

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 85-15837
Exam Date: 08/04/2023

1. Current Owner:
MARK WITTMAN 6045 CACTUS LN LEWISTON ID 83501-5197 AND/OR
JOAN WITTMAN 6045 CACTUS LN LEWISTON ID 83501-5197
2. Accompanied by: Mark Wittman
Phone No: 208-553-8709
Address: Same as above
Relationship to permit Holder: Permit Holder.

3. **SOURCE:**
GROUND WATER

Method of Determination: ArcMap and DRG.

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
85-15768	Groundwater	Irrigation & Stockwater	License

Comments: Licensed WR 85-15768 uses a separate GW well authorized for irrigation and stockwater beneficial uses that directly overlap this Permit's POU(s):

- 85-15768 authorized stockwater for 5 head cattle; 85-15837 authorizes stock watering for 20 head cattle. There is no realized concern for overlap between the 2 WRs for up to 20 head of stock, and condition X35 is not recommended for licensing for this minor use of water from either GW source.
- 85-15768 authorized irrigation of 1.4 acres; 85-15837 authorizes the irrigation of 2.3 acres. Overlapping irrigation acreage equals 0.1 acres in the NE $\frac{1}{4}$ SE $\frac{1}{4}$ & 0.9 acres in the SE $\frac{1}{4}$ SE $\frac{1}{4}$, for a total direct overlap of 1.0 acres.
- Condition X35 was recommended for addition toward licensing 85-15837 which describes that the two WRs when combined shall not exceed the irrigation of 2.7 acres (1.4 + 2.3 – 1.0 overlap). Condition X35 mitigates concerns for stacking of water rights due to overlapping water usage between rights.

2. Other water rights with the same point-of-diversion: NO Overlap

C. DIVERSION AND DELIVERY SYSTEM1. **LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER NE $\frac{1}{4}$ SE $\frac{1}{4}$, Sec. 23, Twp 35N, Rge 06W, B.M. NEZ PERCE County

Method of Determination: GPS; POD is located at -117°2.6978, 46°21.5321, Well D-Tag D0046072.

PLACE OF USE: IRRIGATION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
35N	06W	23													0.6			1.7	2.3

Total Acres: 2.3

PLACE OF USE: STOCKWATER

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
35N	06W	23													X			X	

PLACE OF USE: DOMESTIC

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
35N	06W	23													X				

Method of Determination: Beneficial use field examination and ArcMap aerial imagery.

3.

Delivery System Diagram Attached (required). Indicate all major components and distances between components.
☒ Indicate weir size/pipe as applicable.

Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be
☒ 1:24,000 or greater.

☒ Aerial Photo Attached (required for irrigation of 10+ acres).

☒ Photo of Diversion and System Attached

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
D0046072	PENTEK	5	MFG# 5262700	GOULDS	1 INCH

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
NONE						

2. Measurements: 5-gal bucket measurements were taken at time of exam, but the flow captured was determined to be residual leaving main service line from well head to cistern approximately 500 ft away uphill. As the pump didn't cycle on, the measurement is invalid as it doesn't reflect actual pumping discharge rates. A theoretic pump equation was calculated which evaluates the flow rate to be 32 gpm or **0.07 cfs** with the 5 hp pump at depth of 385 ft and system operating pressure of 45 PSI. This is consistent with the applicant's nearby well previously examined with same sized pump and comparable depths. 0.07 cfs is being recommended as the maximum diversion rate for licensing.

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

Measured Method: Theoretic Pump Equation: 5 hp pump installed at depth of 385 with operating pressure 45 PSI derives a flow rate of 32.4 gpm or 0.07 cfs considering department rounding standards.

- Irrigation diversion rate for 2.3 acres = 0.03 cfs x 2.3 ac = **0.07 cfs** considering department rounding standards.
- Stockwater diversion rate for 20 head cattle = **0.02 cfs** based on department standard rates.
- Domestic diversion rate for 1 home = **0.04 cfs** based on department standard rates.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{I.R} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 2.3 \text{ ac} \times 4.0 \text{ afa} = 9.2 \text{ af}$$

$$V_{D.R} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.07 \text{ cfs} \times 294 \text{ days} \times 1.9835 = 40.8$$

$$V = \text{Smaller of } V_{I.R} \text{ and } V_{D.R} = \mathbf{9.2 \text{ af}}$$

2. Volume Calculations for Other Uses:

- Stockwater annual volume = 20 head cattle x 12 gpd x 365 days = 87,600 gal annually / 325,850 gal per af = **0.3 af** considering department rounding standards.
- Domestic annual volume = **0.6 af** for 1 home w/shop (in-home use only).
- Maximum diversion volume = 9.2 af (irrigation) + 0.3 af (stockwater) + 0.6 af (domestic) = **10.1 af**.

G. NARRATIVE/REMARKS/COMMENTS

The beneficial use field exam performed on 8/4/2023 with the applicant, Mark Wittman, showed a groundwater well being used for domestic, stockwater, & irrigation uses. At the POD, groundwater well D0046072 is in a small roundabout near a woodworking pole barn. The well's 5 hp Goulds pump matched with 5 hp pump motor's relay control panel is located on a wall of the pole barn. From the well, a one-inch main water line routes upgrade approximately 500 ft to the applicant's home and shop where water inflows to a 1,000-gallon cistern. From the cistern water is distributed to numerous frost-free hydrants located around the primary residence and pasture irrigation hydrants located near the well head.

5-gal bucket measurements were taken at time of exam which resulted in an average of 11.8 gpm or 0.03 cfs. During licensing review, I completed a theoretic pump equation which derived a 32.8 gpm or 0.07 cfs rate. This is a large discrepancy; during a phone conversation with Mr. Wittman, it was discovered the hose bib located next to the well where measurements were taken must run for some time before the static water in the main line and cistern level drops sufficient to activate the low-level float valve switch to activate the well pump. Mr. Wittman asserts the older pump was recently replaced with the new 5 hp pump that was determined to have a 35-gpm pump capacity at time of installation. As a result, the 5-gal bucket measurements are not valid as they do not capture well pump diversion. The theoretic pump equation rate illustrates the 5 hp pump installed at a depth of 385 ft with operating pressure of 45 PSI has a pump capacity of 0.07 cfs flow rate. **0.07 cfs** is recommended as the maximum diversion rate for licensing purposes.

