

TECHNICAL MEMORANDUM

To: Humboldt County Planning Department
From: Annjanette Dodd, PhD, CA PE #77756 Exp. 6/30/2025
Date: December 17, 2024
Subject: Groundwater Well Evaluation – Conklin Creek Farms, Inc.
795 Conklin Creek Road, Petrolia, CA (APN: 105-111-001; 105-042-002,
105-101-006; 105-071-004)



BACKGROUND AND PURPOSE

Conklin Creek Farms, Inc., has an approved Special Permit (SP), PLN-2021-17034. Conklin Creek Farms, Inc. would like to use an existing, permitted well (Attachment 1) to supply the water for the approved project.

The purpose of this Technical Memorandum (TM) is to provide an assessment to demonstrate that utilizing the existing, permitted well (Lat/Long: 40.319546, -124.269363) for the project is non-diversionary and will not impact surrounding wells.

PROJECT LOCATION AND SITE INFORMATION

The project is located at 795 Conklin Creek Road, Petrolia, CA (APN: 105-111-001; 105-042-002; 105-101-006; 105-071-004) totaling 212.6-acres. The well is located within the Mattole River watershed in the Petrolia area, approximately 0.55 miles north of the Mattole River and 205 feet south of a shallow, unnamed tributary of Mill Creek. The Petrolia area is within the California Department of Water Resources (DWR) Bulletin 118 Mattole River Valley Groundwater Basin (Basin Number 1-28) referred to herein as the Mattole Groundwater Basin (Figure 1, Attachment 2).

The subject property has historically been used for residential, agricultural, viticulture, and livestock grazing purposes.

REGULATORY FRAMEWORK

Humboldt County CCLUO

The Humboldt County Commercial Cannabis Land Use Ordinance (CCLUO) states that, “Irrigation shall exclusively utilize stored water from non-diversionary sources...”. A non-diversionary source is defined in the CCLUO as, “not involving the withdrawal of water from a waterbody.” A waterbody is defined in the CCLUO as, “any significant accumulation of water, such as lakes, ponds, rivers, streams, creeks, springs, seeps, artesian wells, wetlands, canals, groundwater from a subterranean stream flowing through a known and definite channel, or similar features.”

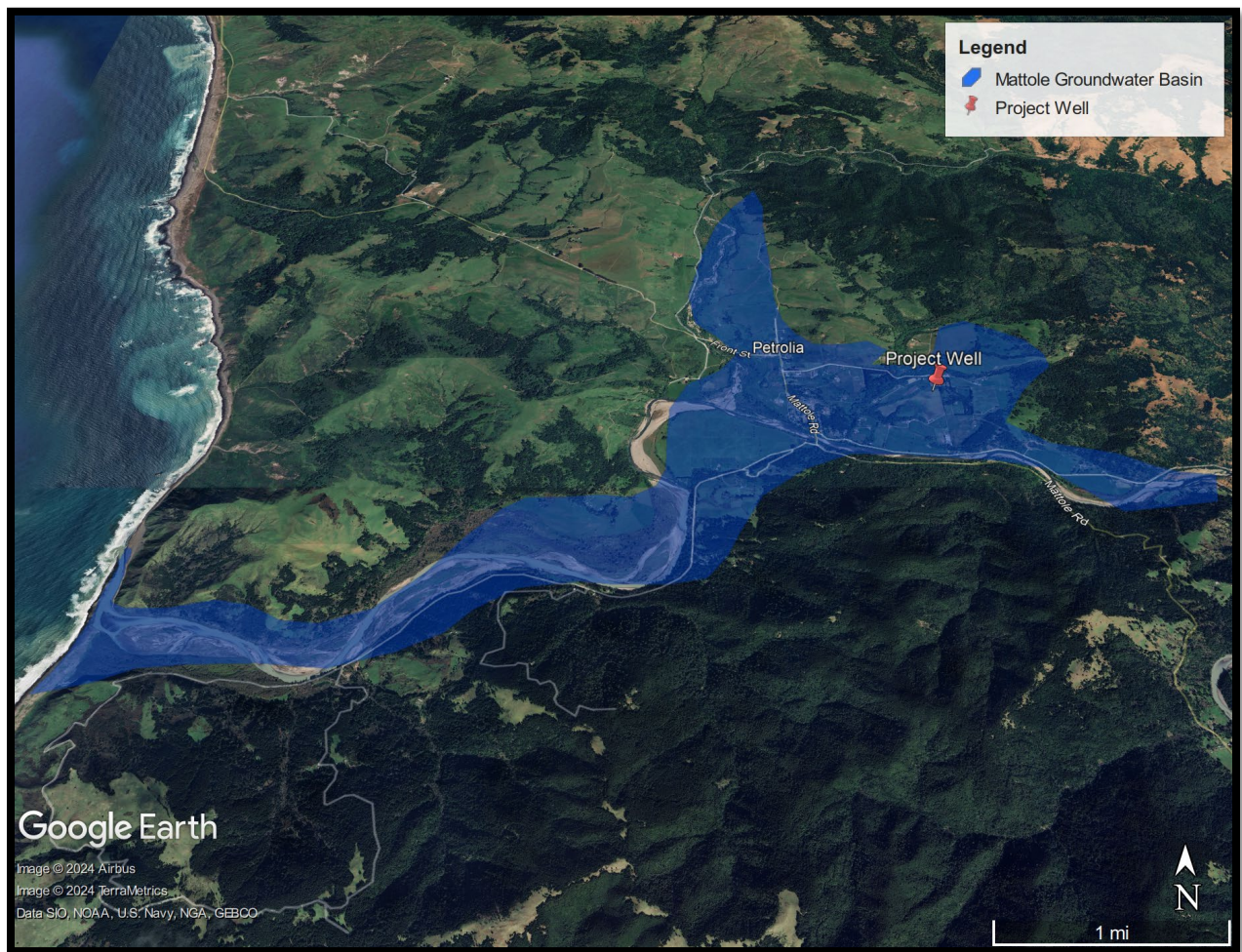


Figure 1. Mattole River Valley Groundwater Basin

California Department of Fish and Wildlife

Since the well is in a confined aquifer, it is not within the jurisdiction of the California Department of Fish and Wildlife (CDFW).

State Water Resources Control Board

The State Water Resources Control Board (SWRCB) Division of Water Rights will not grant a Cannabis Small Irrigation Use Registration (Cannabis SIUR) for a groundwater well as Cannabis SIURs apply to surface water diversion from a waterbody. A waterbody is defined as any significant accumulation of water, such as: lakes, ponds, rivers, streams, creeks, springs, artesian wells, wetlands, and canals. Surface water instream flow requirements also apply to water diverted from a subterranean stream flowing through a known and definite channel. The SWRCB will not grant an SIUR for the project's well because the source does not meet the definition of a waterbody or diversion from a subterranean stream, and using the well is not considered a surface water diversion from a waterbody.

WATER DEMAND

Per the projects Cultivation and Operations Plan, the proposed cultivation operation proposes an



annual irrigation demand of 655,000 gallons (2.0 acre-feet (AF)) (Table 1).

Table 1: Estimated annual water demand (gallons).

Month	1 acre Mixed- Light Cultivation	5,000 sq. ft. Indoor Cultivation	23,500 sq. ft. Commercial Nursery	4,360 sq. ft. Ancillary Nursery	Processing/ Other	Total	Daily
January	20,000	5,000	10,000	800	300	36,100	1,165
February	20,000	5,000	12,000	1,000	300	38,300	1,368
March	35,000	5,000	12,000	1,000	300	53,300	1,719
April	35,000	5,000	12,000	1,000	300	53,300	1,777
May	50,000	5,000	12,000	1,000	300	68,300	2,203
June	60,000	5,000	12,000	1,000	300	78,300	2,610
July	60,000	5,000	12,000	1,000	300	78,300	2,526
August	50,000	5,000	12,000	1,000	300	68,300	2,203
September	40,000	5,000	12,000	1,000	300	58,300	1,943
October	35,000	5,000	12,000	1,000	300	53,300	1,719
November	17,000	5,000	10,000	800	300	33,100	1,103
December	20,000	5,000	10,000	800	300	36,100	1,165
Total	442,000	60,000	138,000	11,400	3,600	655,000	n/a

WATER SUPPLY PLAN

According to the owner/operator, during cultivation activities (which requires the largest water demand) plants will be watered 2-3 times per week. Water will be pumped at 15 gallons per minute (gpm) from the well to the water storage tanks and topped off daily during cultivation season. During peak water use, the maximum daily demand will be 2,610 gallons. At 15 gpm or 0.03 ft³/s (cfs), this would require approximately 2.9 hours of pumping to top off the tanks.

WATER STORAGE

The proposed onsite water storage is 50,000-gallons. This represents approximately 19 days of storage during peak daily demand, which occurs in June (Table 1).

