comments on Factors Affecting Test Data
10/25/24	1700	0	332.11’	
10/25/24	1701	1	325.4’	
10/25/24	1702	2	324.6’	
10/25/24	1703	3	324.1’	
10/25/24	1704	4	323.11’	
10/25/24	1705	5	323.1’	
10/25/24	1706	6	323.8’	
10/25/24	1707	7	323.7’	
10/25/24	1708	8	323.5’	
10/25/24	1709	9	323.4’	
10/25/24	1710	10	323.2’	
10/25/24	1711	11	323.0’	Recovered
		20		
		25		
		30		
		35		
		40		
		45		

Date	Clock Time	Time Since Pump Shutoff (min.) t_1	Recovery Water Level Measurement (ft)	Comments on Factors Affecting Test Data
		1:00		
		1:15		
		1:30		
		2:00		
		2:30		
		3:30		
		4:30		
		5:30		
		6:30		
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		23:30		
		24:00		

DRY WEATHER WATER PRODUCTION TEST DRAWDOWN DATA

Owner: Loleta Cattle, LLC **APN:** 308-131-012

Well Location latitude: 40.67247 **Longitude: -**124.23660

_____1/4	_____1/4	_____1/4	**Section:** 35	**Township:** 4N	**Range:** 2W

Type of Water Measuring Equipment: Water Meter **Date Test Performed:** October 29, 2024

Company Performing Test: Fisch Drilling & Pump, Inc. **Measured By**: Matthew F.

TIME DATA	WATER LEVEL DATA	DISCHARGE DATA
PUMP ON Date: 10/29/24 Time: 0840 (t_0) **PUMP OFF** Date: 10/29/24 Time: 1640 (t_1) **DURATION OF AQUIFER TEST** Pumping: 8 hrs Recovery: 4 min	**STATIC WATER LEVEL:** 325’ **MEASURING POINT:** Well head **HEIGHT OF MEASURING POINT ABOVE GROUND:** 12”	**HOW WAS DISCHARGE MEASURED?** Water Meter **DEPTH OF PUMP/AIRLINE:** 396’ Est.

Pumping Data: **Specific Capacity:**

Date	Clock Time	Time Since Pump Started (min.) t_0	Pumping Water Level Measurement (ft)	Pump Rate (discharge) gpm	Comments on Factors Affecting Test Data
10/29/24	0840	0	325.0’	0	
10/29/24	0841	1	330.0’	32	
10/29/24	0842	2	331.1’	32	
10/29/24	0843	3	331.6’	32	
10/29/24	0844	4	331.7’	31.4	
10/29/24	0845	5	331.8’	30	
10/29/24	0846	6	332.0’	30	
10/29/24	0847	7	332.2’	30.3	
10/29/24	0848	8	332.4’	30.3	
10/29/24	0849	9	332.4’	30.1	
10/29/24	0850	10	332.4’	30.4	
10/29/24	0855	15	332.1’	30	
10/29/24	0900	20	332.1’	30.7	
10/29/24	0905	25	332.1’	30.6	
10/29/24	0910	30	332.1’	30.3	
10/29/24	0915	35	332.1’	3.3	
10/29/24	0920	40	332.1’	30.1	
10/29/24	0925	45	332.1’	30.1	

Date	Clock Time	Time Since Pump Started (min.) t_0	Pumping Water Level Measurement (ft)	Pump Rate (discharge) gpm	Comments on Factors Affecting Test Data
10/29/24	0940	1:00	332.1’	31.5	
10/29/24	0955	1:15	332.2’	30.1	
10/29/24	1010	1:30	332.5’	31.0	
10/29/24	1040	2:00	332.5’	30.3	
10/29/24	1110	2:30	332.5’	30.6	
10/29/24	1210	3:30	332.6’	29.55	
10/29/24	1310	4:30	332.8’	30.0	
10/29/24	1410	5:30	332.9’	30.7	
10/29/24	1510	6:30	332.10’	30.7	
10/29/24	1610	7:30	332.11’	29.55	
10/29/24	1640	8:00	332.11’	28.57	Specific Capacity Met
		8:30			
		9:30			
		10:30			
		11:30			
		12:00			
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		23:30			
		24:00			

DRY WEATHER WATER PRODUCTION TEST RECOVERY DATA

Owner: Loleta Cattle, LLC **APN:** 308-131-012

Well Location latitude: 40.67247 **Longitude: -**124.23660

_____1/4	_____1/4	_____1/4	**Section:** 35	**Township:** 4N	**Range:** 2W

Type of Water Measuring Equipment: Water Meter **Date Test Performed:** October 29, 2024

Company Performing Test: Fisch Drilling & Pump, Inc. **Measured By**: Andrew N.