Of the beneficial uses permit approved for development, the domestic use diversion rate of 0.04 cfs is being carried forward to licensing. The stockwater use diversion rate of 0.03 cfs is being reduced during licensing review based on 20 head of cattle used well water vice the 51 head applied for by the applicant; 0.02 cfs is recommended for licensing the stockwater beneficial use. 0.20 cfs was applied to the irrigation use for 10 acres, but the field exam determined 2.3 acres total active irrigation had been developed in the Permit's development period. Due to reduced acreage the irrigation diversion rate is recommended at 0.07 cfs based on department standard rates for small acreage irrigation (0.03 cfs x 2.3 ac = 0.07 cfs). Although the sum of three beneficial uses diversion rate's equals 0.13 cfs, the applicant is limited to pump performance determined at time of exam or 0.07 cfs considering department rounding standards.

During the exam photographs of the water system and beneficial uses along with file notes sketching each POU were catalogued on field maps. The domestic POU consists of a primary residence and shop that houses a restroom, sink, and cistern with pump controls. Prior to this filing the well had been used by the applicant as an exempt well for deferrable

domestic water uses. The applicant is preparing his properties for potential subdivision in the future and wanted to secure water rights for the portion of the property the applicants intend to keep following any future land sale. The domestic annual volume recommended for licensing in-home water use only equals **0.6 af**. Stockwater use from the well is for a small herd of cattle that varies in size each year but no larger than 20 head. The stockwater POU has been assigned as the portion of the property located in Section 23 only, as this is the area that frost free hydrants are used to fill stock tanks. Portable stock tanks are used as the stock is rotated throughout small pastures during the year. Stockwater annual volume for 20 head of cattle equals **0.3 af** considering department rounding standards which is recommended for licensing.

The Permit approved domestic and stockwater use in Section 24, NW¼SW¼ and SW¼SW¼ in addition to the quarter quarters assigned in Section 23. I didn't find any stockwater development associated with Section 24 and have removed both QQs listed above during licensing review. The domestic POU legal description has removed all of Section 24 QQs in addition to removal of Section 23 SE¼SE¼; the residence and shop served water are only found in Section 23 NE¼SE¼ as recommended for licensing. The irrigation POU was refined during licensing review to include only the legals accounted for as part of the 2.3 acres designated after using ArcMap aerial imagery to trace out the irrigation POU following the exam. The annual volume for irrigation is recommended at 2.3 ac x 4.0 afa = **9.2 af**. The maximum diversion volume equals the sum of three beneficial uses or **10.1 af**.

The irrigation POU is served by 1 inch poly line to hydrants which then distribute water by hose and sprinklers. The applicant uses a mix of pressurized style rainbird sprinklers and portable tripod sprinklers for lawn and garden around the primary residence, and hose to sprinklers to irrigate the two fields along the Southern extent of the POU. This irrigation system directly overlaps a prior recorded WR owned by the applicants that uses water from a separate groundwater well. The overlap conditions applied to licensing of the permit shall be in effect until future time when the subdivision of property occurs and prior WR 85-15768 is no longer accessed to irrigation any portion of Permit 85-15837's irrigation POU. Overlap maps have been developed and added to the B.U. report illustrating the overlapping acreage occurring in Section 23 as detailed below:

Water Right	Source	Source QQ	NESE (ac)	NWSE (ac)	SWSE (ac)	SESE (ac)	Total (ac)
85-15768	Ground Water	SESE	0.1			1.3	1.4
85-15837	Ground Water	NESE	0.6			1.7	2.3
OVERLAP	Either well		0.1			0.9	1

Irrigation acreage overlap between Rights 85-15768 & 85-15837

- Total acreage between WRs = 1.4 ac + 2.3 ac = 3.7 ac. Subtracting 1.0 ac of direct overlap the combined total irrigation acreage used to evaluate combined use volume = 2.7 ac. 2.7 ac x 4.0 afa = 10.8 af, which is included in condition X35 recommended for licensing.
- Condition X35 states: Rights 85-15768 and 85-15837 when combined shall not exceed an irrigation annual diversion volume of 10.8 af at the field headgate, and the irrigation of 2.7 acres.

Conditions 046 & X02 were removed from the permit during licensing review. Condition R64 was replaced with R68 which more accurately describes annual rate & volume for small acreage irrigation of less than 5 acres occurring under this permit. Condition X35 was added as described above. All other conditions on the permit shall be carried forward to licensing.

Overlap concerns: The only overlapping concerns toward licensing this permit are between the two WRs owned by the applicant, which have been discussed in detail above. With these concerns mitigated there are no additional overlapping concerns toward licensing 85-15837.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
IRRIGATION	02/15 to 11/30	0.07 CFS	9.2 AF
STOCKWATER	01/01 to 12/31	0.02 CFS	0.3 AF
DOMESTIC	01/01 to 12/31	0.04 CFS	0.6 AF

Totals: 0.07 CFS 10.1 AF

2. Recommended Amendments

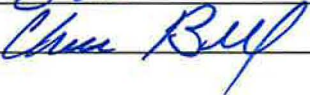
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☒ None

