

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-18519
Exam Date: 05/20/2025

1. Current Owner:
BUTTERWORTH DRAW SUBDIVISION ASSN PO BOX 1081 SPIRIT LAKE ID 83869-1081
2. Accompanied by: Ervin Dove
Phone No: 208-819-5066
Address: Same as above
Relationship to permit Holder: President – Butterworth Draw Subdivision Assn

3. **SOURCE:**
GROUND WATER

Method of Determination: Arcmap and DRG Layer.

B. OVERLAP REVIEW

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

Water Right No.	Source	Purpose of Use	Basis
95-9493	GROUND WATER	MUNICIPAL	LICENSE

Comments: Licensed Right 95-9493 authorizes ground water from a cased well for municipal water service associated with Spirit Lake Industrial Park's Public Water System. The POU shape assigned at time of license was generically assigned to multiple QQ/Qs including the SE1/4SE1/4 of Section 31, Twp 54N, Rge 04W which overlaps this Permit's POU in part. 95-9493's water system is separate, and the municipal services don't extend south to the Butterworth Draw Subdivision and there isn't any overlapping water right concerns 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 SE¼ SE¼, Sec. 31, Twp 54N, Rge 04W, B.M. BONNER County

Method of Determination: GPS located 6-inch cased GW well at -116°52.4328, 47°58.7216; well tag No. D0010582.

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	
54N	04W	31															1.1	0.8	1.9

Total Acres: 1.9

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	
54N	04W	31															X	X	

Method of Determination: Beneficial use field examination, ArcMap aerial imagery, and Bonner County Tax Parcel Map aerial imagery (Year 2023).

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
D0010582	Franklin Electric	5	Model No. 2821139310	Unkown	Unkown

D. FLOW MEASUREMENTS

1.

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

2. Measurements: Unable to perform flow measurements due to inadequate pipe requirements. Water line from well routes direct to a storage reservoir co-located the water system's pump station prior to distribution by smaller booster pump conveying water via water main line influenced by two pressure tanks.

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

Measured Method: Theoretic pump equation estimates flow as follows:

- D0010582 well - 5 HP pump hung at 589 ft with 40 PSI operating pressure equals 23.2 gpm or **0.05 cfs** considering Department rounding standards.
- Well Driller report illustrates a 15-gpm yield rate at time of construction using air pressure; considering 0.04 cfs ranges from 16-20 gpm, the theoretic pump equation is reasonable considering the 589 ft of water column the diverting pump is encased in.
- Permit authorized diversion rates: 0.09 cfs – Irrigation; 0.12 cfs – Domestic; 0.20 cfs – Maximum Diversion Rate.
- Beneficial use field exam derived diversion rate: 0.05 cfs considering Department rounding standard.
- License recommended diversion rates:
 - Irrigation – 0.03 cfs per ac x 1.9 ac = **0.05 cfs** considering rounding standards
 - Domestic – **0.05 cfs** for 6 homes and 1 church; rate is limited by pump performance as system developed at time of examination.
 - Maximum Diversion Rate – **0.05 cfs**; rate is limited by pump performance.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{I,R} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 1.9 \text{ ac} \times 3.0 \text{ afa} = 5.7 \text{ af}$$

$$V_{D,R} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.05 \text{ cfs} \times 214 \text{ days} \times 1.9835 = 21.2 \text{ af}$$

$$V = \text{Smaller of } V_{I,R} \text{ and } V_{D,R} = \mathbf{5.7 \text{ af}}$$

2. Volume Calculations for Other Uses:

Domestic annual volume =

- 6 homes x .6 af per home = 3.6 af and
- church use – 1 day per week x 52 wk per year x 20 people x 20-gal per person = 20,800-gal / 325,850 gal/af = 0.1 af considering department rounding standards. 3.6 af (homes) + 0.1 af (church use) = **3.7 af**
- Maximum diversion volume = 5.7 af (irrigation) + 3.7 af (domestic) = **9.4 af**

G. NARRATIVE/REMARKS/COMMENTS

I conducted the beneficial use field exam on 5/20/2025 with the Permit Holder's representative, Ervin Dove - President – Butterworth Draw Subdivision Assn, which showed a ground water well serving seven (6) homes & a small church water for domestic and irrigation uses. At the POD, well D0010584 was GPS located alongside the water system pump station and vaulted concrete 1200–1500-gallon concrete community storage reservoir. I was unable to perform flow measurements as the main service pipe routes buried from cased well to community storage reservoir prior to distribution. I computed a Theoretical Pump Equation using pump motor data and well driller reports on file which derive a maximum diversion rate of **0.05 cfs** which is recommended for licensing purposes. The 6-in cased well has a 5-hp well pump paired with Franklin Electric pump motor.