SOURCE WELL INFORMATION

The proposed well water source is an existing groundwater well (Figure 1). According to the Well Completion Report (WCR), the well was drilled to a depth of 180 feet below ground surface (BGS) by Fisch Drilling on July 13, 2021 (Attachment 1). The well geologic log within the WCR reported loose topsoil from 0-1 ft BGS, brown clay and brown silty clay from 9-11 ft BGS, shale from 11-47 ft BGS, blue clay from 47-109 ft BGS, shale hard from 109-133 ft BGS, and blue sandstone from 74-170 ft BGS. As per the WCR, the well was cased with a 6-inch (outer diameter) blank steel casing from 0-140 ft BGS and a screened (0.05 inch slot size) 6-inch (outer diameter) steel casing from 140-180 ft BGS. Depth to first water was recorded as 55 ft BGS, a static water level of 51 ft BGS, and an estimated well yield of 15 gpm after a 4-hour air lift test.

A grid powered 0.5 HP pump has been installed on the well. On July 19, 2024, Fisch Drilling and Pump



conducted a 4-hr water production test with drawdown and recovery (Attachment 3). The pump rate during the test was 15 gpm. The initial water level was recorded at 19.5 ft BGS, dropped to 20 ft BGS after the first minute, leveled off to 19.8 ft BGS (a drawdown of only 0.3 ft) after 6 minutes, remained at 19.8 ft BGS during the remainder of pumping, and recovered to 19.5 ft BGS within 2-minutes of cessation of pumping.

SURROUNDING WELL INFORMATION

The California Department of Water Resources (DWR) Well Completion Report (WCR) Map Application¹ provides WCR data for groundwater wells in California and maps them by Public Land Survey System (PLSS) sections. Each section is one square mile. The project well location is in the southwest corner of PLSS section H02S02W02. According to the DWR WCR Map Application, there are a total of 8 wells within 0.5 miles of the project well (Figure 2). Of these 8 wells, the average well depth is 130 ft BGS, the average yield is 20 gpm, and the average screened interval is between 67 and 121 ft BGS (Attachment 4). In addition to the wells reported in the DWR WCR Map database, there are two known existing agricultural wells within 0.5 miles that do not have WCRs. There are also approximately twelve (12) potential homesteads in the 0.5-mile surrounding area that do not have documented WCRs. These potential homesteads could be served by an undocumented well or by surface water.

GROUNDWATER BASIN AND GEOLOGY

The project is located in the Mattole River Valley (Mattole) Groundwater Basin (Basin Number 1-28, Attachment 2). The Mattole Groundwater Basin covers the valleys of the Mattole and North Fork Mattole Rivers to where the Mattole River discharges to the Pacific Ocean, approximately 4.75 miles southwest of the project site. The basin covers an area of 3,150 acres (5 square miles) (Figure 1). The basin is bounded to the northwest by Tertiary marine sedimentary rocks of the Wildcat series, which is a group of old formations consisting of sandstone, marine siltstone, and claystone.

The project well is mapped in Coastal Belt Franciscan mélange underlain by ancient alluvial terrace deposits. The groundwater basin is a combination of this, and ancient alluvial terrace underlain by Coastal Belt Franciscan mélange² (Figure 3). The water bearing formation of the well is comprised of confined ancient alluvial terrace deposits underlain by fractured sandstone. Wells drilled in the vicinity of the project well are drilled and screened within the same formations (refer to WCR's for surrounding wells provided in Attachment 4). A well drilled in this alluvial aquifer is not an artesian well nor is this alluvial aquifer a subterranean stream, therefore this aquifer does not meet the definition of a waterbody per the CCLUO and the SWRCB.

The Mattole Groundwater Basin has not been identified by the California Department of Water Resources (DWR) as a critically overdrafted basin^{3,4}. Critically overdrafted is defined by DWR as, "A

¹ [Well Completion Report Map Application](#)

² Mclaughlin, R.J. et. al. 2000. Geology of the Cape Mendocino, Eureka, Garberville, and Southwestern Part of Hayfork.

³ [Statewide Groundwater Management](#)

⁴ [SGMA Basin Prioritization Dashboard](#)



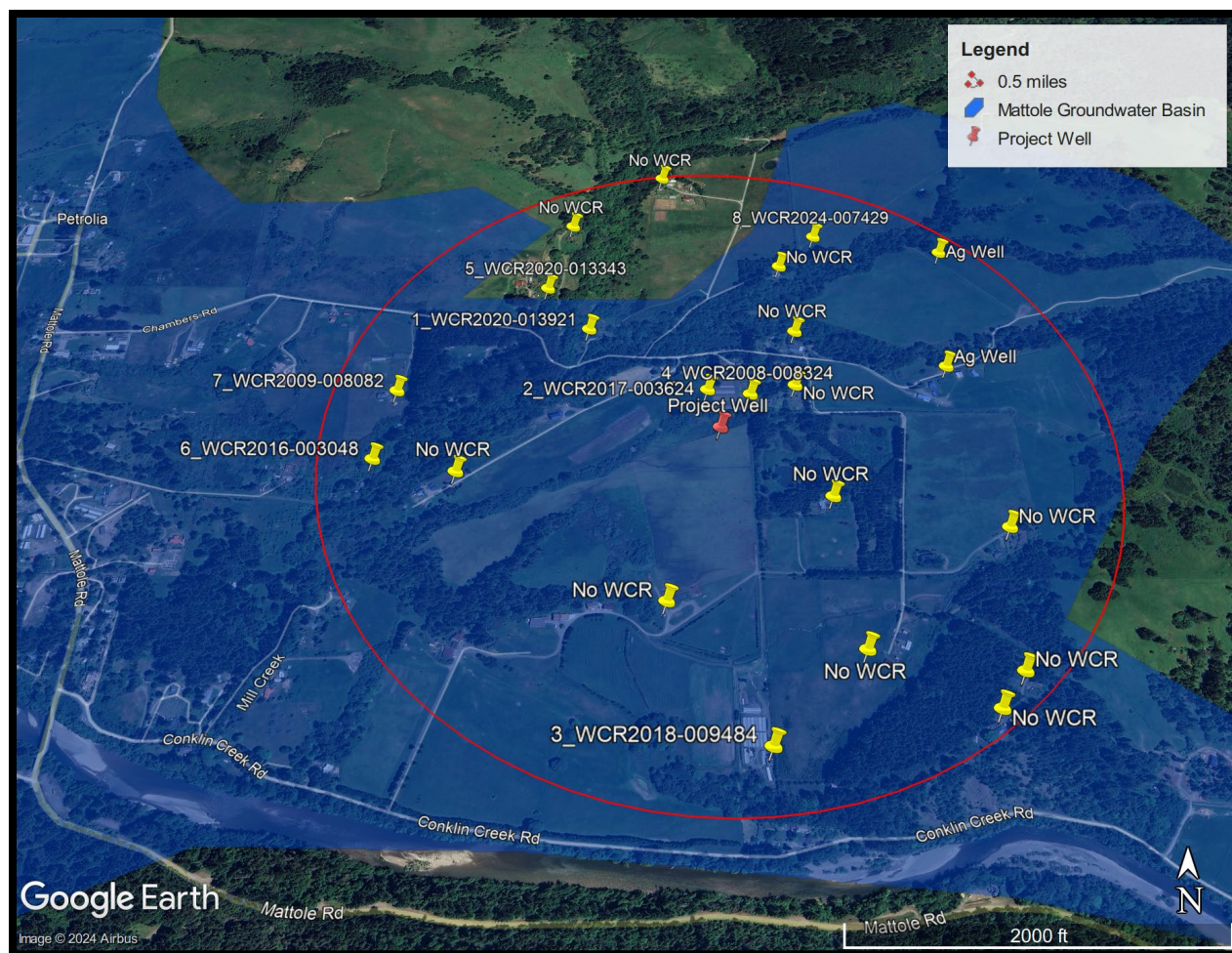


Figure 2. Project well and location of wells with WCRs within 0.5 miles of the project wells (locations were approximated based on information provided in the WCRs in Attachment 4).

basin subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." In addition, as part of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program, DWR created the CASGEM Groundwater Basin Prioritization statewide ranking system to prioritize California groundwater basins in order to help identify, evaluate, and determine the need for additional groundwater level monitoring. California's groundwater basins were classified into one of four categories high-, medium-, low-, or very low-priority. The CVGB is ranked as a very low-priority basin by the CASGEM ranking system. The very low ranking, with a ranking score of zero (0), indicates that groundwater use in the basin does not significantly impact the groundwater basin. As part of the prioritization, DWR did not identify any documented groundwater level declines in the Mattole Groundwater Basin.

GROUNDWATER RECHARGE

The USGS⁵ estimated long-term average recharge to be between 10 and 66 percent of precipitation.

⁵ [USGS Fact Sheet 2007-3007](#)



The annual minimum and average precipitation provided by the PRISM Climate Group⁶ from 2000 through 2023 is 26.2 inches and 70.6 inches, respectively. The long-term average recharge from rainfall over the groundwater basin of 3,150 acres is approximately 688-4,539 AFY and 1,853-12,231 AFY for a dry year and wet year, respectively. This does not include direct recharge from the Mattole River and its tributaries.

The project parcel area is 212.6 acres within the Mattole Groundwater Basin. The long-term average recharge over the project parcel is approximately 46-306 AFY and 125-826 AFY for a dry year and average year, respectively.