I. AUTHENTICATION

Luke Bates -

Field Examiner's Name  Date 1/5/2024

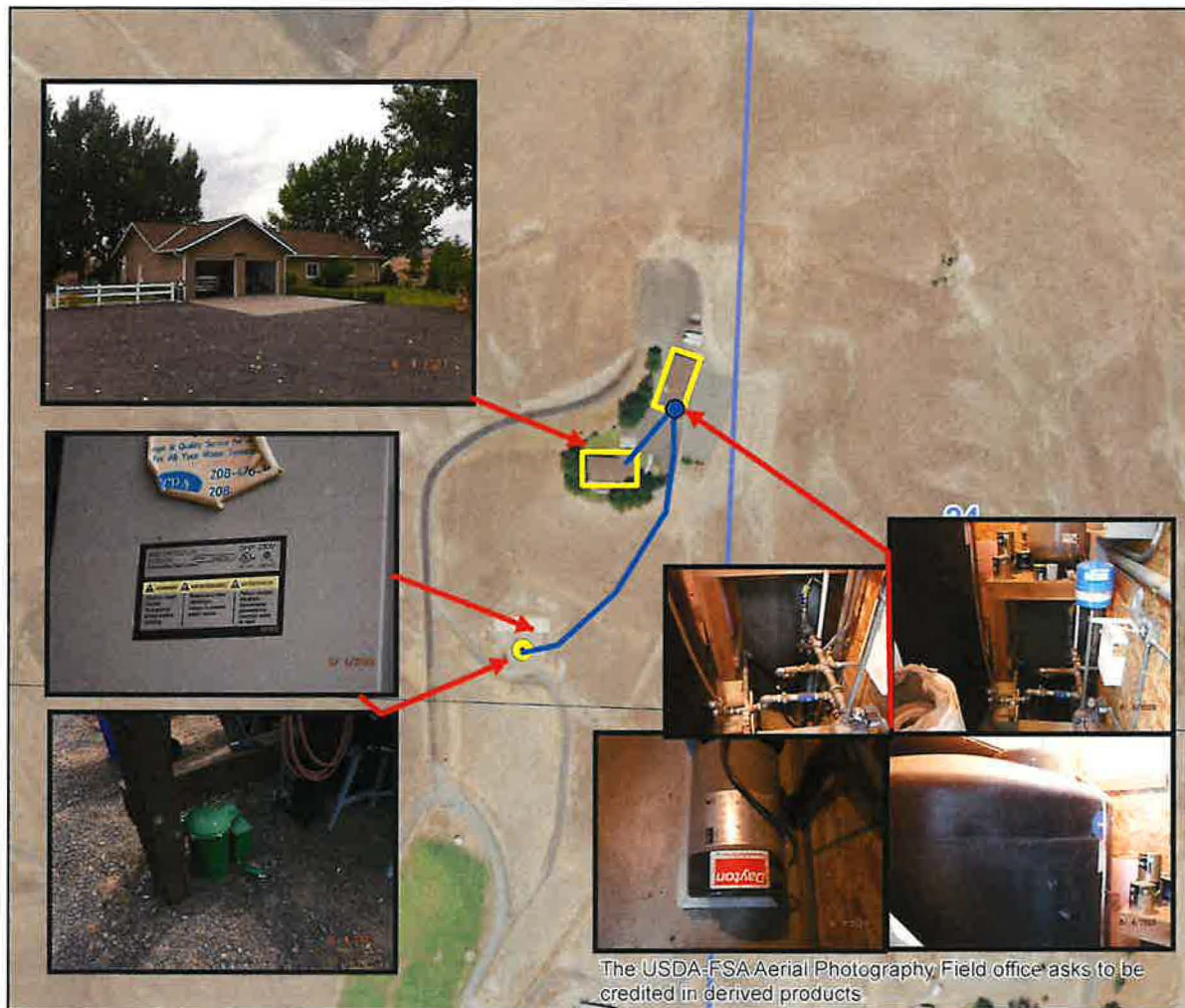
Reviewer  Date 6/7/24

State of Idaho
Department of Water Resources
Attachment to Field Exam
85-15837

This map depicts the DOMESTIC system diagram.

06W

35N



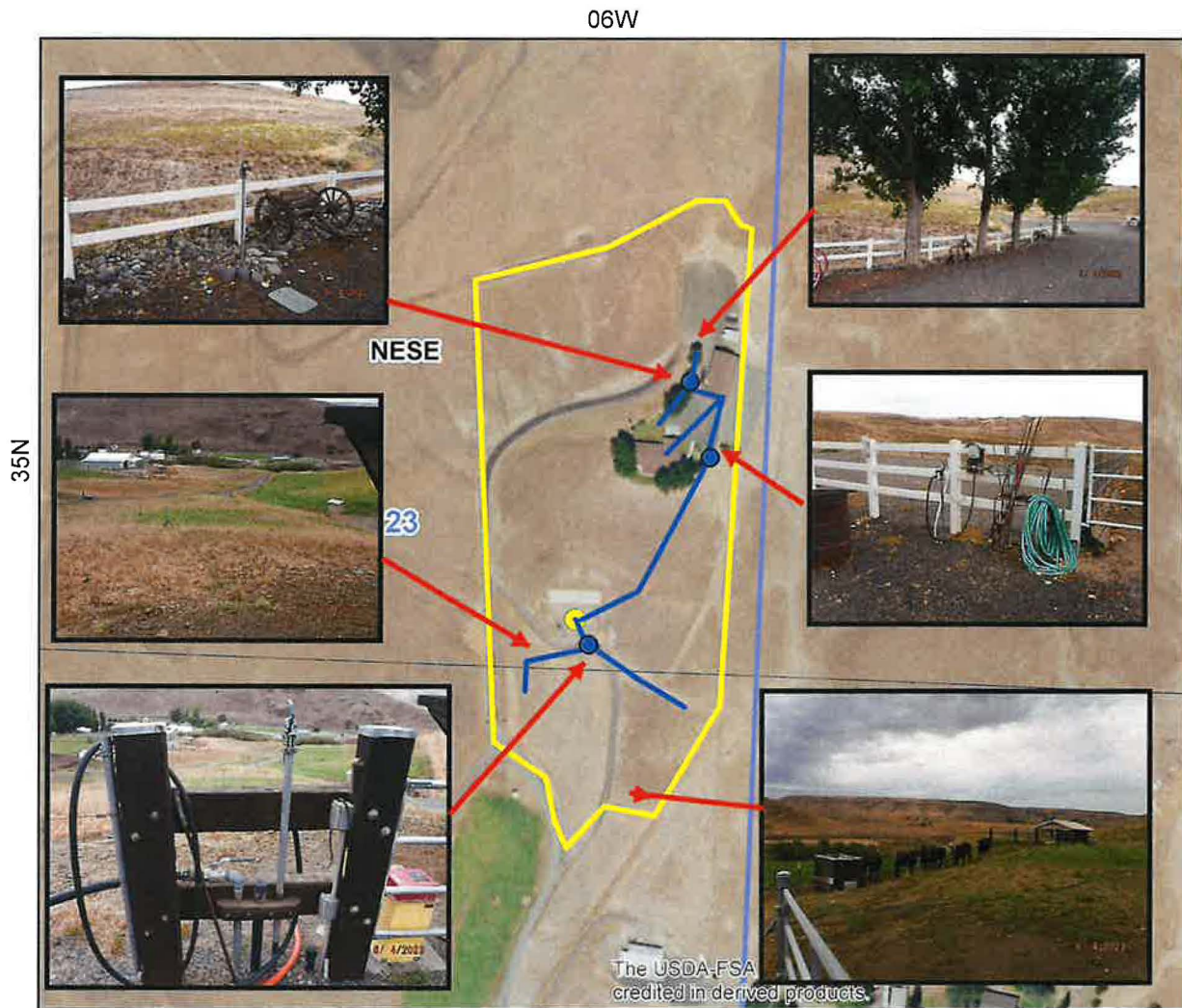
0 0.035 0.07 0.14 Miles

- Place Of Use Boundary
- Townships
- PLS Sections
- Quarter Quarters
- Point of Diversion



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This map depicts the STOCKWATER system diagram.