Water is conveyed from the community storage reservoir using a 2-hp transfer pump with main service pipeline routing along side main drive through subdivision to curb stop service connections per parcel. During the exam Mr. Dove and I walked through the entire water system, and I evaluated both domestic & irrigation uses, making sketches on field maps and collecting photographs to support my system analysis. Department standards related to diversion rates for both domestic and irrigation are restricted by the water system pump capacity observed at time of exam, and I'm only able to recommend 0.05 cfs respectively for each beneficial use and as the maximum diversion rate.

The Domestic POU consists of six parcels with a variety of manufactured homes and custom-built homes; the highway facing lot includes both a small church building and small manufactured home. I've computed the Domestic annual volume above and assigned each residence in-home water use in the amount of 0.6 af per home annually plus 0.1 af annually for the small church uses totally **3.7 af**. During licensing review, I used Arcmap aerial imagery to designate the domestic POU per parcel. Lot 1, Butterworth Draw Subdivision has a church and one residence associated with it. Arcmap year 2023 clearly illustrates the domestic residences in the subdivision except for Lot 6; exam photographs attached to this report illustrate a newly constructed custom-home on the northern extent of the parcel. I've assigned a polygon shape of approximate size based on exam findings, but the licensing map products do not illustrate the home on the parcel.

The permit authorized irrigation up to 3.0 acres associated with ½ acre per parcel for 6 homes. During the exam Mr. Dove, who interacts with each parcel owner regarding the water system regularly, asserts most of the parcels have small footprint watering for lawn, landscape, and orchard/garden plantings. Watering is from frost-free hydrant to hose and portable sprinklers. As we walked through the subdivision, I annotated irrigated areas per parcel and during licensing review I used Arcmap aerial imagery to accurately trace out active irrigation areas. For Lot 6, the new residence had gotten lawn space around the home seeded but it hadn't started to actively grow by time of exam. I've assigned the approximate irrigation area around the home polygon using ArcMap. When combined, all six parcels irrigation equals 1.9 acres, which is less than ½ acre per parcel. I've recommended $1.9 \text{ ac} \times 3.0 \text{ afa} = \mathbf{5.7 \text{ af}}$ for licensing purposes. The maximum diversion volume is recommended as **9.4 af**, the sum of two beneficial uses.

I've removed condition 046 during licensing review based on compliance by the Permit Holder. I revised condition 132 to accurately describe the domestic use being for 6 homes and 1 church instead of the 7 homes documented on the Permit. All other conditions of approval have been carried forward to licensing. Water Right overlap has been discussed on PG1 of this report, and there isn't any overlapping water right concerns toward licensing 95-18519.

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	04/01 to 10/31	0.05 CFS	5.7 AF
DOMESTIC	01/01 to 12/31	0.05 CFS	3.7 AF