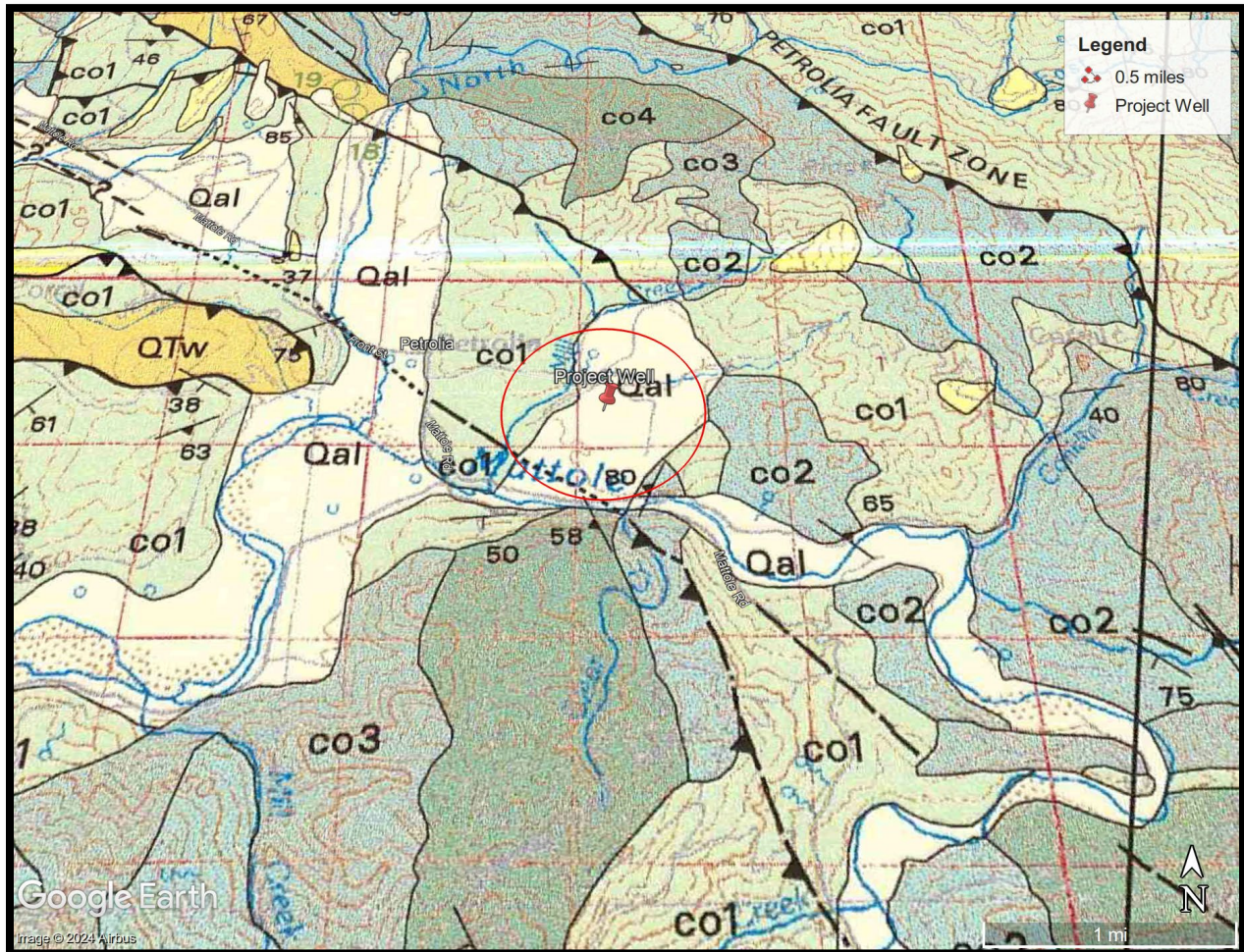


Figure 3. Geologic map of region, red circle is 0.5 mi radius around well. 'Qal' is alluvial deposits (Holocene age).
(Source: McLaughlin et. al., 2000)

WELL RADIUS OF INFLUENCE

The closest waterbody, which is an unnamed tributary Mill Creek, is located approximately 205 ft north of the project well (Figure 5). To evaluate the potential influence of using the project well for cannabis, a radius of influence evaluation was conducted on the project well using the Theis equation.

⁶ [PRISM Climate Group](#)



The radius of influence is the distance from the well where drawdown is negligible. The Theis equation was developed to model the response of an aquifer to pumping (Fetter, 2001⁷). 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, 15 gpm, over a duration of 3 hours (time needed to top off water storage tanks). The drawdown measured during the July 2024 production test was used to estimate the specific capacity (SC) and transmissivity (T) for a confined aquifer as follows:

$$SC \text{ (gpm/ft)} = \text{Well Yield (gpm)} \div \text{Drawdown (ft)}$$

$$T \text{ (gpd/ft)} = 2000 \times SC \text{ (gpm/ft)}$$

The drawdown from the project's well for 3-hours of pumping at 15 gpm, for various distances from the well, is provided in Figure 4. Calculations are provided in Attachment 5. The radius of influence is the distance where the modeled cone of depression from groundwater extraction under these conditions is negligible (less than 6 inches). The drawdown in the well during the 4-hour pump test stabilized at 0.3 feet, which is considered negligible. Therefore, the radius of influence is small, less than 1-foot. None of the nearby wells or surface water bodies are within the modeled cone of depression. In addition, since the project proposes approximately 19 days of water storage during peak daily demand and tops the storage off daily at 3-hours per day, the well has sufficient time to recover.

During the July 2024 production test, a maximum drawdown of 0.5 feet was recorded after 1-minute of pumping, at which point equilibrium conditions were observed with no additional drawdown observed during the remainder of the test and the recovery was within 2 minutes of cessation of pumping, indicative of high transmissivity.

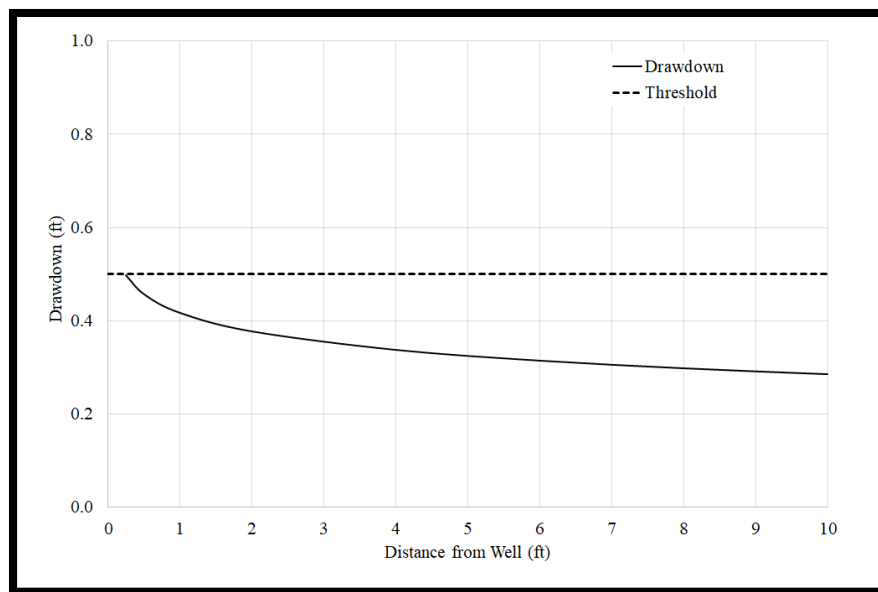


Figure 4. Estimated radius of influence associated with the project's well.

⁷ Fetter, C.W. 2001. Applied Hydrogeology. Fourth Edition.