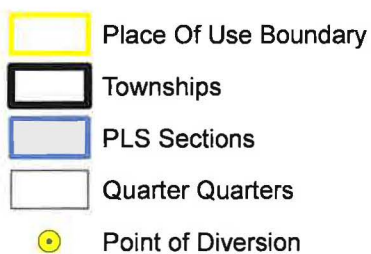


0 0.0375 0.075 0.15 Miles

-  Place Of Use Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters
-  Point of Diversion



This map depicts the IRRIGATION system diagram.



THEORETICAL PUMPING EQUATION(S) FOR WR# 85-15837

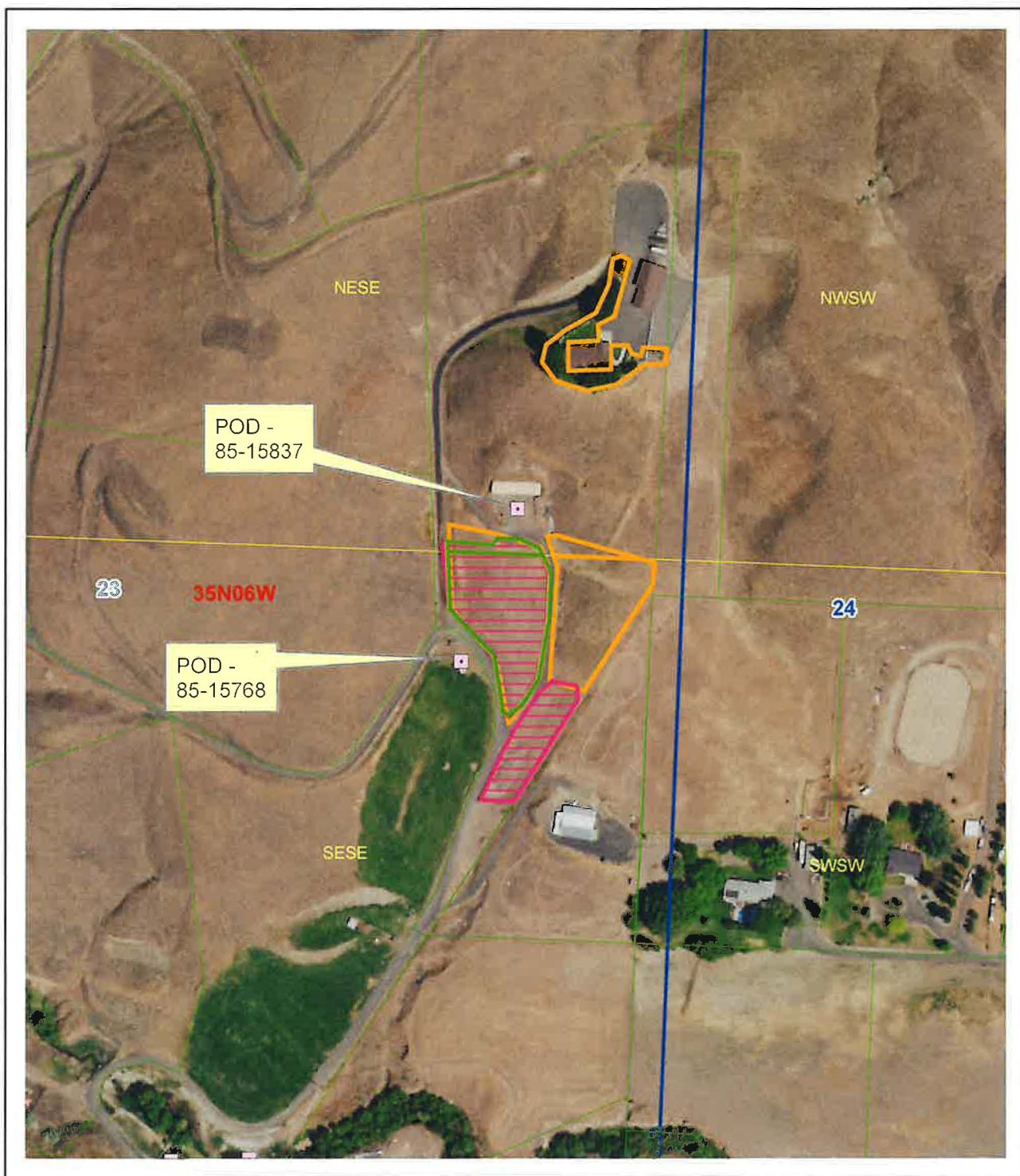
Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to lift 385 ft, and running at 45 psi.

PUMP EQUATION

WATER RIGHT No. 85-15837

D0046072	HP	H in feet	Efficiency as a decimal	Pumping lift in feet	System pressure in PSI
Q = $HP * 8.8 * Eff / H$	5	489.0816	0.8	385	45
Q = 0.072 cfs 32.4 gpm					