Totals: 0.05 CFS 9.4 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

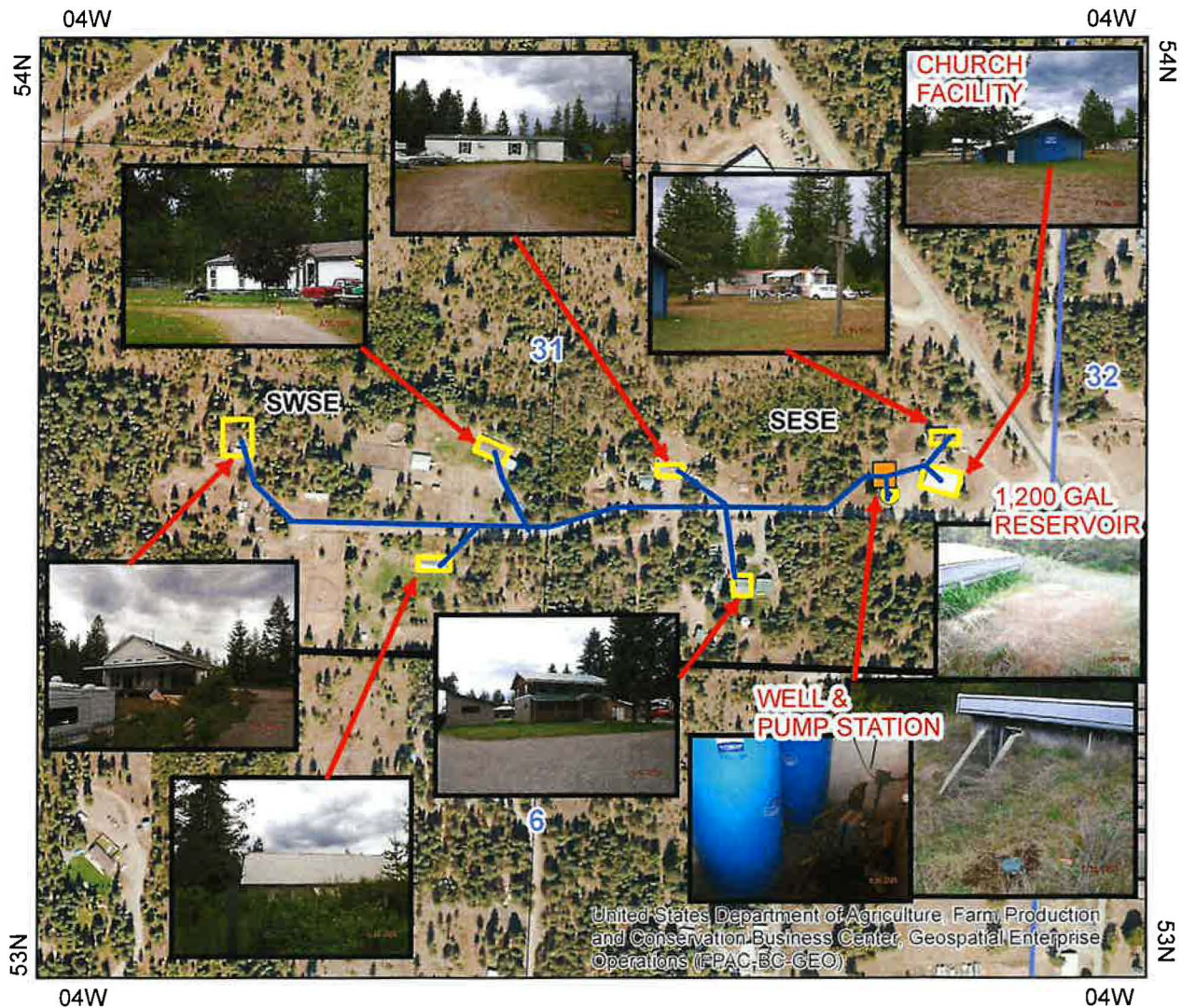
I. AUTHENTICATION

Luke Bates – Sr. Water Resource Agent

Field Examiner's Name LSB Date 6/23/2025
 Reviewer Michelle Rishue Date 7/21/26

State of Idaho
Department of Water Resources
Attachment to Field Exam
95-18519

This map depicts the DOMESTIC system diagram.