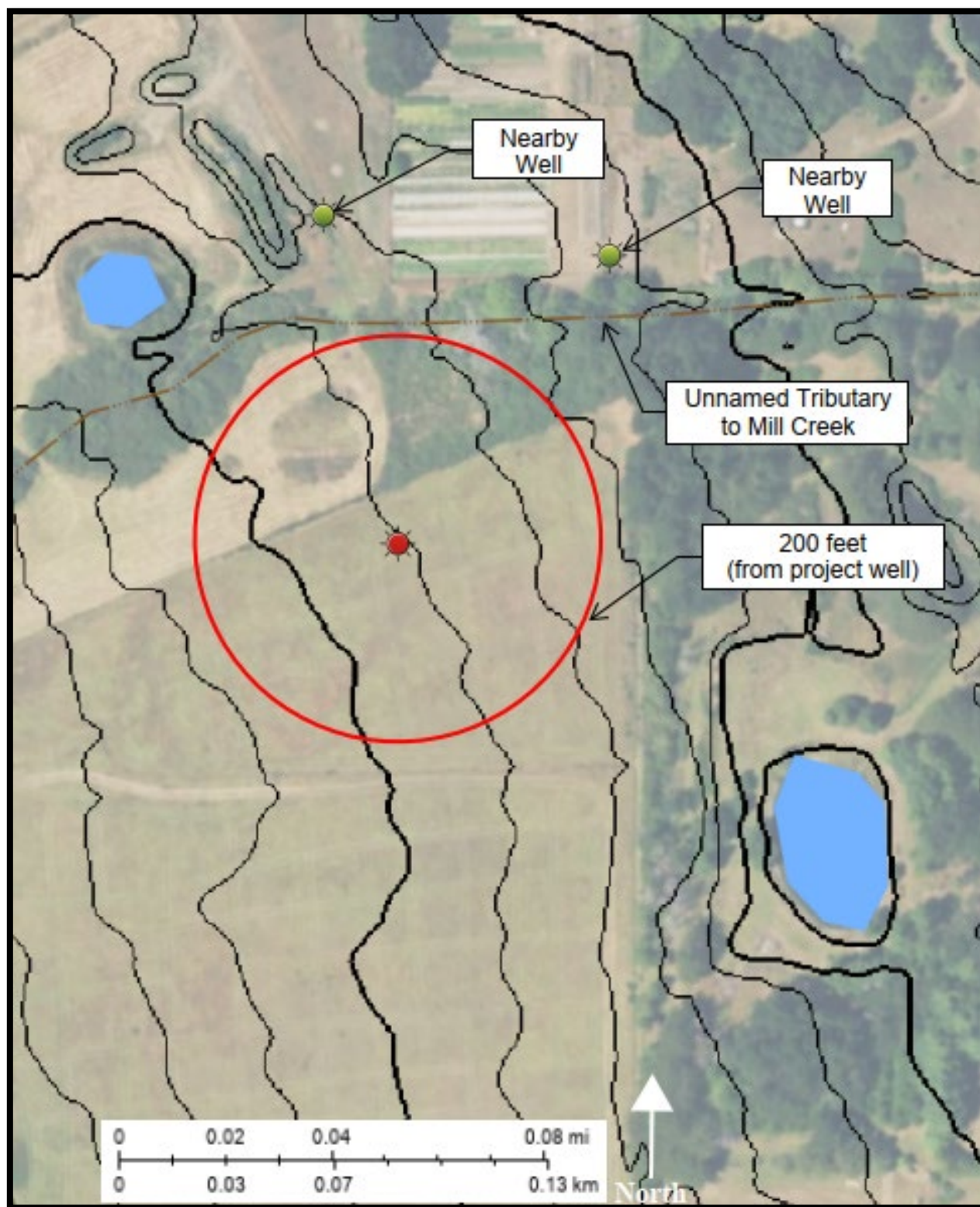


Figure 5. Project well with mapped surface water features and neighboring wells within 500 feet of the project well.

FINDINGS AND CONCLUSIONS

The purpose of this Technical Memorandum (TM) is to provide an assessment to demonstrate that the existing well is a non-diversionary source. A summary of findings and conclusions are as follows:

- The proposed annual water demand is 655,000 gallons (2.0 AF).
- The proposed water storage is 50,000 gallons, representing about 19 days of storage during peak daily demand, which is about 2,610 gallons per day.
- The project well has an estimated yield of 15 gpm. The well is screened in the Mattole River Valley Groundwater Basin.
- The Mattole River Valley Groundwater Basin is ranked as a very low priority basin by the CASGEM ranking system, indicating that groundwater use has no significant impact on the basin.
- Water will be pumped from the well at a maximum of 15 gpm (0.03 cfs) for 2.9 hours per day, daily, to meet the project's water demand.
- The estimated long-term average recharge from precipitation is approximately 688-4,539 AFY and 1,853-12,231 AFY for a dry year and average year, respectively. Therefore, there is sufficient water to recharge the Mattole River Valley Groundwater Basin aquifer.
- The estimated long-term average recharge from precipitation over the project parcel area is approximately 46-306 AFY and 125-826 AFY for a dry year and average year, respectively. The demand is only 4% of the lowest estimate of recharge over the project parcel.
- The Mattole River Valley Groundwater Basin does not meet the definition of a waterbody per the CCLUO and is therefore a non-diversionary source.
- The proposed water source is not considered a surface water diversionary source by CDFW and SWRQCB.
- The radius of influence was estimated using the Theis equation assuming a pumping rate of 15 gpm for 2.9 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 less than 1-foot.
- The nearest waterbody is an unnamed tributary to Mill Creek approximately 205 ft to the north of the well. The creek is outside the radius of influence of the well. Thus, pumping from the well's source is not hydraulically connected to the unnamed tributary to Mill Creek.
- With all the above, it can be concluded that the proposed water source is a non-diversionary source of water and would not impact surrounding wells.

QUALIFICATIONS OF AUTHOR

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

LIMITATIONS

The study of groundwater hydrology is very complex and often relies on limited data, especially in rural areas. Recommendations and conclusions provided herein are based on professional judgment



made using information of the groundwater systems and geology in 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 Completion Report
2. Mattole River Valley Groundwater Basin, Bulletin 118
3. Pump Test Results
4. Surrounding WCRs
5. Radius of Influence Calculations



Attachment 1: Project Well Completion Report



State of California
Well Completion Report
 Form DWR 188 In Review 5/19/2022
 WCR2021-008803

Owner's Well Number W2249 Date Work Began 07/07/2021 Date Work Ended 07/13/2021
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
 Secondary Permit Agency _____ Permit Number 20/21-0670 Permit Date 01/20/2021

Well Owner (must remain confidential pursuant to Water Code 13752)		Planned Use and Activity
Name <u>Karl Benemann</u>	Activity <u>New Well</u>	
Mailing Address <u>P.O. Box 1083</u>	Planned Use <u>Water Supply Irrigation - Landscape</u>	
City <u>Trinidad</u> State <u>Ca</u> Zip <u>95570</u>		

Well Location	
Address _____	APN <u>105-101-006</u>
City _____ Zip _____ County <u>Humboldt</u>	Township <u>02 S</u>
Latitude <u>40</u> <u>19</u> <u>10.308</u> N Longitude <u>-124</u> <u>16</u> <u>9.804</u> W	Range <u>02 W</u>
Deg. Min. Sec. Deg. Min. Sec.	Section <u>02</u>
Dec. Lat. <u>40.31953</u> Dec. Long. <u>-124.26939</u>	Baseline Meridian <u>Humboldt</u>
Vertical Datum _____ Horizontal Datum <u>WGS84</u>	Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____	Elevation Accuracy _____
	Elevation Determination Method _____

Borehole Information	Water Level and Yield of Completed Well
Orientation <u>Vertical</u> Specify _____	Depth to first water <u>55</u> (Feet below surface)
Drilling Method <u>Other - Under Ream Down Hole Hammer</u> Drilling Fluid <u>Air</u>	Depth to Static _____
Total Depth of Boring <u>180</u> Feet	Water Level <u>51</u> (Feet) Date Measured <u>07/08/2021</u>
Total Depth of Completed Well <u>180</u> Feet	Estimated Yield* <u>15</u> (GPM) Test Type <u>Air Lift</u>
	Test Length <u>4</u> (Hours) Total Drawdown <u>125</u> (feet)
	*May not be representative of a well's long term yield.

Geologic Log - Free Form		
Depth from Surface	Feet to Feet	Description
0	1	Top Soil
1	4	Brown Silty Clay
4	11	Brown Clay
11	47	Shale
47	109	Blue Clay
109	133	Shale Hard
133	180	Blue Sandstone

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specifications	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	140	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
1	140	160	Screen	Low Carbon Steel	Grade: ASTM A53	0.188	6	Milled Slots	0.05	
1	160	180	Screen	Low Carbon Steel	Grade: ASTM A53	0.25	6	Milled Slots	0.05	

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	180	Filter Pack	Other Gravel Pack	3/8 inch	Pea Gravel

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	180	10

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name FISCH DRILLING

Person, Firm or Corporation

3150 JOHNSON ROAD

HYDEVILLE

CA

95547

Address

City

State

Zip

Signed


electronic signature received

07/15/2021

683865

C-57 Licensed Water Well Contractor

Date Signed

C-57 License Number

Attachments

Location Map.pdf - Location Map

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

										N
--	--	--	--	--	--	--	--	--	--	---

Latitude Deg/Min/Sec

										W
--	--	--	--	--	--	--	--	--	--	---

Longitude Deg/Min/Sec

TRS:

APN:

Attachment 2:
Mattole River Valley Groundwater
Basin, Bulletin 118



Mattole River Valley Groundwater Basin

- Groundwater Basin Number: 1-28
- County: Humboldt
- Surface Area: 3,150 acres (5 square miles)

Basin Boundaries and Hydrology

The Mattole River Valley Groundwater Basin occupies small valleys of the Mattole and North Fork Mattole Rivers where the Mattole River discharges to the ocean. The basin is bounded to the south and east by undifferentiated marine Cretaceous deposits of graywacke and shale. The basin is bounded to the northwest by Tertiary marine sedimentary rocks of the Wildcat series (Strand 1962). The Wildcat series is a group of five formations ranging in age from Miocene to Pleistocene consisting of sandstone, marine siltstone, and claystone (Evenson 1959). Annual precipitation ranges from 63- to 75-inches.

Hydrogeologic Information

Hydrogeologic information was not found for the following:

Water-Bearing Formations

Groundwater Level Trends

Groundwater Storage

Groundwater Budget (Type B)

The estimate of groundwater extraction for the Mattole River Valley Basin is based on a 1996 survey conducted by the California Department of Water Resources. The survey included landuse and sources of water. Groundwater extraction for agricultural use is estimated to be 140 acre-feet. Groundwater extraction for municipal and industrial uses is estimated to be 7 acre-feet. Deep percolation of applied water is estimated to be 87 acre-feet.

Groundwater Quality

Hydrogeologic information was not found.