Irrigation Overlap Map - 85-15768 & 85-15837



Legend

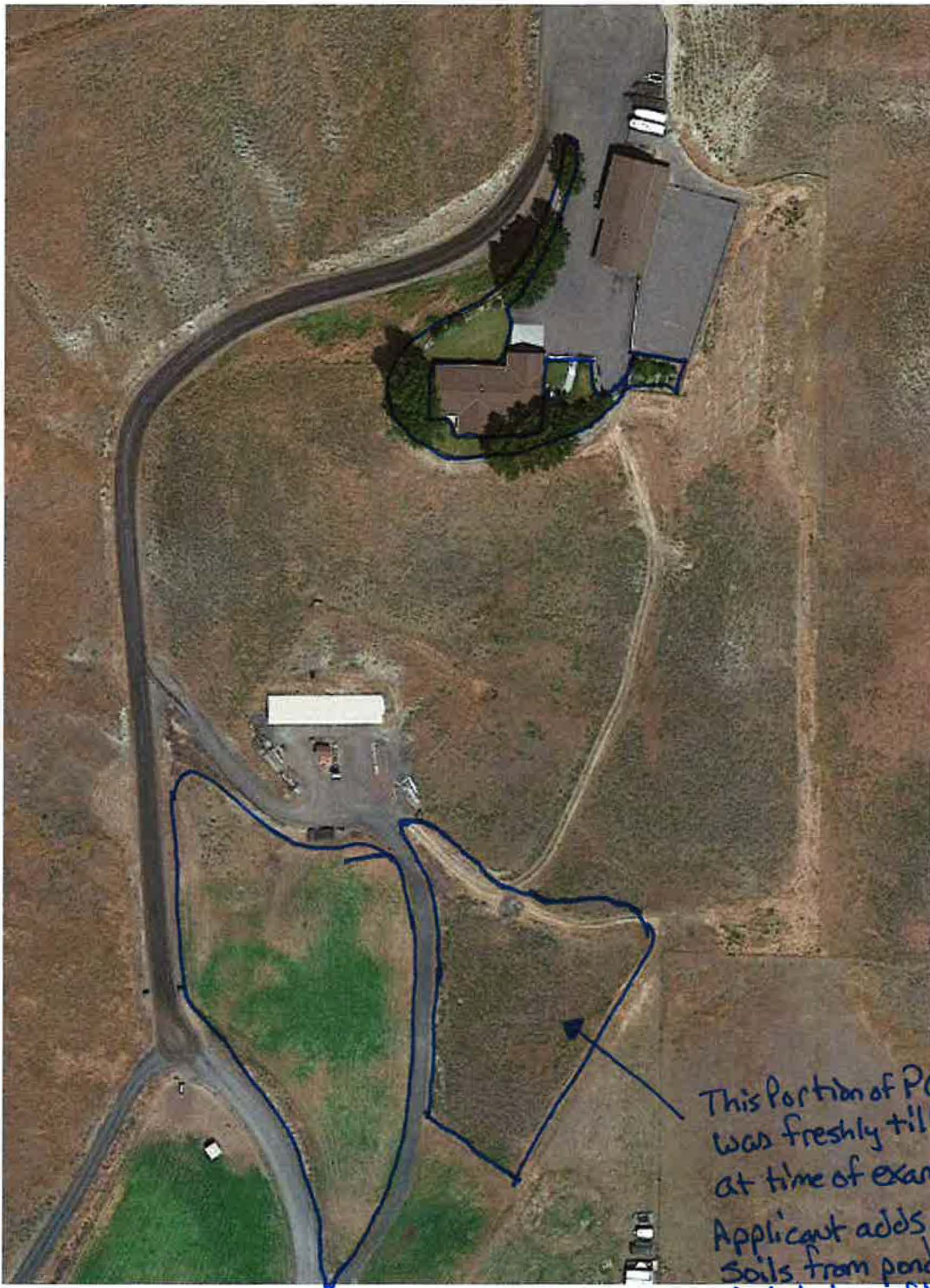
-  1.0 ACRES OVERLAP BETWEEN RIGHTS
-  85-15768 IRRIGATION POU - 1.4 ACRES
-  85-15837 IRRIGATION POU - 2.3 ACRES
-  Township/Range
-  Sections
-  QQ

0 0.0275 0.055 0.11 Miles



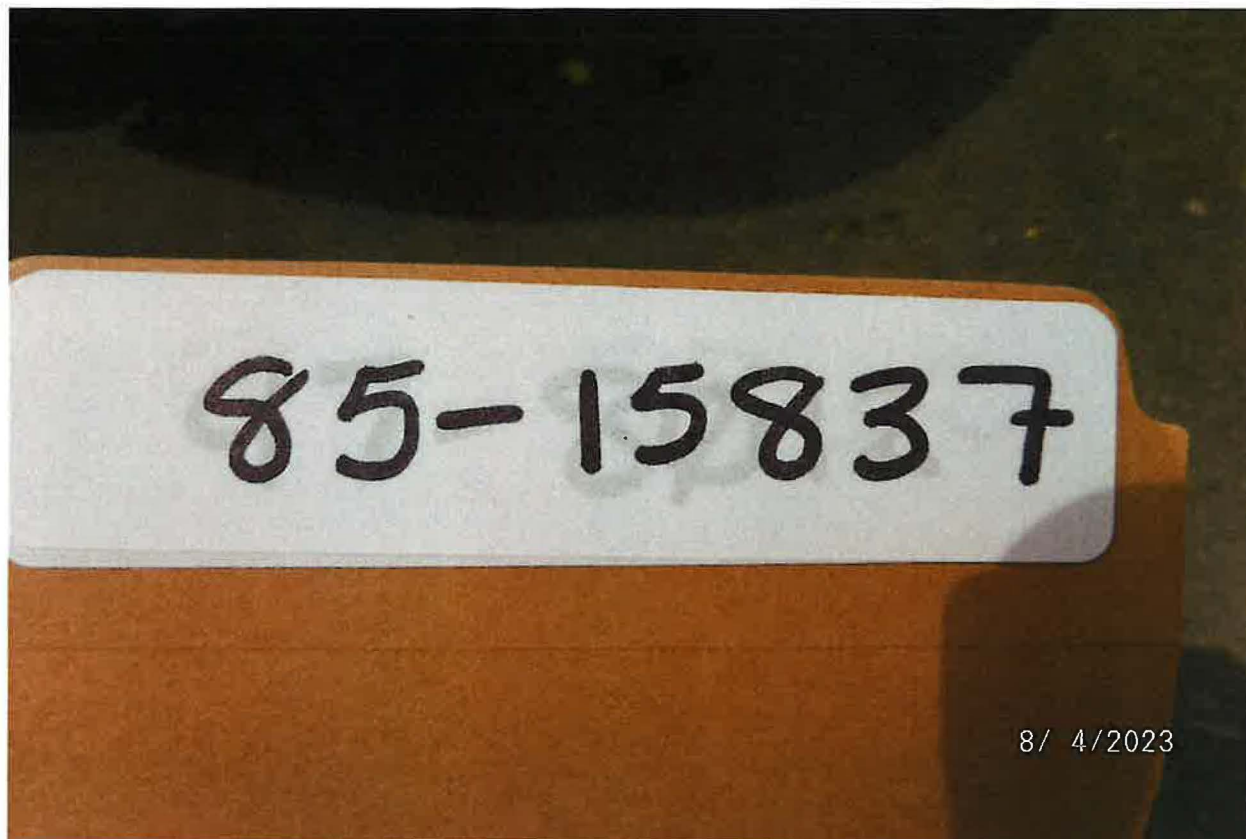
85-15837 – IRRIGATION POU AERIAL IMAGERY

