

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-18040
Exam Date: 05/09/2023

1. Current Owner:
SERENE WOODS WATER ASSN LLC 13939 E PERIMETER RD ATHOL ID 83801-8403
2. Accompanied by: Steve Keating
Phone No: 303-903-9406
Address: Same as above
Relationship to permit Holder: Permit Holder's water system Manager.

3. **SOURCE:**
GROUND WATER

Method of Determination: ArcMap and DRG.

B. OVERLAP REVIEW

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

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**
GROUND WATER NE¼ NE¼, Sec. 7, Twp 53N, Rge 02W, B.M. KOOTENAI County

Method of Determination: GPS; POD located at -116°36.7618, 47°57.6182 well 96-93-N-105-000.

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	
53N	02W	7	X			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
96-93-N-105-000	Unknown	10	Unknow	Unknown	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. A Theoretic Pump Equation derived a flow rate of 57.5 gpm, for a 10 HP pump motor, or 0.13 cfs considering department rounding standards.

E. FLOW CALCULATIONS

 X Additional Computation Sheets Attached

Measured Method: Theoretic Pump Equation = 10 hp pump installed at depth of 435 with operating pressure of 50 PSI derives a flow rate of 57.5 gpm or 0.13 cfs considering department rounding standards. The applicant's water system has a STOP CYCLE VALVE installed that regulates flow at approximately 50 gpm. 50 gpm = **0.11 cfs**, which is recommended for licensing purposes.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: NONE, ½ ac irrigation per parcel for 6 homes authorized under domestic use.
2. Volume Calculations for Other Uses: maximum diversion volume equals 6 homes x 1.2 af per home = **7.2 af**.

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed on 5/9/2023 with the applicant's representative, Steve Keating – Water System Manager, showed a groundwater well providing water for domestic uses. At the POD, well 96-93-N-105-000 has a 10 hp pump motor installed in the well diverting water directly to a vaulted pump station housing two pressure tanks, pump relay control panel, and Kent flowmeter. The pump relay control box reflects 15 hp, with black sharpie identifying a 10 hp motor; Mr. Keating asserts the original 10 hp relay was tripping the breaker and a larger relay control box was installed as a precaution on the system. The water system was unable to be run at maximum capacity during the exam as there wasn't a dedicated blow out valve on the system I could access, resulting in no flow meter measurement. The main service line routes from the vaulted pump station toward Perimeter Rd prior to teeing North & South to the six (6) service connections.

I was unable to perform a flow measurement due to inadequate pipe requirement and prepared a theoretic pump equation (TPE) during licensing review. The TPE derives a flow rate of 0.13 cfs considering department rounding or 57.5 gpm. The diverting works include a red cycle stop valve installed that Mr. Keating asserts regulates the flow down to approximately 50 gpm; the valve keeps spikes in the system from inducing hard pump starts that were plaguing the system. Permit 95-18040 approved development with a diversion rate of 0.13 cfs but the applicant is limited to the diverting works infrastructure system design (cycle stop valve) normal operating flow rate for licensing purposes. **0.11 cfs** is the Department standard diversion rate authorized for six homes domestic use, supporting the flow rate associated with the cycle stop valve, which is recommended for licensing purposes.

During the exam Mr. Keating and I canvassed the domestic POU & I used field maps to sketch the main water line, which parallels Perimeter RD with water meter boxes for four connections prior to routing West along E. Howard RD with the remaining two water meter boxes for two parcel's service connections. Following the exam, I used ArcMap aerial imagery to assign the domestic POU using approximately 1-acre rectangles for each parcel's 1 home with ½ acre as authorized & recommended for licensing purposes. Two of the Permit's approved QQs, NW¼NE¼ & SE¼NE¼, were not developed under this permit and I've removed them from the POU during licensing review. The annual volume and maximum diversion volume recommended for licensing equals 6 homes x 1.2 af = **7.2 af**.

Condition 046 was removed from the permit during licensing review. Condition X04 was revised to remove the subdivision description. Condition 187 was replaced with a text version that has been revised to state: The irrigation occurring under this domestic use shall not exceed 1/2 acre per home. All other conditions on the permit shall be carried forward to licensing. I've added conditions X59 & X60 during licensing review to describe the POD/POU being within a named subdivision. There are no overlapping water right concerns for this water right.