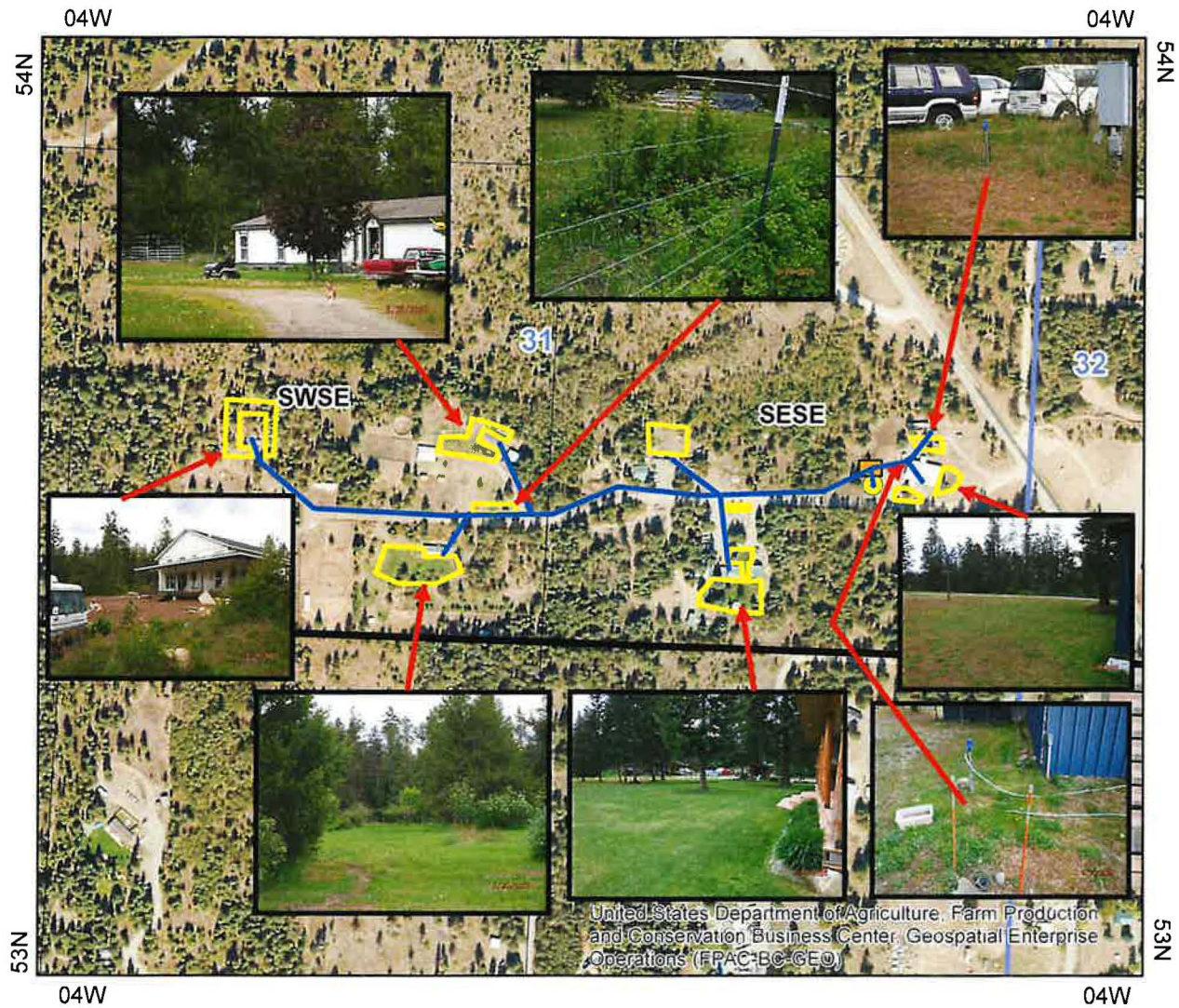
0 0.05 0.1 0.2 Miles

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



State of Idaho
Department of Water Resources
Attachment to Field Exam
95-18519

This map depicts the IRRIGATION system diagram.



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



THEORETICAL PUMPING EQUATION(S) FOR WR# 95-18519

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to lift 589 ft, and running at 40 psi.					
<u>PUMP EQUATION</u>					
WATER RIGHT No. 95-18519					
D0010582	HP	H in feet	Efficiency as a decimal	Pumping lift in feet	System pressure in PSI
Q = HP*8.8*Eff/H	5	681.517	0.8	589	40
Q = 0.052 cfs 23.2 gpm					

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Inspected by _____
Twp _____ Rge _____ Sec _____
_____ 1/4 _____ 1/4 _____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D D0010582
 DRILLING PERMIT NO. 96-99-N-210
 Other IDWR No. _____

2. OWNER: CAROLYN VANCE
Name Box 1021
Address SPIRIT LAKE State ND Zip 58386
City

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N
 W E S
 Twp. 54 North ☒ or South ☐
 Rge. 4 East ☐ or West ☒
 Sec. 31 S 1/4 S/E 1/4 S/E 1/4
 Gov't Lot _____ 10 acres / 40 acres / 160 acres
 County BONNER
 Lat: _____ Long: _____
 Address of Well Site _____
 City SPIRIT LAKE
 (Give at least name of road & distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)

☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD

☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT	METHOD
Material	From	To	Sacks or Pounds	
#8 Bentonite Chips	0	25+	3	DRIVE Pipe + FEED Pellets in 10" SURFACE

Was drive shoe used? ☐ Y ☐ N Shoe Depth(s) PIPE
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6 5/8	+ 2	- 604	.25	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

Perforations _____ Method _____
Screens _____ Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

508 ft. below ground Artesian pressure _____ lb.
Depth flow encountered 560 ft. Describe access port or
control devices:

11. WELL TESTS:

☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
15		560	1 hr

Water Temp. COLD WATER 85 - Bottom hole temp. _____
Water Quality test or comments: _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment) water

[illegible]

Completed Depth 604 (Measurable)
Date: Started ~~9-3-79~~ Completed ~~9-7-79~~
9-3-79 9-7-79

13. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name KRASS DRILLING INC. Firm No. 555