GOOGLE MAPS YEAR 2022 CAPTURE DATE

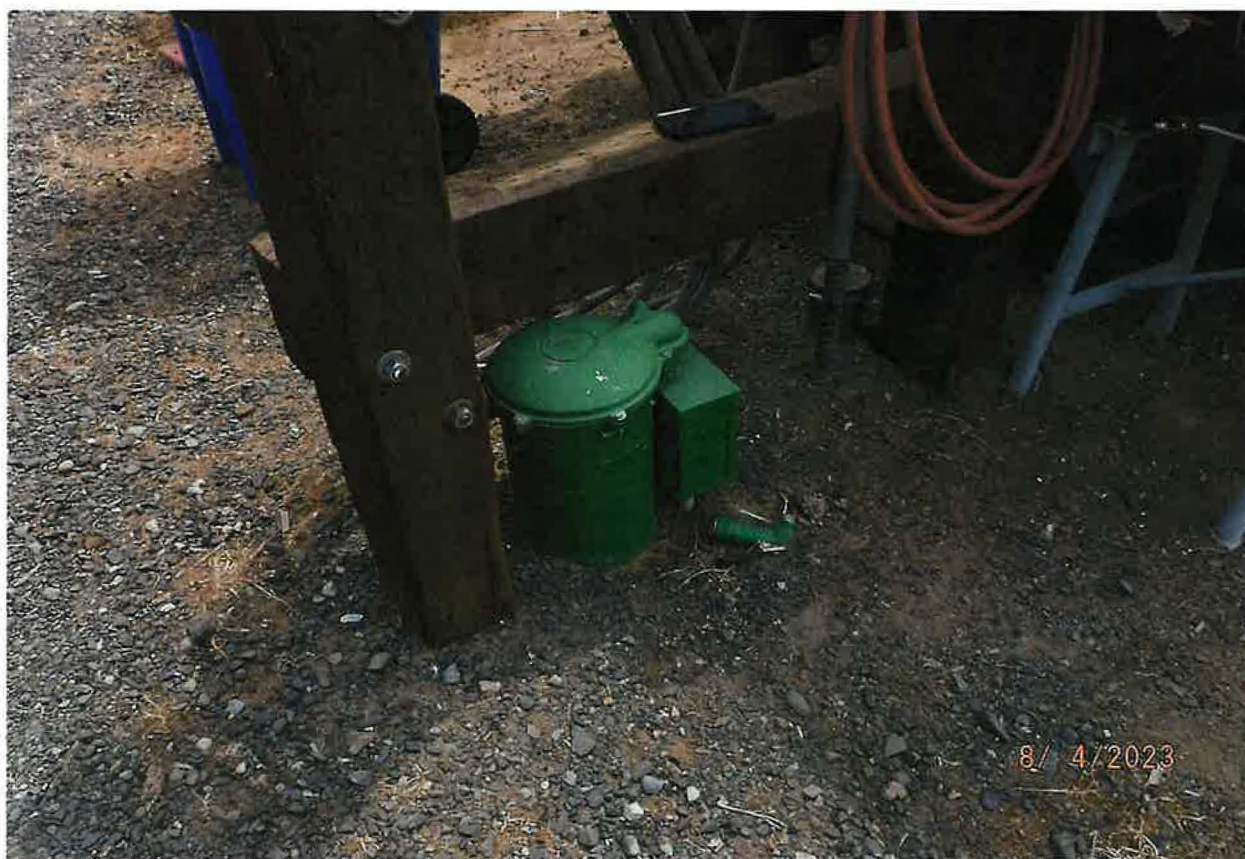


Imagery ©2023 Maxar Technologies, U.S. Geological Survey, USDA/FPAC/GEO

yBate



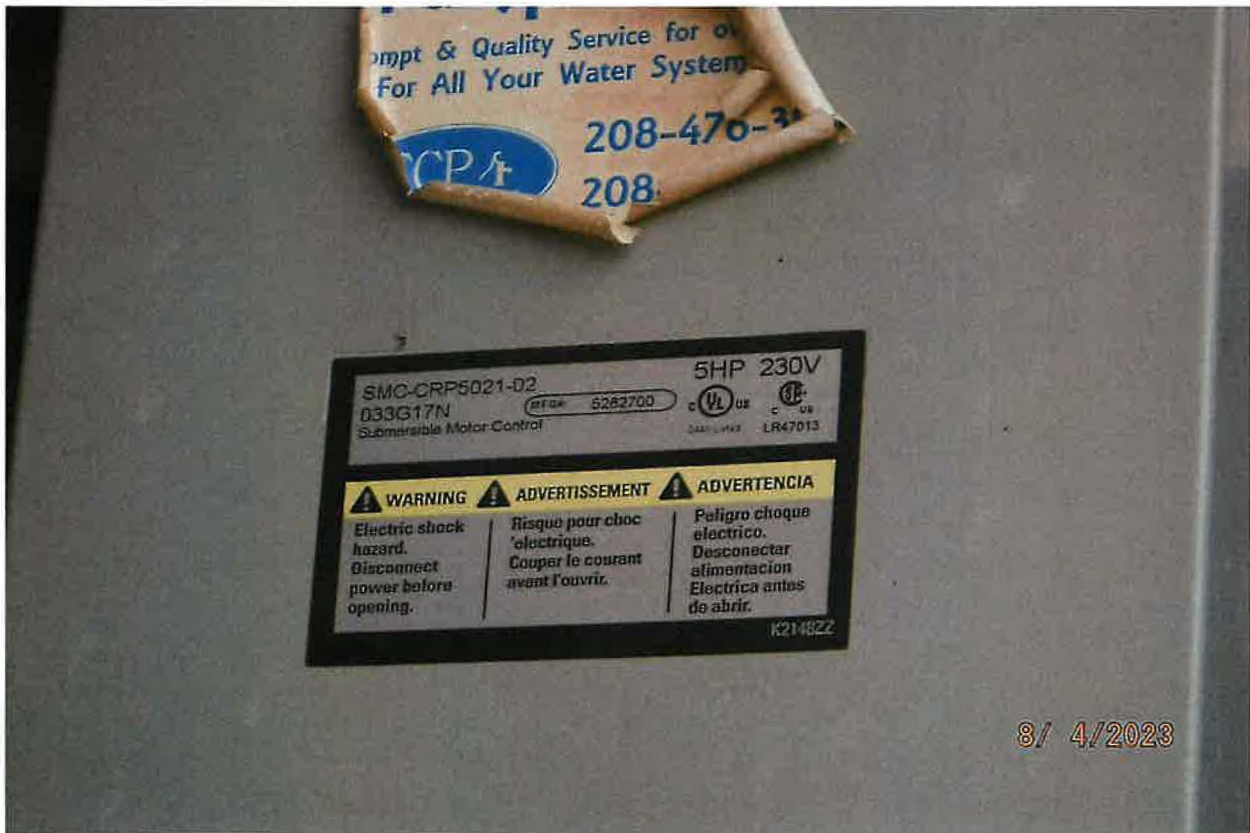
BENEFICIAL USE FIELD EXAMINATION DATE 8/4/2023