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>
DOMESTIC	01/01 to 12/31	0.11 CFS	7.2 AF
<u>Totals:</u>		0.11 CFS	7.2 AF

2. Recommended Amendments

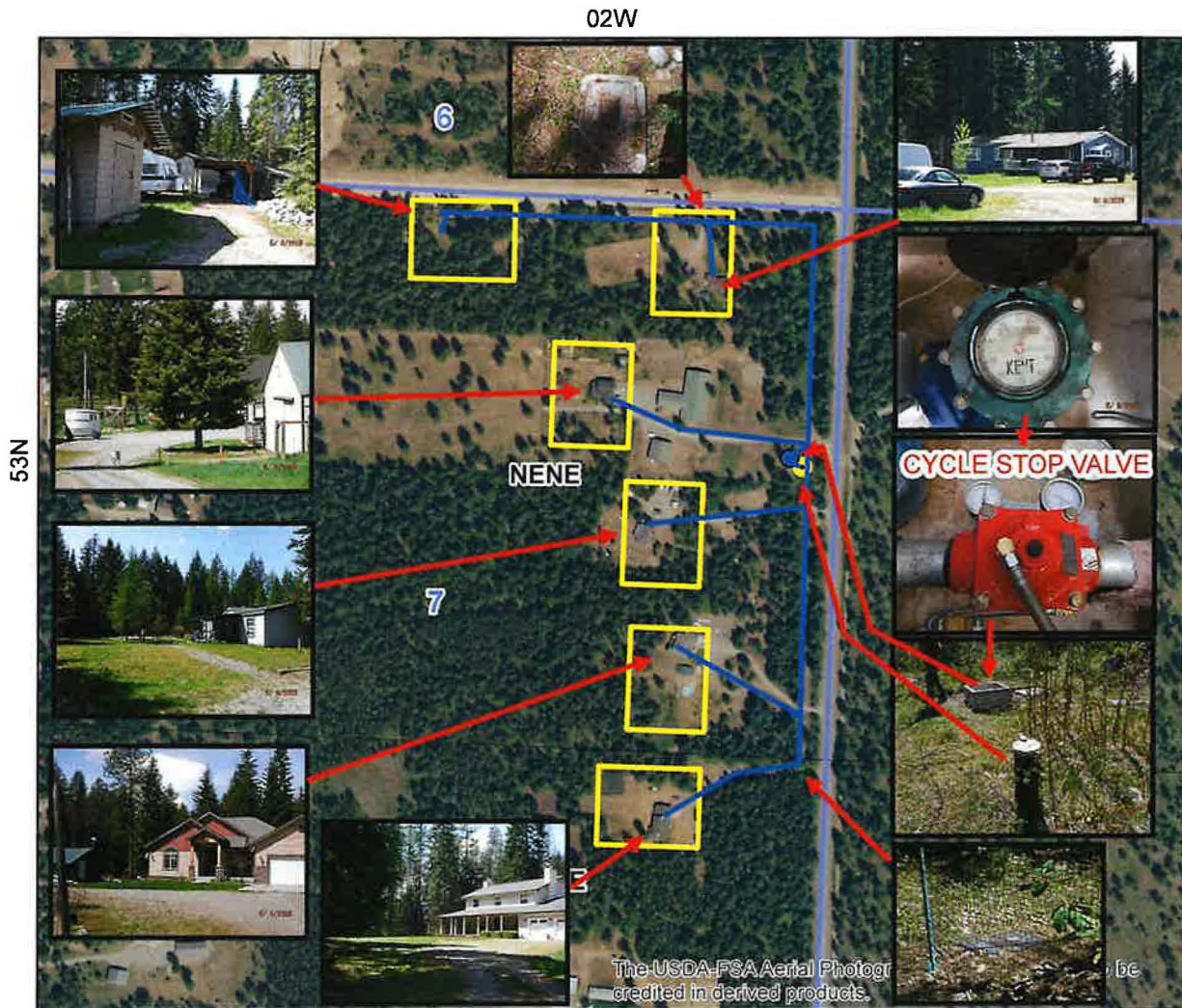
☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None
☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☒ None

I. AUTHENTICATION Luke Bates -

Field Examiner's Name  Date 12/6/2023
Reviewer _____ Date _____

State of Idaho
Department of Water Resources
Attachment to Field Exam
95-18040

This map depicts the DOMESTIC system diagram.