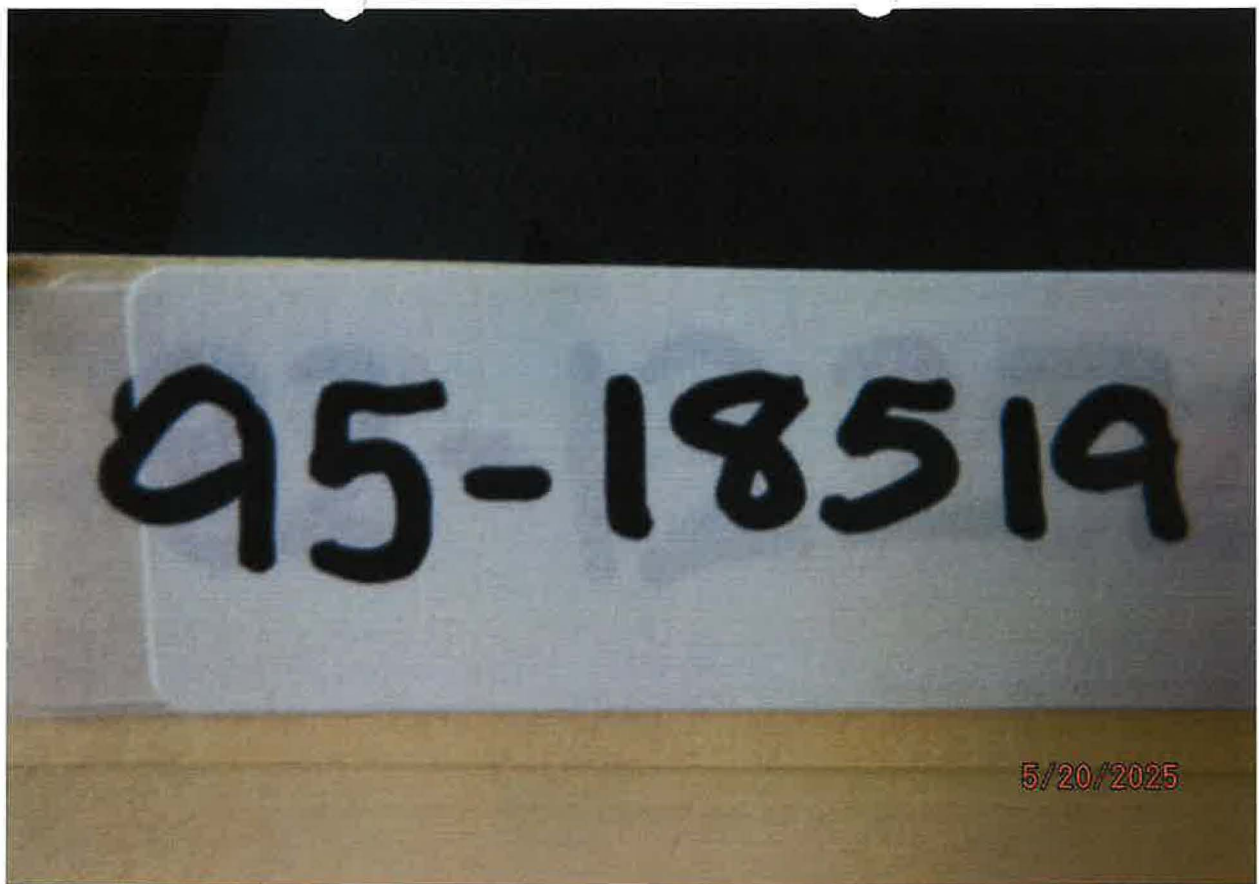
Firm Official HARLAN KRASS Date 9-1-99

Driller or Operator HARLAN KRASS Date 9-2-99

(Sign once if Firm Official & Operator)