Well Production characteristics

Well yields (gal/min)		
Municipal/Irrigation	NKD	
Total depths (ft)		
Domestic	Range: 48 - 51	Average: 49 (3 Well Completion Reports)
Municipal/Irrigation	NKD	

NKD – No known data

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
Department of Health Services	Groundwater levels	NKD
	Miscellaneous water quality	NKD
	Miscellaneous water quality	2

Basin Management

Groundwater management:	No known groundwater management plans, groundwater ordinances, or basin adjudications.
Water agencies	
Public	None
Private	None

Selected References

- Evenson, R.E. 1959. Geology and Groundwater Features of Eureka Area, Humboldt County, California. USGS Water Supply Paper 1470.
- Strand RG. 1962. Geologic Map of California, [Redding Sheet]. Scale 1:250,000. California Division of Mines and Geology.

Bibliography

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- California Department of Water Resources. 1975. California's Ground Water. California Department of Water Resources. Bulletin 118.
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- Dickinson WR, Ingersoll RV, Grahm SA. 1979. Paleogene Sediment Dispersal and Paleotectonics in Northern California. Geological Society of America Bulletin 90:1458-1528.
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- Nolan KM, Kelsey HM, Marron DC. 1995. Summary of Research in the Redwood Creek Basin, 1973-83. USGS Professional Paper.
- Planert M, Williams JS. 1995. Ground Water Atlas of the United States, Segment 1, California, Nevada. USGS. HA-730-B.

Errata

Changes made to the basin description will be noted here.

Attachment 3: Pump Test Results





3150 Johnson Rd.
Hydesville, CA 95547
(707) 768-9800
A, C-57 – Lic. #683865

WATER PRODUCTION TEST DRAWDOWN AND RECOVERY DATA

Property Address: 40.31953 -124.26939, Conklin Creek Road, Petrolia	Date: 7/19/24
Property Owner: Karl Benemann	Phone: (707) 499-6252
Other Info:	

Drawdown Data:

Date	Clock Time	Time Since Pump Started (min.)	Pumping Water Level Measurement (ft)	Pump Rate (discharge) gpm	Comments on Factors Affecting Test Data
7/19/24	12:01	0	19.5'	15	
7/19/24	12:02	1	19.5'	15	
7/19/24	12:03	2	20'	15	
7/19/24	12:04	3	19.9'	15	
7/19/24	12:05	4	19.9'	15	
7/19/24	12:06	5	19.9'	15	
7/19/24	12:07	6	19.8'	15	
7/19/24	12:08	7	19.8'	15	
7/19/24	12:09	8	19.8'	15	
7/19/24	12:10	9	19.8'	15	
7/19/24	12:11	10	19.8'	15	
7/19/24	12:16	15	19.8'	15	
7/19/24	12:21	20	19.8'	15	
7/19/24	12:26	25	19.8'	15	
7/19/24	12:31	30	19.8'	15	
7/19/24	12:36	35	19.8'	15	
7/19/24	12:41	40	19.8'	15	
7/19/24	12:46	45	19.8'	15	
7/19/24	1:01	1:00	19.8'	15	
7/19/24	1:16	1:15	19.8'	15	

Date	Clock Time	Time Since Pump Started (min.)	Pumping Water Level Measurement (ft)	Pump Rate (discharge) gpm	Comments on Factors Affecting Test Data
7/19/24	1:31	1:30	19.8'	15	
7/19/24	2:01	2:00	19.8'	15	
7/19/24	2:31	2:30	19.8'	15	
7/19/24	3:01	3:00	19.8'	15	
7/19/24	3:31	3:30	19.8'	15	
7/19/24	4:01	4:00	19.8'	15	End Drawdown Period

Recovery Data:

Date	Clock Time	Time Since Pump Shutoff (min.)	Recovery Water Level Measurement (ft)	Comments on Factors Affecting Test Data
7/19/24	4:01	0	19.8'	
7/19/24	4:02	1	19.6'	
7/19/24	4:03	2	19.5'	Recovered
		3		
		4		
		5		
		6		
		7		
		8		
		9		
		10		
		15		
		20		
		25		
		30		
		35		
		40		
		45		
		1:00		

Attachment 4: Surrounding WCRs



1) Neighbor Well 400ft SE

State of California
Well Completion Report
 Form DWR 188 Complete 11/29/2020
 WCR2020-013921

Owner's Well Number _____ Date Work Began 09/21/2020 Date Work Ended 09/22/2020
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
 Secondary Permit Agency _____ Permit Number 20/21-0028 Permit Date 07/15/2020

Well Owner (must remain confidential pursuant to Water Code 13752)		Planned Use and Activity
Name <u>XXXXXXXXXXXXXXXXXXXX</u>	Activity <u>New Well</u>	
Mailing Address <u>XXXXXXXXXXXXXXXXXXXX</u> <u>XXXXXXXXXXXXXXXXXXXX</u>	Planned Use <u>Water Supply Domestic</u>	
City <u>XXXXXXXXXXXXXXXXXXXX</u> State <u>XX</u> Zip <u>XXXXX</u>		

Well Location	
Address <u>741 Chambers RD</u>	APN <u>105-141-001</u>
City <u>Petrolia</u> Zip <u>95558</u> County <u>Humboldt</u>	Township <u>02 S</u>
Latitude <u>40</u> <u>19</u> <u>17.3999</u> <u>N</u> Longitude <u>-124</u> <u>16</u> <u>22.44</u> <u>W</u>	Range <u>02 W</u>
Deg. Min. Sec. Deg. Min. Sec.	Section <u>03</u>
Dec. Lat. <u>40.3215</u> Dec. Long. <u>-124.2729</u>	Baseline Meridian <u>Humboldt</u>
Vertical Datum _____ Horizontal Datum <u>WGS84</u>	Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____	Elevation Accuracy _____
	Elevation Determination Method _____

Borehole Information	Water Level and Yield of Completed Well
Orientation <u>Vertical</u> Specify _____	Depth to first water <u>31</u> (Feet below surface)
Drilling Method <u>Direct Rotary</u> Drilling Fluid <u>Air</u>	Depth to Static _____
Total Depth of Boring <u>80</u> Feet	Water Level <u>25</u> (Feet) Date Measured <u>09/22/2020</u>
Total Depth of Completed Well <u>80</u> Feet	Estimated Yield* <u>7</u> (GPM) Test Type <u>Air Lift</u>
	Test Length <u>4</u> (Hours) Total Drawdown <u>55</u> (feet)
	*May not be representative of a well's long term yield.

Geologic Log - Free Form		
Depth from Surface	Feet to Feet	Description
0	5	top soil
5	22	silty clay
22	28	sandstone
28	51	gravel
51	80	shale

Casings										
Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	25	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
1	25	70	Screen	Low Carbon Steel	Grade: ASTM A53	0.188	6	Milled Slots	0.05	
1	70	80	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			

Annular Material					
Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	80	Filter Pack	Other Gravel Pack	3/8 inch	Pea Gravel

Other Observations:
 Seal:
 Bridge at 6'-7' bentonite contaminated with some upper soils. Solid seal from 20'-7' and 6'-surface. There was no water at that zone so seal should have no issues.

Borehole Specifications		
Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	80	10

Certification Statement				
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief				
Name <u>FISCH DRILLING</u>				
Person, Firm or Corporation				
3150 JOHNSON ROAD		HYDESVILLE	CA	95547
Address		City	State	Zip
Signed	<u>electronic signature received</u>		09/30/2020	683865
	C-57 Licensed Water Well Contractor		Date Signed	C-57 License Number

Attachments
scan.pdf - Location Map

DWR Use Only												
CSG #	State Well Number				Site Code			Local Well Number				
Latitude Deg/Min/Sec					Longitude Deg/Min/Sec							
TRS:												
APN:												

State of California
Well Completion Report
WCR Form - DWR 188 Complete 09/01/2017
WCR2017-003624

Owner's Well Number 1 Date Work Began 08/02/2017 Date Work Ended 08/11/2017
Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
Secondary Permit Agency _____ Permit Number 16/17-0721 Permit Date 02/17/2017

Well Owner (must remain confidential pursuant to Water Code 13752)

Name XXXXXXXXXXXXXXXXXXXX
Mailing Address XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX
City XXXXXXXXXXXXXXXXXXXX State XX Zip XXXXX

Planned Use and Activity

Activity New Well
Planned Use Water Supply Irrigation - Agriculture

Well Location

Address 702 Chambers RD APN 105-071-006
City Petrolia Zip 95558 County Humboldt Township 02 S
Latitude _____ N Longitude _____ W Range 02 W
Deg. Min. Sec. Deg. Min. Sec. Section 02
Dec. Lat. 40.3204250 Dec. Long. -124.2696340 Baseline Meridian Humboldt
Vertical Datum _____ Horizontal Datum WGS84 Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____ Elevation Accuracy _____
Elevation Determination Method _____

Borehole Information

Orientation Vertical Specify _____
Drilling Method Direct Rotary Drilling Fluid Bentonite
Total Depth of Boring 160 Feet
Total Depth of Completed Well 160 Feet

Water Level and Yield of Completed Well

Depth to first water 18 (Feet below surface)
Depth to Static _____
Water Level 27 (Feet) Date Measured 08/11/2017
Estimated Yield* 20 (GPM) Test Type Air Lift
Test Length 4 (Hours) Total Drawdown 133 (Feet)
*May not be representative of a well's long term yield.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	3	top soil
3	18	brown silty clay
18	23	blue silty clay
23	37	shale
37	58	blue rounded gravel
58	142	shale
142	157	fractured sandstone
157	160	franciscan formation