POD – GROUNDWATER WELL



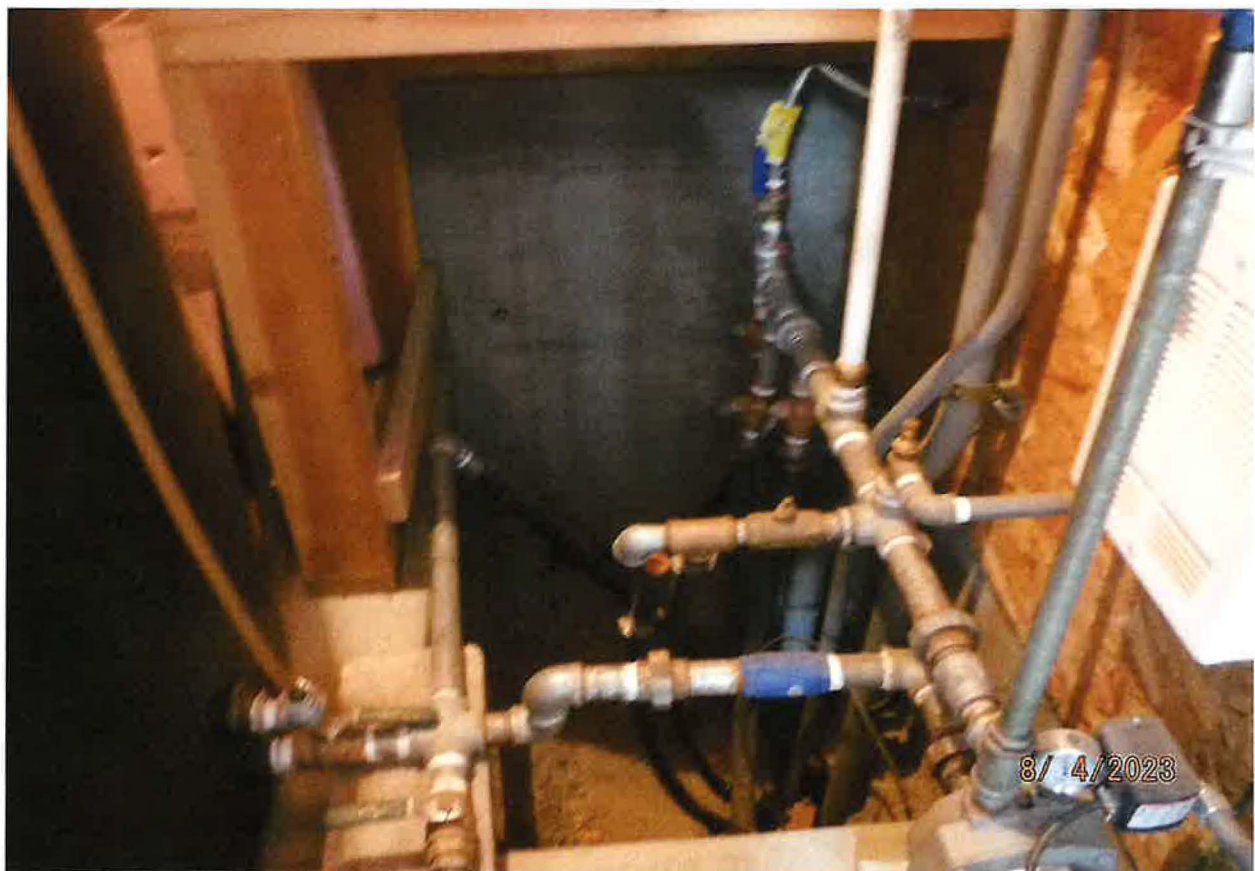
GW WELL D-TAG D0046072



5 HP PENTAIR PENTEK PUMP MOTOR INSTALLED IN WELL



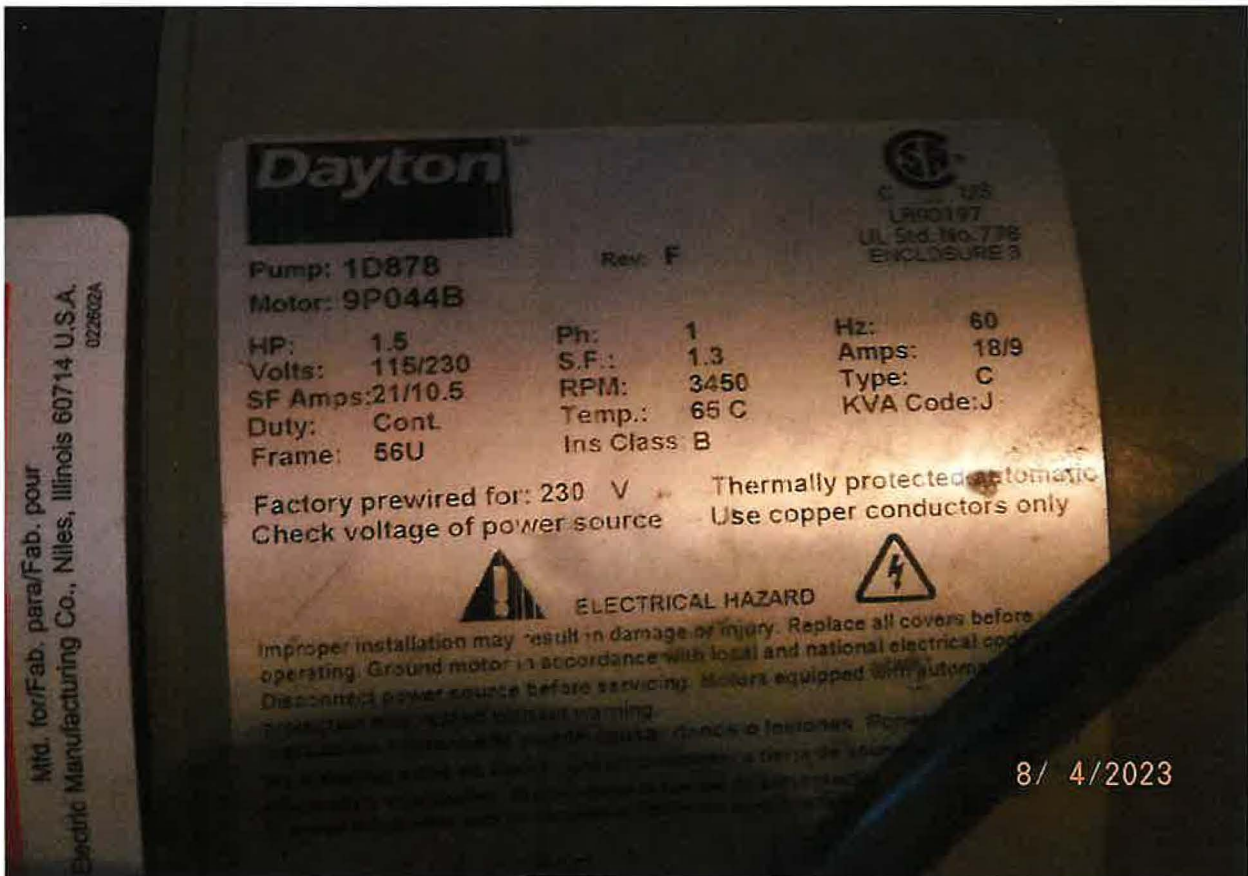
1,000 GAL STORAGE RESERVOIR LOCATED INSIDE SHOP