54 N 4 W 31

FORWARD WHITE COPY TO WATER RESOURCES



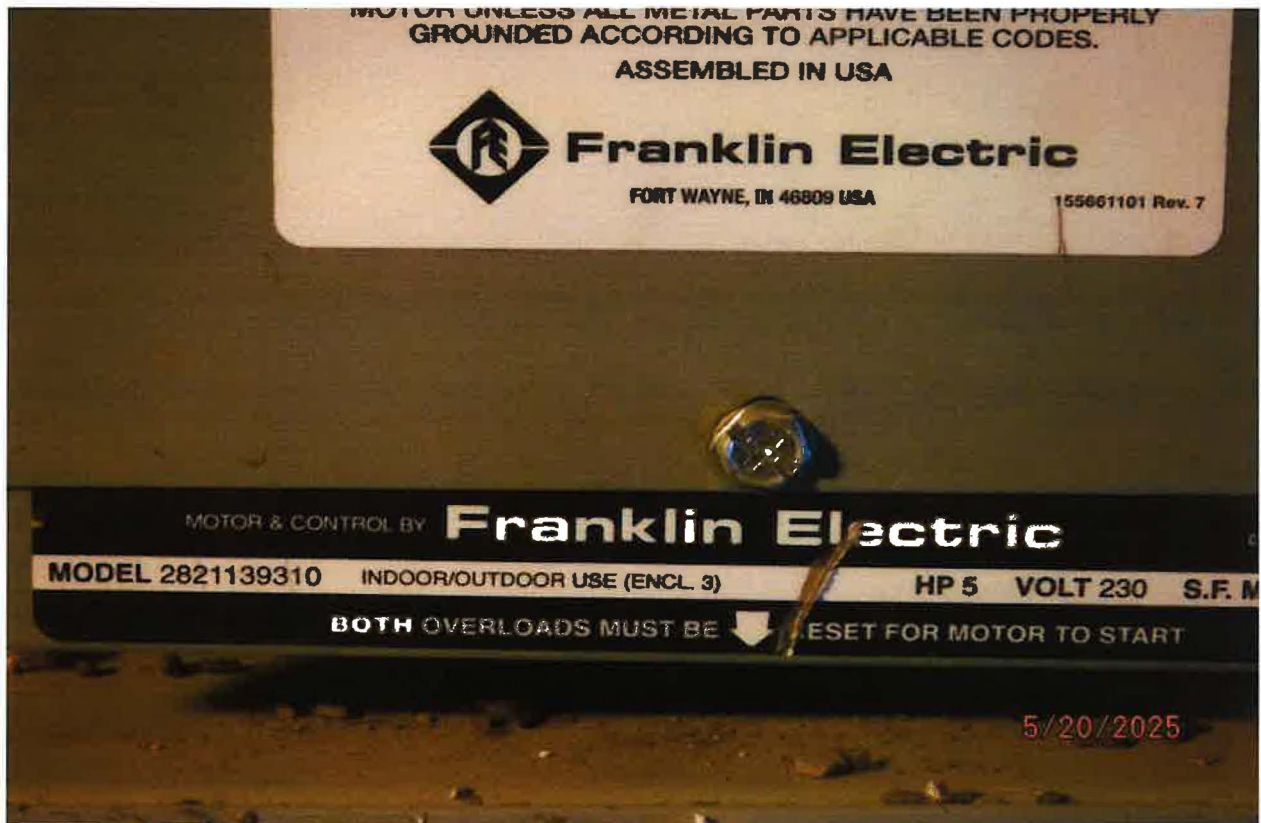
BENEFICIAL USE FIELD EXAM DATE 5/20/2025