TIME DATA	WATER LEVEL DATA	DISCHARGE DATA
PUMP ON Date: 10/29/24 Time: 0840 (t_0) **PUMP OFF** Date: 10/29/24 Time: 1640 (t_1) **DURATION OF AQUIFER TEST** Pumping: 8 hrs Recovery: 4 min	**STATIC WATER LEVEL:** 325' **MEASURING POINT:** Well head **HEIGHT OF MEASURING POINT ABOVE GROUND:** 12"	**HOW WAS DISCHARGE MEASURED?** Water Meter **DEPTH OF PUMP/AIRLINE:** 396' Est.

Recovery Data:

Date	Clock Time	Time Since Pump Shutoff (min.) t_1	Recovery Water Level Measurement (ft)	Comments on Factors Affecting Test Data
10/29/24	1640	0	332.11'	
10/29/24	1641	1	327.1'	
10/29/24	1642	2	325.6'	
10/29/24	1643	3	325.5'	
10/29/24	1644	4	325.0'	Recovered
		5		
		6		
		7		
		8		
		9		
		10		
		15		
		20		
		25		
		30		
		35		
		40		
		45		

Date	Clock Time	Time Since Pump Shutoff (min.) t_1	Recovery Water Level Measurement (ft)	Comments on Factors Affecting Test Data
		1:00		
		1:15		
		1:30		
		2:00		
		2:30		
		3:30		
		4:30		
		5:30		
		6:30		
		7:30		
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		22:30		
		23:30		
		24:00		

WATSON WELL SERVICE

Job# 5436 6181
Crystal Hickey
Humboldt Emerald Triangle
2121 Table Bluff Road
Loleta, CA 95551
Phone: 707-832-9697
E-main: CrystalHickey0120@Gmail.com

January 24, 2020

Dear Crystal,

Results of the well pump test concluded on 20th of January 20th on well located at 2121 Table Bluff Road, Loleta, California 95551, APN 308-131-012.

Test well is a 8-inch steel cased well, 406 feet feet deep, with a static water level of 324 feet. Static water level is two feet higher than at time of service call to install new submersible pump on October 29, 2019. Original depth and well construction are unknown, no well permit or drilling log were made available at time of test.

Monitoring well is located at 1740 Table Bluff Road, Loleta, California 95551, APN 308-221-001. Monitoring well is located approximately 3,327 feet to the South West of the Test Well. Monitor well is a 6-once steel cased well, original depth and construction are unknown, no well permit or drill log were made available at time of test. Depth of monitoring well was not measured at time of test; static water level is 117'.

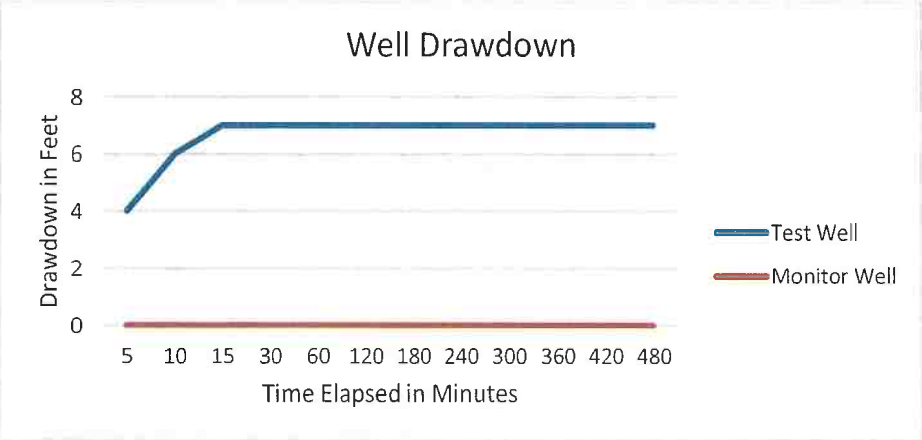
Test began at 10:20 A.M. on 20th January 2020 and competed at 6:20 P.M. the same day. Test well was pumped at a rate of approximately 33GPM for the duration of the test and stabilized at a pumping level of 231 feet approximately ten minutes into the test. Monitoring well showed no change in static level over the eight hours of the well test. During the eight hours of the well test approximately 15,847 gallons of water was pumped from the test well.