0 0.05 0.1 0.2 Miles

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



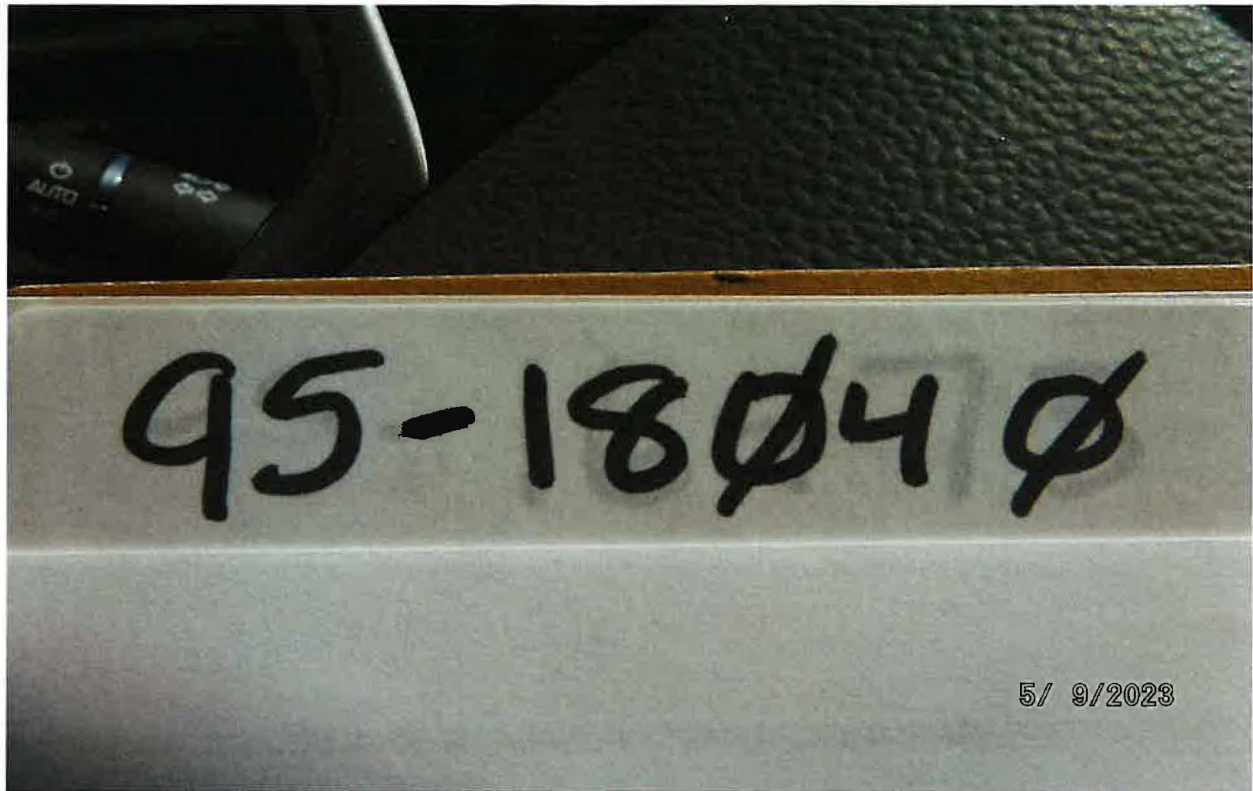
THEORETICAL PUMPING EQUATION(S) FOR WR# 95-18040

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to lift 435 ft, and running at 50 psi.