POD – GROUND WATER WELL, 6-INCH CASED WELL CO-LOCATED WITH PUMP
STATION



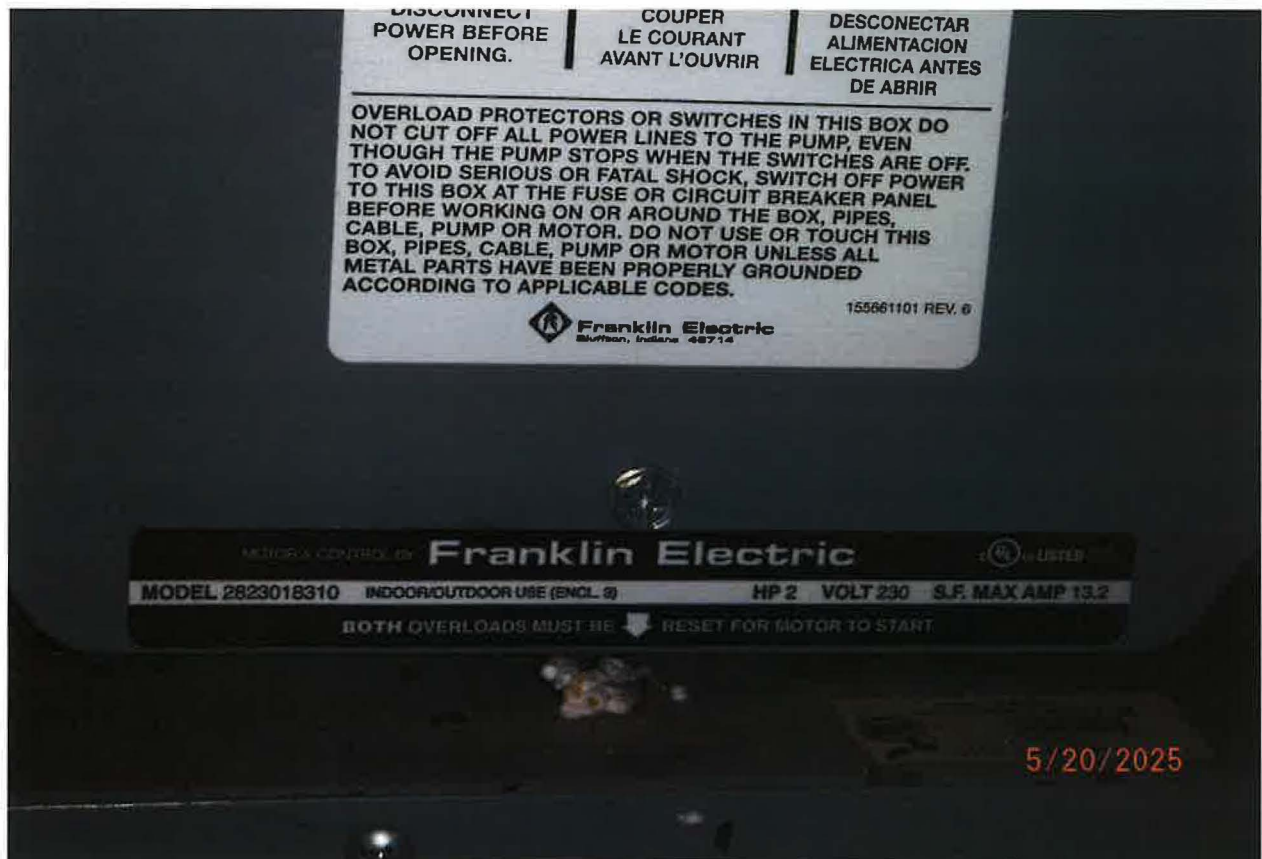
POD – GROUND WATER WELL D-TAD D0010582



DIVERTING WORKS – 5 HP FRANKLIN ELECTRIC PUMP MOTOR, MODEL 2821139310
PAIRED WITH 5 HP WELL PUMP



CONVEYANCE SYSTEM – GROUND WATER PUMPED DIRECT TO VAULTED 1,200 – 1,500-GAL STORAGE RESERVOIR PRIOR TO DISTRIBUTION TO BENEFICIAL USES