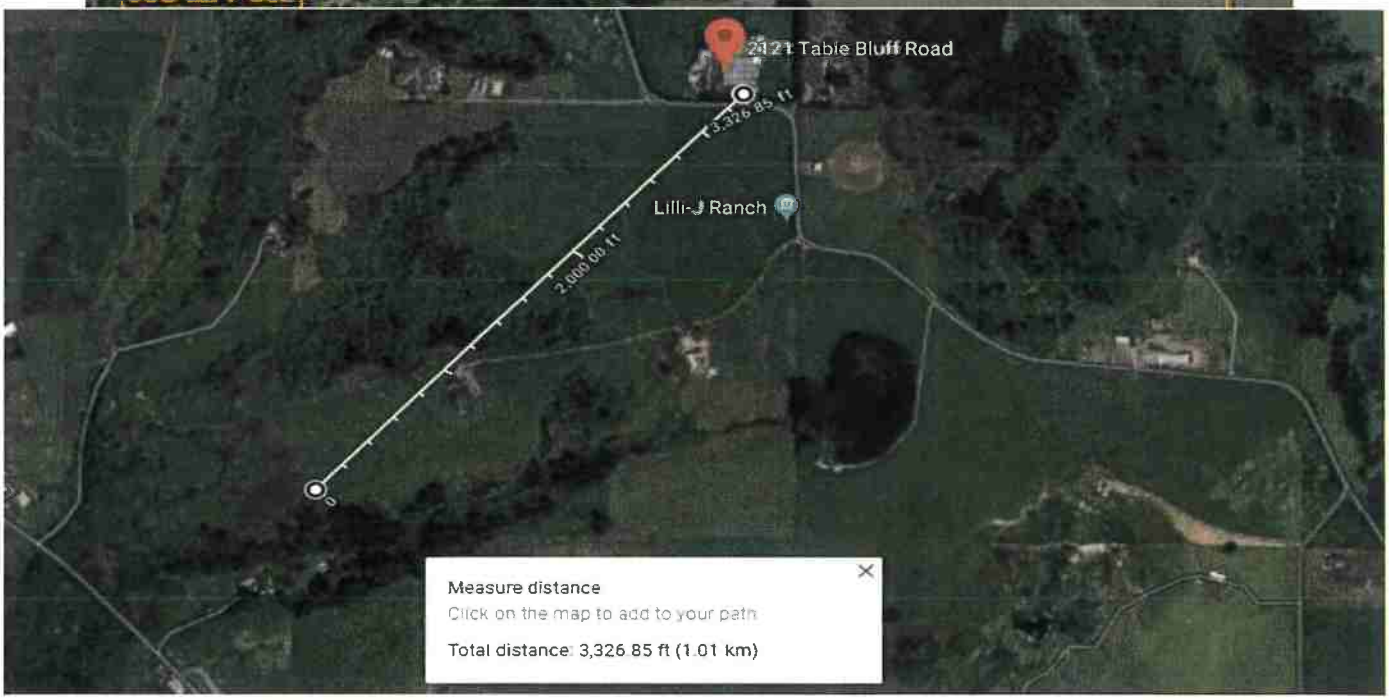
Based off the stabilized pumping level, the total gallons pumped during the test, and the lack of change in static level of the monitor well it appears that the water bearing zone has not been over drafted.

Donald A. Watson

Donald Watson

Test Well: 2121 Table Bluff Road Loleta, CA 95551 APN # 308-131-012					Monitor Well 1740 Table Bluff Road Loleta, CA 95551 APN # 308-221-001			
Date	Time		Static Water Level	Flow Rate	Date	Time		Static Water Level
1/20/2020	A.M.	P.M.	Feet	GPM	1/20/20	A.M.	P.M.	Feet
	10:20		324'	35		10:20		117'
	10:22		327'	35		10:22		117'
	10:24		328'	34		10:24		117'
	10:26		329'	34		10:26		117'
	10:28		330'	34		10:28		117'
	10:30		330'	33		10:30		117'
	10:35		331'	33		10:35		117'
	10:40		331'	33		10:40		117'
	10:45		331'	33		10:45		117'
	10:50		331'	33		10:50		117'
	10:55		331'	33		10:55		117'
	11:00		331'	33		11:00		117'
	11:15		331'	33		11:15		117'
	11:30		331'	33		11:30		117'
	11:45		331'	33		11:45		117'
		12:00	331'	33			12:00	117'
		12:30	331'	33			12:30	117'
		13:00	331'	33			13:00	117'
		14:00	331'	33			14:00	117'
		15:00	331'	33			15:00	117'
		16:00	331'	33			16:00	117'
		17:00	331'	33			17:00	117'
		18:00	331'	33			18:00	117'
		18:20	331'	33			18:20	117'
Total Gallons Pumped: 15,847					Total Drawdown in Feet: 0'			