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specifications	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	140	Blank	PVC	OD: 5.563 in. SDR: 21 Thickness: 0.265 in.	0.265	5.563			
1	140	160	Screen	PVC	OD: 5.563 in. SDR: 21 Thickness: 0.265 in.	0.265	5.563	Milled Slots	0.032	

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	160	Filter Pack	Other Gravel Pack		Well Sand #3

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	160	10

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name FISCH DRILLING
Person, Firm or Corporation
3150 JOHNSON ROAD HYDESVILLE CA 95547
Address City State Zip

Signed electronic signature received 08/16/2017 683865
C-57 Licensed Water Well Contractor Date Signed C-57 License Number

Attachments

Scan.pdf - Location Map

WellReport_05222017_1_20170901_135903.pdf - WCR Final

DWR Use Only

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Site Number / State Well Number

						N
--	--	--	--	--	--	---

Latitude Deg/Min/Sec

						W
--	--	--	--	--	--	---

Longitude Deg/Min/Sec

TRS:

APN:

State of California
Well Completion Report
 Form DWR 188 Complete 12/16/2018
 WCR2018-009484

Owner's Well Number _____ Date Work Began 10/18/2018 Date Work Ended 10/22/2018
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
 Secondary Permit Agency _____ Permit Number 17/18-2048 Permit Date 08/21/2018

Well Owner (must remain confidential pursuant to Water Code 13752)		Planned Use and Activity
Name <u>XXXXXXXXXXXXXXXXXXXX</u>	Activity <u>New Well</u>	
Mailing Address <u>XXXXXXXXXXXXXXXXXXXX</u> <u>XXXXXXXXXXXXXXXXXXXX</u>	Planned Use <u>Water Supply Irrigation - Agriculture</u>	
City <u>XXXXXXXXXXXXXXXXXXXX</u> State <u>XX</u> Zip <u>XXXXX</u>		

Well Location	
Address <u>1197 Conklin Creek RD</u>	APN <u>105-111-016</u>
City <u>Petrolia</u> Zip <u>95536</u> County <u>Humboldt</u>	Township <u>02 S</u>
Latitude _____ N Longitude _____ W	Range <u>02 W</u>
Deg. Min. Sec. Deg. Min. Sec.	Section <u>11</u>
Dec. Lat. <u>40.3139890</u> Dec. Long. <u>-124.2685660</u>	Baseline Meridian <u>Humboldt</u>
Vertical Datum _____ Horizontal Datum <u>WGS84</u>	Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____	Elevation Accuracy _____
	Elevation Determination Method _____

Borehole Information	Water Level and Yield of Completed Well
Orientation <u>Vertical</u> Specify _____	Depth to first water <u>13</u> (Feet below surface)
Drilling Method <u>Direct Rotary</u> Drilling Fluid <u>Bentonite</u>	Depth to Static _____
Total Depth of Boring <u>180</u> Feet	Water Level <u>18</u> (Feet) Date Measured <u>10/22/2018</u>
Total Depth of Completed Well <u>180</u> Feet	Estimated Yield* <u>3</u> (GPM) Test Type <u>Air Lift</u>
	Test Length <u>4</u> (Hours) Total Drawdown <u>162</u> (feet)
	*May not be representative of a well's long term yield.

Geologic Log - Free Form		
Depth from Surface	Feet to Feet	Description
0	4	top soil
4	12	brown silty clay
12	16	brown gravel
16	21	blue clay
21	32	blue gravel and clay
32	41	blue clay
41	82	shale and basalt
82	116	blue fractured sandstone
116	180	franciscan bedrock

*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

Page 1 of 2

Owner's Well Number 2

Date Work Began 10/17/2008

Date Work Ended 10/20/2008

Local Permit Agency Humboldt County E.H.D.

Permit Number 08/09-0145

Permit Date 9/23/08

State of California Well Completion Report

Refer to Instruction Pamphlet

No. e0081504

DWR Use Only - Do Not Fill In

025/02W-02

State Well Number/Site Number

Latitude Longitude

APN/TRS/Other

Geologic Log

Orientation ☒ Vertical ☐ Horizontal ☐ Angle Specify

Drilling Method Direct Rotary

Drilling Fluid Bentonite mud

Depth from Surface

Description

Feet to Feet Describe material, grain size, color, etc

Depth from Surface Feet to Feet	Description
0 1	Top Soil
1 16	Brown Clay
16 45	Blue Clay
45 60	Sand & Gravel
60 70	Shale and Clay Blue

Well Location

Address 942 Chambers Rd.

City Petrolia

County Humboldt

Latitude

Dec. Min. Sec.

N Longitude

Dec. Min. Sec.

Datum

Decimal Lat.

Decimal Long.

APN Book 105

Page 071

Parcel 07

Township 25

Range 2W

Section 2

Location Sketch

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

North



South

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 17 (Feet below surface)

Depth to Static

Water Level 17 (Feet) Date Measured 10/17/2008

Estimated Yield * 80 (GPM) Test Type Constant Rate

Test Length 4.0 (Hours) Total Drawdown 63 (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 40	10	Blank	PVC Sch. 80	CL200	5		
40 70	10	Screen	PVC Sch. 80	CL200	5	Milled Slots	0.032

Annular Material

Depth from Surface Feet to Feet	Fill	Description
0 20	Bentonite	Sanitary Seal
20 70	Filter Pack	3/8" Pea Gravel

Attachments

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

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name FISCH DRILLING

Person, Firm or Corporation

3150 Johnson Road

Address

Hydesville

City

CA

95547

State

Zip

Signed

C-57 Licensed Water Well Contractor

10/21/2008

683865

Date Signed C-57 License Number

Airphoto

Topo Quads

Terrain

Mapping

4 ← 9 MI TO MATTOLE RD.

CHAMBERS RD

253' →
CHAMBERS RD.

LEACH FIELD

DRIVEWAY

SEPTIC TANK

HOUSE

WASHED

N
S

10507107

3.8 ACRES

PLANNED
SECONDARY
WELL SITE

EXISTING
WELL

PLANNED
PRIMARY
WELL SITE

150'

105
NEIGHBORS HOUSE

LEACH FIELD

CREEK

268'

Find Parcel
Search by Asses
1051011
Search Building
Search Building

6

State of California
Well Completion Report
 Form DWR 188 Complete 11/15/2020
 WCR2020-013343

Owner's Well Number _____ Date Work Began 09/11/2020 Date Work Ended 09/16/2020
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
 Secondary Permit Agency _____ Permit Number 20/21-0027 Permit Date 07/15/2020

Well Owner (must remain confidential pursuant to Water Code 13752)		Planned Use and Activity
Name <u>XXXXXXXXXXXXXXXXXXXX</u>	Activity <u>New Well</u>	
Mailing Address <u>XXXXXXXXXXXXXXXXXXXX</u> <u>XXXXXXXXXXXXXXXXXXXX</u>	Planned Use <u>Water Supply Irrigation - Agriculture</u>	
City <u>XXXXXXXXXXXXXXXXXXXX</u> State <u>XX</u> Zip <u>XXXXX</u>		

Well Location	
Address <u>631 Chambers RD</u>	APN <u>105-141-001</u>
City <u>Petrolia</u> Zip <u>95558</u> County <u>Humboldt</u>	Township <u>02 S</u>
Latitude <u>40</u> <u>19</u> <u>20.4743</u> <u>N</u> Longitude <u>-124</u> <u>16</u> <u>25.7627</u> <u>W</u>	Range <u>02 W</u>
Deg. Min. Sec. Deg. Min. Sec.	Section <u>03</u>
Dec. Lat. <u>40.322354</u> Dec. Long. <u>-124.273823</u>	Baseline Meridian <u>Humboldt</u>
Vertical Datum _____ Horizontal Datum <u>WGS84</u>	Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____	Elevation Accuracy _____
	Elevation Determination Method _____

Borehole Information	Water Level and Yield of Completed Well
Orientation <u>Vertical</u> Specify _____	Depth to first water <u>57</u> (Feet below surface)
Drilling Method <u>Direct Rotary</u> Drilling Fluid <u>Air</u>	Depth to Static _____
Total Depth of Boring <u>170</u> Feet	Water Level <u>54</u> (Feet) Date Measured <u>09/15/2020</u>
Total Depth of Completed Well <u>170</u> Feet	Estimated Yield* <u>5</u> (GPM) Test Type <u>Air Lift</u>
	Test Length <u>4</u> (Hours) Total Drawdown <u>113</u> (feet)
	*May not be representative of a well's long term yield.