2-HP BOOSTER PUMP MOTOR PAIRED WITH PUMP, MODEL 2823018310
DISTRIBUTES TO BENEFICIAL USES VIA MAIN SERVICE PIPELINE



WATER CONVEYANCE SYSTEM – 2EA PRESSURE TANKS LOCATED WITHIN PUMP STATION WITH SYSTEM PRESSURE HOLDING AT 40-45 PSI

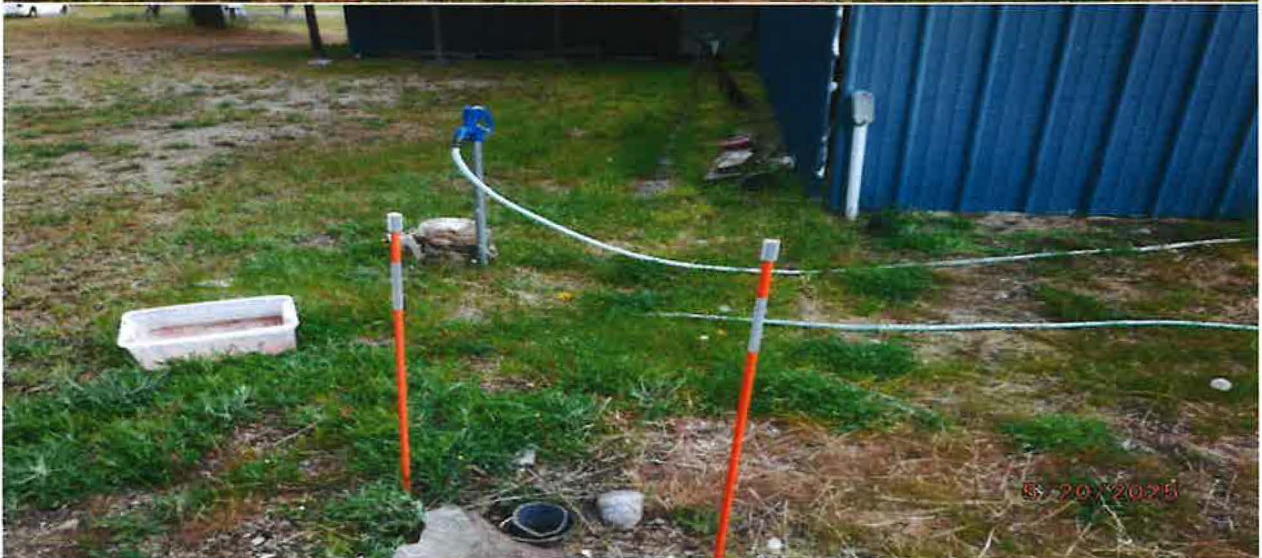




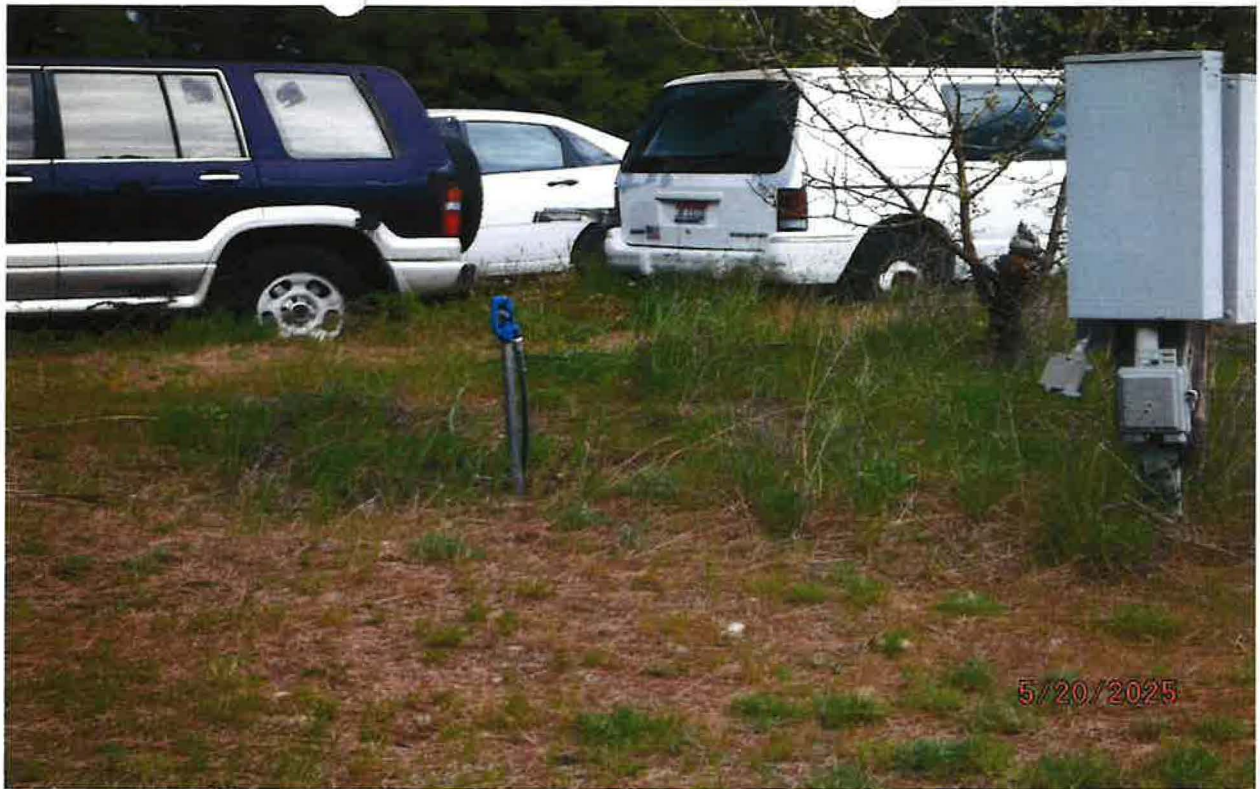
DOMESTIC POU – CHURCH FACILITY LOCATED WITHIN LOT 1, BUTTERWORTH
DRAW SUBDIVISION



DOMESTIC POU – MANUFACTURED HOME LOCATED WITH CHURCH IN LOT 1 OF
SUBDIVISION



IRRIGATION POU – CHURCH LAWN/LANDSCAPE BY HOSE AND SPRINKLER (NOTE WATER SERVICE SHUTOFF VALVE BETWEEN ORANGE FLAGGING



IRRIGATION POU – LOT 1 MANUFACTURED HOME WITH FROST-FREE HYDRANT TO HOSE AND SPRINKLER FOR SMALL AREA TREE AND LANDSCAPE WATERING



DOMESTIC & IRRIGATION POU – LOT 2, BUTTERWORTH DRAW; MANUFACTURED HOME WITH SMALL LAWN SPACE LOCATED BEHIND RESIDENCE



DOMESTIC & IRRIGATION POU – LOT 3, BUTTERWORTH DRAW; HOME WITH LAWN, GARDEN, AND LANDSCAPE LOCATED AROUND RESIDENCE





IRRIGATION POU – LOT 3 CONTINUED





DOMESTIC & IRRIGATION POU – LOT 4, BUTTERWORTH DRAW SUBDIVISION;
MANUFACTURED HOME AND SMALL LAWN/BERRY BUSH WATERING BY HOSE
AND SPRINKLER





DOMESTIC & IRRIGATION POU – LOT 5, BUTTERWORTH DRAW SUBDIVISION;
RESIDENCE AND LAWN/ORCHARD TREE WATERING BY HOSE AND SPRINKLERS





DOMESTIC & IRRIGATION POU – LOT 6, BUTTERWORTH DRAW SUBDIVISION;
NEWLY CONSTRUCTED RESIDENCE WITH LAWN SPACE SEEDDED IN 2024 (DIDN'T
TAKE) AND AGAIN IN 2025 AROUND RESIDENCE