500 Summer Street, Eureka, CA 95501 707-442-2249 Fax 707-237-2316 CA Contractors Lic # 947596

Groundwater Well Calculations

	25-Oct-24								29-Oct-24								20-Jan-20								Average								Notes:
Storativity	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	0.00044	Storativity - Calibrated
Test Drawdown (ft)	9.11	9.11	9.11	9.11	9.11	9.11	9.11	9.11	7.11	7.11	7.11	7.11	7.11	7.11	7.11	7.11	6	6	6	6	6	6	6	6	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	Drawdown during pump test
Yield Q (gpm)	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	Stabilized pump rate during pump test
T (ft^2/day)	986.8	986.8	986.8	986.8	986.8	986.8	986.8	986.8	1533.7	1533.7	1533.7	1533.7	1533.7	1533.7	1533.7	1533.7	1162.7	1162.7	1162.7	1162.7	1162.7	1162.7	1162.7	1162.7	1227.7	1227.7	1227.7	1227.7	1227.7	1227.7	1227.7	1227.7	Using T = 2.3*Q/(4pi*drawdown during pump test) (Gupta)
Project Q (gpm)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	
Q (ft^3/d)	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	5775	conversion ft^3/d = 0.00519481 gpm
Time (days)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	
r (ft)	10	50	100	150	200	250	300	400	10	50	100	150	200	250	300	400	10	50	100	150	200	250	300	400	10	50	100	150	200	250	300	400	
u	0.00019	0.00474	0.01897	0.04268	0.07588	0.11856	0.17073	0.30352	0.00012	0.00305	0.01221	0.02746	0.04882	0.07629	0.10985	0.19529	0.00016	0.00403	0.01610	0.03623	0.06440	0.10063	0.14490	0.25760	0.00015	0.00381	0.01525	0.03431	0.06099	0.09530	0.13723	0.24396	Fetter (2001) Equation 5.10
w(u)	7.9931	4.7787	3.4066	2.6190	2.0758	1.6702	1.3539	0.8956	8.4339	5.2180	3.8408	3.0450	2.4906	2.0709	1.7383	1.2418	8.1571	4.9420	3.5678	2.7767	2.2288	1.8172	1.4942	1.0202	8.2115	4.9962	3.6213	2.8292	2.2799	1.8666	1.5414	1.0626	Fetter (2001) Equation 5.11: W(u) ~ -0.5772-ln(u)+u-u^2/(2*fact2)
Drawdown [h-ho] (ft)	3.7	2.2	1.6	1.2	1.0	0.8	0.6	0.4	2.5	1.6	1.2	0.9	0.7	0.6	0.5	0.37	3.2	2.0	1.4	1.1	0.9	0.7	0.6	0.4	3.1	1.9	1.4	1.1	0.9	0.7	0.6	0.4	Fetter (2001) Equation 5.11
Drawdown [h-ho] (in)	44.7	26.7	19.0	14.6	11.6	9.3	7.6	5.0	30.3	18.8	13.8	10.9	9.0	7.45	6.3	4.5	38.7	23.4	16.9	13.2	10.6	8.6	7.1	4.8	36.9	22.4	16.3	12.7	10.2	8.4	6.9	4.8	

Sources: Applied Hydrogeology, Fourth Edition, C.W. Fetter. 2001

Groundwater Wells, Second Edition, F.G. Driscoll 1986. (https://sehydrogeology.com/using-specific-capacity-monitor-well-performance/#:~:text=The%20Specific%20Capacity%20of%20a,penetrated%20by%20the%20well%20screens.)

Gupta, R.S. (2017). Hydrology and Hydraulic Systems, 4th Edition. Waveland Press, Long Grove IL (Equation 6.20)

Storativity - Confined Aquifer (Sources)

Calibrated using October 29, 2024 Test Results & Neighbor Well Drawdown

0.000436787