DIVERTING WORKS INCLUDE BURIED MAIN SERVICE LINE FROM WELL UP TO SHOP & STORAGE TANK
PRIOR TO DISTRIBUTION TO WATER USES



45 PSI OPERATING PRESSURE



1.5 HP TRANSFER PUMP DISTRIBUTES WATER FROM 1,000 GAL STORAGE TANK



DOMESTIC POU – RESIDENCE AND SHOP (NOT IN IMAGE)



STOCKWATER POU – 20 HEAD CATTLE



IRRIGATION POU – FROST FREE HYDRANT AND 1 INCH POLY PIPE RUNS TO PRESSURIZED SPRINKLERS & IMPACT SPRINKLERS.



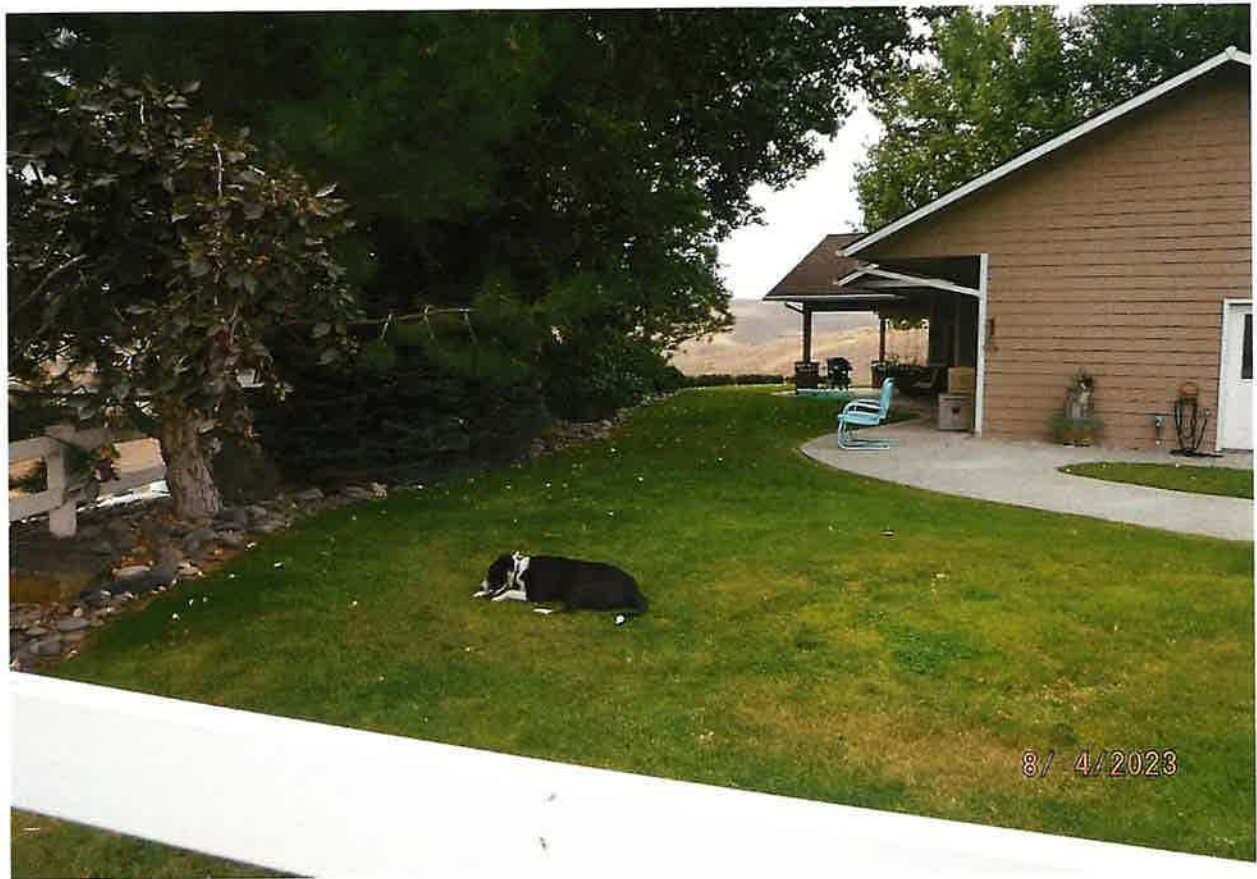
IRRIGATION POU – LOWER FIELDS IN POU



IRRIGATION POU – FIELD BELOW BARN



IRRIGATION POU – GARDEN SPACE CO-LOCATED WITH RESIDENCE & SHOP



IRRIGATION POU – LAWN SPACE AROUND RESIDENCE





IRRIGATION POU –