PUMP EQUATION

WATER RIGHT No. 95-18040

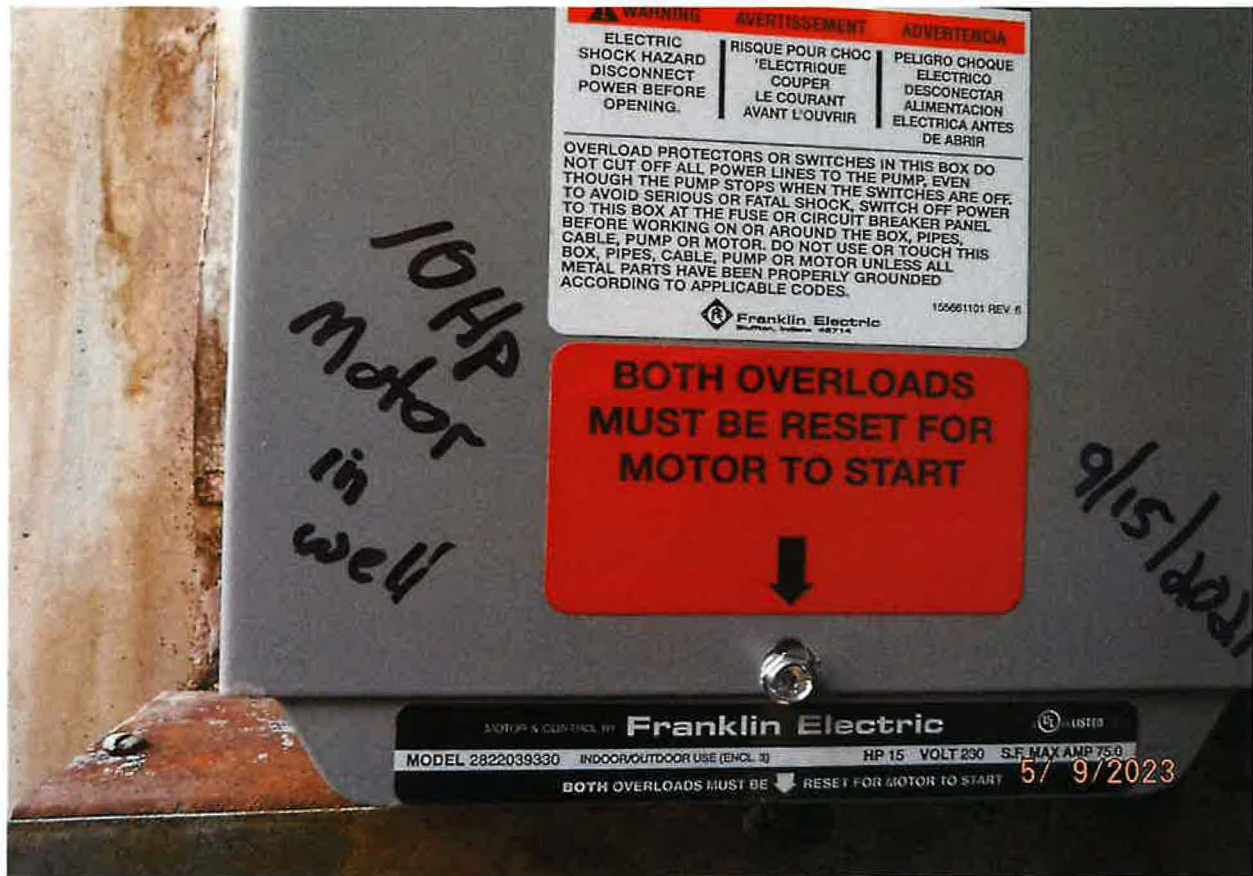
96-93-N-105-000	HP	H in feet	Efficiency as a decimal	Pumping lift in feet	System pressure in PSI
Q = $HP * 8.8 * Eff / H$	10	550.6463	0.8	435	50
Q = 0.128 cfs 57.5 gpm					