Geologic Log - Free Form		
Depth from Surface Feet to Feet		Description
0	9	loose top soil
9	17	brown clay
17	42	blue clay
42	51	hard blue clay
51	74	gravel
74	170	shale

Casings										
Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	55	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
1	55	80	Screen	Low Carbon Steel	Grade: ASTM A53	0.188	6	Milled Slots	0.05	
2	80	170	Screen	PVC	OD: 4.500 in. SDR: 21 Thickness: 0.214 in.	0.214	4.5	Milled Slots	0.032	

Annular Material					
Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	Other Bentonite		Sanitary Seal
20	170	Filter Pack	Other Gravel Pack	3/8 inch	Pea Gravel

Other Observations:

Borehole Specifications		
Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	170	10

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name

FISCH DRILLING

Person, Firm or Corporation

3150 JOHNSON ROAD

HYDEVILLE

CA

95547

Address

City

State

Zip

Signed

electronic signature received

C-57 Licensed Water Well Contractor

09/16/2020

Date Signed

683865

C-57 License Number

Attachments
scan.pdf - Location Map

DWR Use Only

CSG #

State Well Number

Site Code

Local Well Number

N

W

Latitude Deg/Min/Sec

Longitude Deg/Min/Sec

TRS:

APN:

Form DWR 188 rev. 12/19/2017

Page 2 of 2

State of California
Well Completion Report
 Form DWR 188 Complete 5/2/2016
 WCR2016-003048

Owner's Well Number 1 Date Work Began 04/20/2016 Date Work Ended 04/21/2016
 Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
 Secondary Permit Agency _____ Permit Number 15/16-0184 Permit Date 10/06/2015

Well Owner (must remain confidential pursuant to Water Code 13752)		Planned Use and Activity
Name <u>XXXXXXXXXXXXXXXXXXXX</u>	Activity <u>New Well</u>	
Mailing Address <u>XXXXXXXXXXXXXXXXXXXX</u> <u>XXXXXXXXXXXXXXXXXXXX</u>	Planned Use <u>Water Supply Domestic</u>	
City <u>XXXXXXXXXXXXXXXXXXXX</u> State <u>XX</u> Zip <u>XXXXX</u>		

Well Location	
Address <u>29505 Mattole RD</u>	APN <u>105-081-09</u>
City <u>Petrolia</u> Zip <u>95558</u> County <u>Humboldt</u>	Township <u>02 S</u>
Latitude _____ N Longitude _____ W	Range <u>02 W</u>
Deg. Min. Sec. Deg. Min. Sec.	Section <u>03</u>
Dec. Lat. <u>40.3193400</u> Dec. Long. <u>-124.2857800</u>	Baseline Meridian <u>Humboldt</u>
Vertical Datum _____ Horizontal Datum <u>WGS84</u>	Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____	Elevation Accuracy _____
	Elevation Determination Method _____

Borehole Information	Water Level and Yield of Completed Well
Orientation <u>Vertical</u> Specify _____	Depth to first water <u>12</u> (Feet below surface)
Drilling Method <u>Direct Rotary</u> Drilling Fluid <u>Bentonite</u>	Depth to Static _____
Total Depth of Boring <u>100</u> Feet	Water Level <u>8</u> (Feet) Date Measured <u>04/20/2016</u>
Total Depth of Completed Well <u>100</u> Feet	Estimated Yield* <u>5</u> (GPM) Test Type <u>Air Lift</u>
	Test Length <u>4.0</u> (Hours) Total Drawdown <u>76</u> (feet)
	*May not be representative of a well's long term yield.

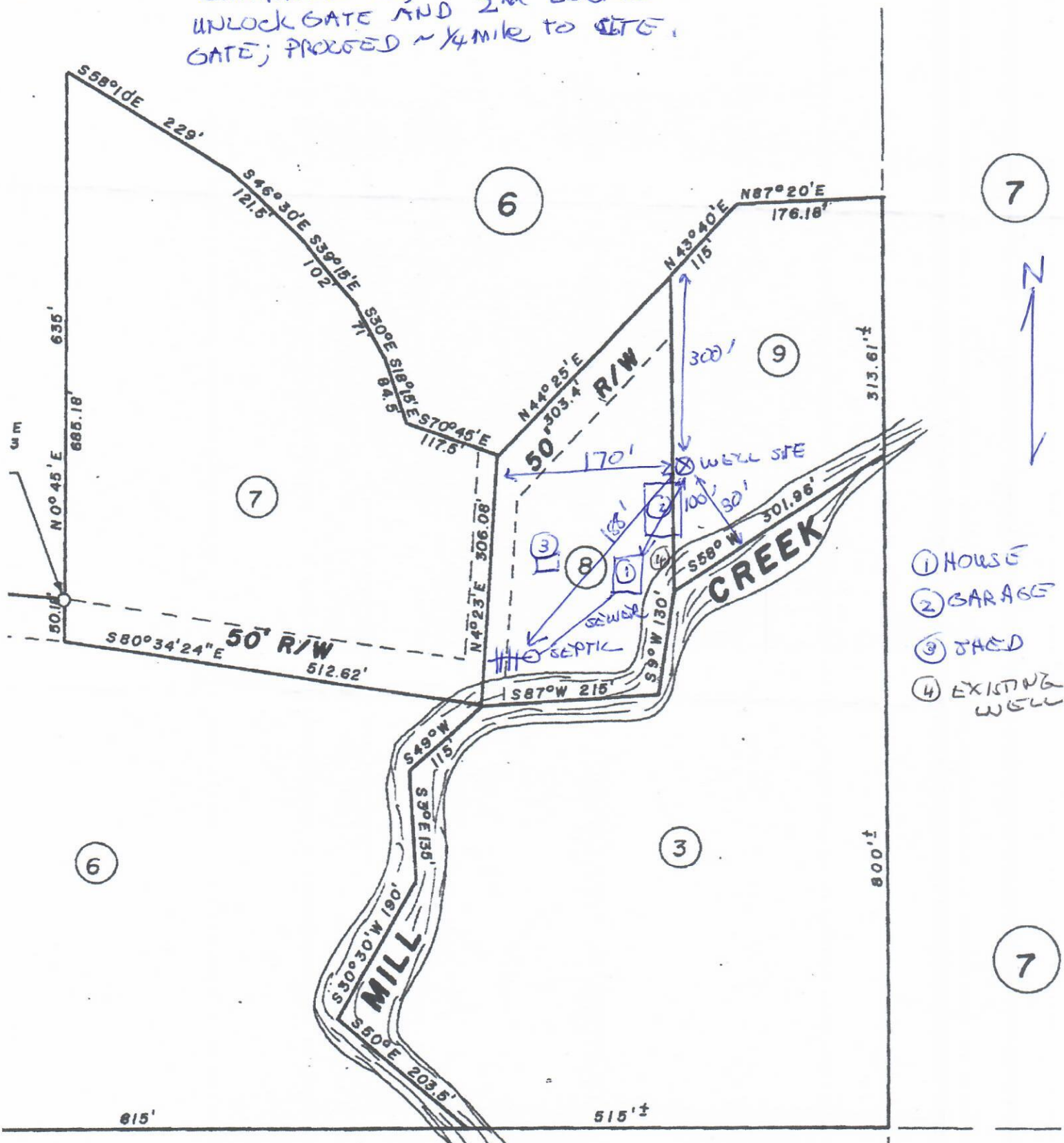
Geologic Log - Free Form		
Depth from Surface Feet to Feet		Description
0	2	Top Soil
2	12	Brown Clay
12	14	Brown Gravel
14	19	Blue Clay
19	25	Blue Gravel
25	31	Blue Clay
31	39	Blue Sandstone
39	100	Grey Clay

NEW MATTOLE ROAD R/W CONVD. TO
HUMBOLDT COUNTY BY A SERIES OF
DEEDS. SEE OR 484 Pg. 393 FOR
DESCRIPTION.

APR 11 1968
Wm FERNANDEZ; DS-DEI-009-000

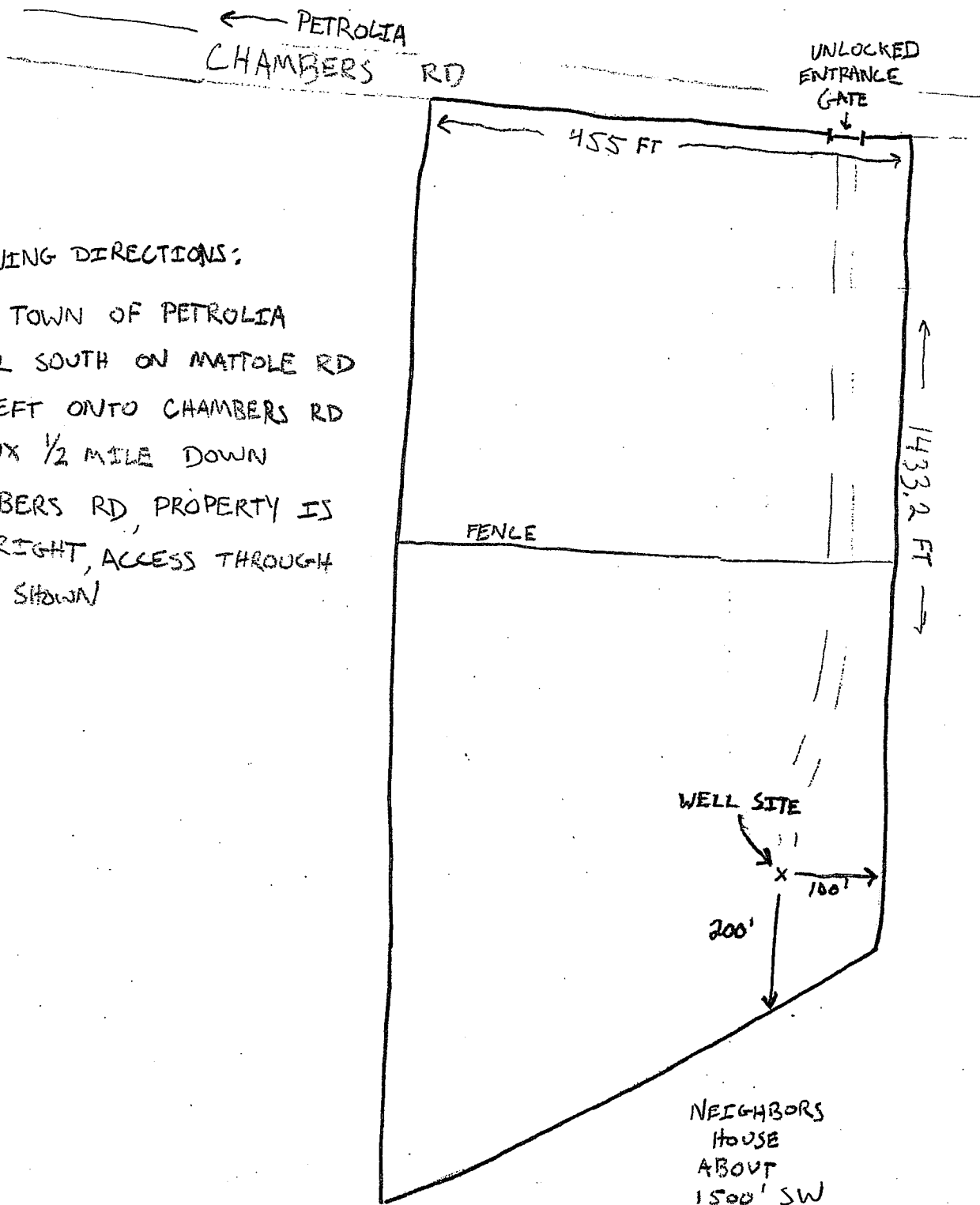
29505 MATTOLE RD.

TURN LEFT $\frac{1}{4}$ MILE AFTER
CHAMBERS RD; GO THROUGH 1ST
UNLOCK GATE AND 2nd LOCKED
GATE; PROCEED $\sim \frac{1}{4}$ MILE TO SITE.



PLOT MAP

AP# 105-061-011
470 Chambers Rd. Petrolia



DRIVING DIRECTIONS:

FROM TOWN OF PETROLIA
TRAVEL SOUTH ON MATTOLE RD
GO LEFT ONTO CHAMBERS RD
APPROX 1/2 MILE DOWN
CHAMBERS RD, PROPERTY IS
ON RIGHT, ACCESS THROUGH
GATE SHOWN

State of California
Well Completion Report
Form DWR 188 Submitted 8/13/2024
WCR2024-007429

Owner's Well Number _____ Date Work Began 06/27/2024 Date Work Ended 07/11/2024
Local Permit Agency Humboldt County Department of Health & Human Services - Land Use Program
Secondary Permit Agency _____ Permit Number 20/21-0279 Permit Date 10/19/2020

Well Owner (must remain confidential pursuant to Water Code 13752)	Planned Use and Activity
Name <u>KARL FRANCIS BENEMANN & ESTHER DAWN BENEMANN FAMILY REVOCABLE</u>	Activity <u>New Well</u>
Mailing Address <u>PO Box 1083</u>	Planned Use <u>Water Supply Domestic</u>
City <u>Trinidad</u> State <u>CA</u> Zip <u>95570</u>	

Well Location	
Address <u>1414 Chambers RD</u>	APN <u>104-191-001</u>
City <u>Petrolia</u> Zip <u>95558</u> County <u>Humboldt</u>	Township <u>02 S</u>
Latitude <u>40</u> <u>19</u> <u>28.146</u> <u>N</u> Longitude <u>-124</u> <u>15</u> <u>59.9148</u> <u>W</u>	Range <u>02 W</u>
Deg. Min. Sec. Deg. Min. Sec.	Section <u>02</u>
Dec. Lat. <u>40.324485</u> Dec. Long. <u>-124.266643</u>	Baseline Meridian <u>Humboldt</u>
Vertical Datum _____ Horizontal Datum <u>WGS84</u>	Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____	Elevation Accuracy _____
	Elevation Determination Method _____

Borehole Information	Water Level and Yield of Completed Well
Orientation <u>Vertical</u> Specify _____	Depth to first water <u>34</u> (Feet below surface)
Drilling Method <u>Direct Rotary</u> Drilling Fluid <u>Air</u>	Depth to Static _____
Total Depth of Boring <u>160</u> Feet	Water Level <u>32</u> (Feet) Date Measured <u>07/12/2024</u>
Total Depth of Completed Well <u>160</u> Feet	Estimated Yield* <u>25</u> (GPM) Test Type <u>Air Lift</u>
	Test Length <u>4</u> (Hours) Total Drawdown <u>128</u> (feet)
	*May not be representative of a well's long term yield.

Geologic Log - Free Form		
Depth from Surface Feet to Feet		Description
0	2	Top Soil
2	18	Brown Silty Clay
18	28	Brown Clay
28	35	Brown Gravel
35	89	Shale Clay
89	98	Blue Sandstone Fractured
98	160	Shale Clay

Casings	
---------	--

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description
1	0	80	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
1	80	100	Screen	Low Carbon Steel	Grade: ASTM A53	0.188	6	Milled Slots	0.05	
1	100	140	Blank	Low Carbon Steel	Grade: ASTM A53	0.188	6			
1	140	160	Blank	Low Carbon Steel	Grade: ASTM A53	0.25	6			

Annular Material	
------------------	--

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description
0	20	Bentonite	High Solids		Sanitary Seal
20	160	Filter Pack	Other Gravel Pack	3/8 Inch	Pea Gravel

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)
0	160	10

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name FISCH DRILLING & PUMP, INC.
Person, Firm or Corporation

3150 JOHNSON ROAD	HYDESVILLE	CA	95547
Address	City	State	Zip

Signed	<u>electronic signature received</u>	<u>08/13/2024</u>	<u>683865</u>
	C-57 Licensed Water Well Contractor	Date Signed	C-57 License Number

Attachments

scan20240813.pdf - Location Map

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

Latitude Deg/Min/Sec

Longitude Deg/Min/Sec

TRS:

APN:

Attachment 6: Radius of Influence Calculation



	Well (Confined Aquifer)								Notes:
Storativity	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	Storativity - Average of Minimum and Maximum in range (see below)
Well Drawdown (ft)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	Maximum drawdown from Pump Test
Yield Q (gpm)	15	15	15	15	15	15	15	15	Pump rate from Pump Test
SC Specific Capacity	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	Well Yield / Available Drawdown
T (gpd/ft)	60000.0	60000.0	60000.0	60000.0	60000.0	60000.0	60000.0	60000.0	Driscoll's (1968) Estimate for confined aquifer of T = 2000*Q/SC
T (ft ² /day)	8020.9	8020.9	8020.9	8020.9	8020.9	8020.9	8020.9	8020.9	gallon = 0.133681 cubic foot
Project Q (gpm)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	
Q (ft ³ /d)	2887	2887	2887	2887	2887	2887	2887	2887	conversion ft ³ /d = 0.00519481 gpm
Time (days)	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	
r (ft)	0.2	1	1	2	4	6	8	10	
u	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00003	Fetter (2001) Equation 5.10
w(u)	17.4065	15.9566	14.5703	13.1840	11.7977	10.9868	10.4114	9.9651	Fetter (2001) Equation 5.11: W(u) ~ -0.5772·ln(u)+u·u ² /(2*fact2)
Drawdown [h-ho] (ft)	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	Fetter (2001) Equation 5.11
Drawdown [h-ho] (in)	6.0	5.5	5.0	4.5	4.1	3.8	3.6	3.4	

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.>)

Storativity - Confined Aquifer (Sources)

Minimum	Maximum	Average	
0.00005	0.005	0.0010586	Average of all six estimates of Storativity
0.00001	0.0001		

Radius of influence is distance from well where drawdown is negligible.

Well 0.000133 Aquifer Thickness*0.000001
Total Aquifer Thickness (WCR) (ft) 133 Estimated from WCR 180 ft - 47 ft

Source: http://www.aqtesolv.com/aquifer-tests/aquifer_properties.htm

aquifer (or aquitard) thickness [L].

The typical storativity of a confined aquifer, which varies with specific storage and aquifer thickness, ranges from 5×10^{-5} to 5×10^{-3} (Todd 1980).

Specific storage is the volume of water that a unit volume of aquifer (or

Source: <https://www.sciencedirect.com/topics/earth-and-planetary->

from the expansion of water and compaction of the aquifer, both of which are exceedingly small. For confined aquifers the storativity generally ranges between 0.0001 and 0.00001, and for leaky confined aquifers it is in the range of 0.001. One method to estimate storativity for confined aquifers is to multiply the aquifer thickness by 0.000001. The small storativity for confined aquifers means that to obtain a sufficient supply from a well there must be a large pressure change throughout a wide area. This is not the case with unconfined aquifers because the water derived is not related to expansion and compression but comes instead from gravity drainage and dewatering of the aquifer.