BENEFICIAL USE FIELD EXAMINATION DATE 5/9/2023



POD – GW WELL 96-N-105-000; VAULT IN BACKGROUND HOUSES DIVERTING WORKS COMPONENTS



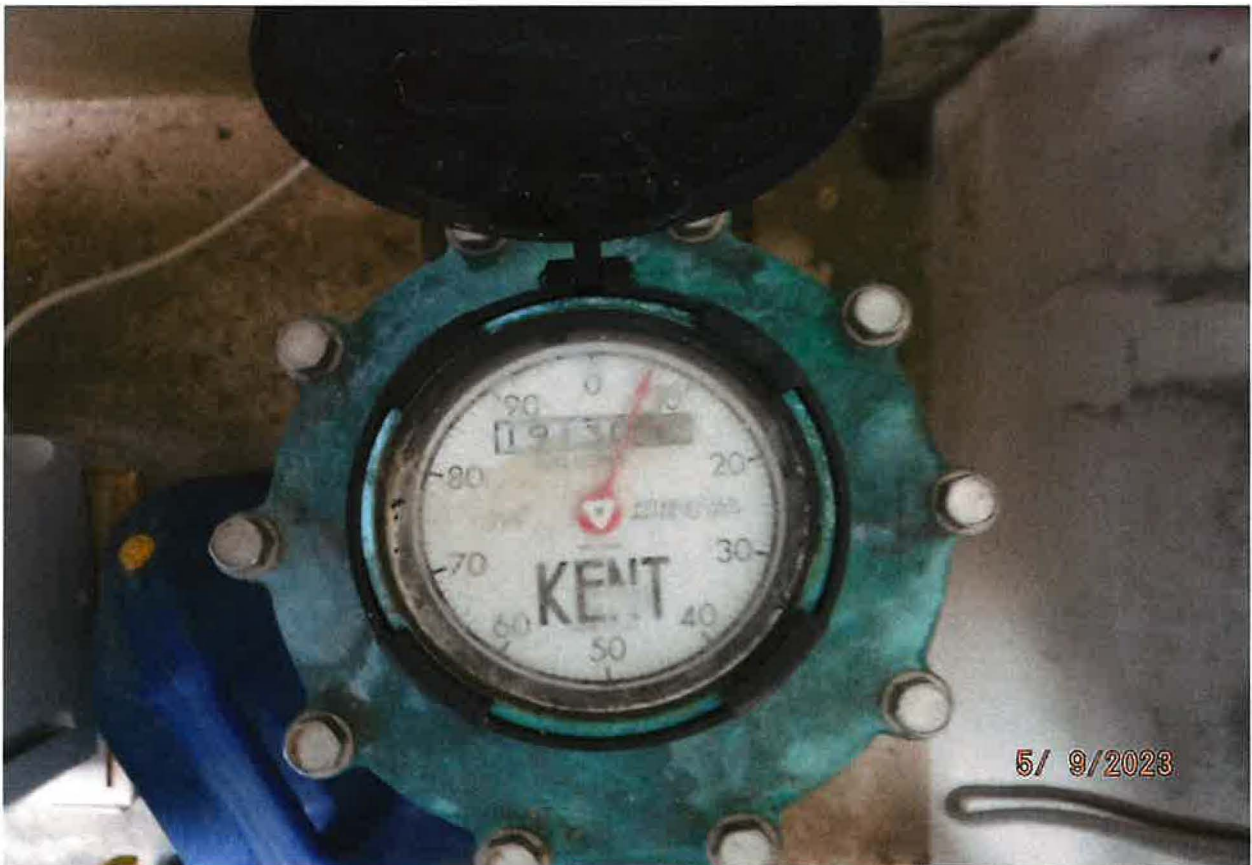
10 HP FRANKLIN ELECTRIC PUMP MOTOR (CONTROL BOX DESIGNATES 15 HP WHICH IS NOT ACCURATE)



50 PSI WATER SYSTEM OPERATING PRESSURE



TWO PRESSURE TANKS INCLUDED IN DIVERTING WORKS FOUND IN VAULT



FLOWMETER INSTALLED – KENT VOLUMETRIC METER



WATER CONVEYANCE SYSTEM INCORPORATES A CYCLE STOP VALVE, WHICH REGULATES FLOWRATE TO APPROXIMATELY 50 GPM



EXAMPLE – 1 OF 6 WATER LINE STUB OF MAIN SERVICE PIPELINE



DOMESTIC POU – REPLAT LT 1 BLK 1, LT 1 BLK 1; Serene Woods Amended Sub; RP072020010010.



13376 E HOWARD RD



DOMESTIC POU – REPLAT LT 1 BLK 1, LT 2 BLK 1; Serene Woods Amended Sub; RP072020010020.



13546 E HOWARD RD



DOMESTIC POU -LT 2 BLK 1 EX; Serene Woods Sub; RP07200001002A



14175 E PERIMETER RD



DOMESTIC POU -LT 3 BLK 1 EX; Serene Woods Sub; RP07200001003A



14133 E PERIMETER RD



DOMESTIC POU -LT 4 BLK 1; Serene Woods Sub; RP07200001004



13991 E PERIMETER RD



DOMESTIC POU -LT 5 BLK 1; Serene Woods Sub; RP07200001005



13939 E PERIMETER RD