

STATE OF IDAHO  
DEPARTMENT OF WATER RESOURCES  
**BENEFICIAL USE FIELD REPORT**

**A. GENERAL INFORMATION**

**Permit No:** 95-17375  
**Exam Date:** 05/09/2023

1. Current Owner:  
TODD R ZIMMERMANN 16653 N RAMSEY RD RATHDRUM ID 83858-8246 AND  
CAROL ZIMMERMANN 16653 N RAMSEY RD RATHDRUM ID 83858-8246
2. Accompanied by: Todd Zimmermann  
Phone No: 208-660-5779  
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: 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 SE¼, Sec. 27, Twp 52N, Rge 04W, B.M. KOOTENAI County

Method of Determination: GPS. POD is well D0073353 located at -116°48.5226, 47° 49.3870.

**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 |        |
| 52N | 04W | 27  |    |    |    |    |    |    |    |    |    |    |    |    | 7.0 |    |    |    | 7.0    |

Total Acres: 7.0

**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 |        |
| 52N | 04W | 27  |    |    |    |    |    |    |    |    |    |    |    |    | X  |    |    |    |        |

Method of Determination: Beneficial use field examination, ArcMap aerial imagery, & Kootenai County Tax Parcel Map software.

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 |
|---------------------------|------------|----|-------------------------------------------------------|-----------|-----------------------------------|
| D0073353                  | PENTEK     | 5  | VFD (SET TO LOWEST HZ OPERATING AS A 3 HP PUMP MOTOR) |           |                                   |

**D. FLOW MEASUREMENTS**

1.

| Measurement Equipment    | Type | Make | Model No. | Serial No. | Size | Calib. Date |
|--------------------------|------|------|-----------|------------|------|-------------|
| 5-GAL BUCKET MEASUREMENT |      |      |           |            |      |             |

2. Measurements: Three 5-gallon bucket tests were completed from a frost-free hydrant co-located with the well, with an average of three resulting in a diversion rate of 23.5 gpm = **0.05 cfs**, considering department rounding standards.

**E. FLOW CALCULATIONS**

X Additional Computation Sheets Attached

Measured Method: : 5-GAL Bucket Test = (5 gal / 12.75 sec) x 60 sec/min = 23.53 gpm  
 = (5 gal / 12.79 sec) x 60 sec/min = 23.46 gpm  
 = (5 gal / 12.74 sec) x 60 sec/min = 23.55 gpm

Average of 3ea 5-GAL Bucket Tests = (23.53 gpm + 23.46 gpm + 23.55 gpm) / 3 = 23.5 gpm = 0.05 cfs considering department rounding standards.

I computed 2ea theoretic pump equations based on a 5 hp and 3 hp pump motor to determine if the lower setting of the VFD reflects the 5-gal bucket measurements. A 5 hp pump with VFD set at lowest hz range, with 305 ft of lift & 55 PSI operating pressure equates to 22.0 gpm or 0.049 cfs. This value is relatively close to the 5-gal bucket measurements indicating the VFD lowest hz setting limits pump performance as installed for daily use.

**F. VOLUME CALCULATIONS**

1. Volume Calculations for irrigation:

$$V_{I.R} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 7.0 \text{ ac} \times 3.0 \text{ afa} = 21.0 \text{ af}$$

$$V_{D.R} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.05 \text{ cfs} \times 246 \text{ days} \times 1.9835 = 24.4 \text{ af}$$

$$V = \text{Smaller of } V_{I.R} \text{ and } V_{D.R} = \mathbf{21.0 \text{ af}}$$

2. Volume Calculations for Other Uses: maximum diversion volume equals 0.6 af (domestic annual volume + 21.0 af (irrigation annual volume) = **21.6 af**.

**G. NARRATIVE/REMARKS/COMMENTS**

Field exam performed on 5/9/2023 with the applicant, Todd Zimmermann, showed a groundwater well supplying water for irrigation and domestic uses. At the POD, well D0073353 has a 5 HP Pentek VFD well pump motor installed. Three 5-gallon bucket tests were completed from a frost-free hydrant co-located with the well, with an average of three resulting in a diversion rate of 0.05 cfs, considering department rounding standards which is recommended for licensing purposes. The 5 HP pump motor is capable of higher flow capacity, but the applicant has the VFD set to the lowest HZ, resulting in the pump

operating at a 3 HP pump performance capacity equivalency. **0.05 cfs** is recommended as the maximum diversion rate for licensing. The domestic beneficial use retains the 0.04 cfs diversion rate, but the irrigation beneficial use is limited to pumping performance observed at time of field exam.

The well is the only service connection to the applicant's primary residence, which is the domestic POU as designated during licensing review using ArcMap aerial imagery to trace out the polygon shape. The water system has a buried main service line from the well to the pump controls and pressure pot located inside the garage. From the garage the main service line tees to serve the home and irrigation system. The annual volume for domestic use is recommended for **0.6 af** and consists of in-home water usage only, with irrigation on a separate component.

During the exam the irrigation POU was walked with the applicant and sketched out on field maps. The main irrigation trunk line has numerous frost-free hydrants set at intervals which serve as irrigation risers. From the hydrants hose(s) and portable tripod sprinklers are used to irrigate trees and ground cover shrubs all season. The applicant selectively cuts timber and re-grows, typically getting a log truck worth of timber every few years. Hoses and sprinklers are moved throughout the irrigation POU to water the 260 ft wide parcel, typically running two 100 ft hoses per sprinkler. The applicant has trailer mounted sprinklers, PVC riser sprinklers, tripod sprinklers, yard sprinklers, and sprinklers mounted to the road frontage wood fence collectively used to water the entirety of the POU.

During licensing review ArcMap aerial imagery & Kootenai County GIS tax parcel maps were used to accurately trace out the irrigation POU, which is 7-acres, and consistent with the permit approved acreage designation. The annual volume recommended for licensing equals  $7.0 \text{ ac} \times 3.0 \text{ afa} = \mathbf{21.0 \text{ af}}$ . The maximum diversion volume recommended for licensing equals the sum of domestic and irrigation annual volume, or **21.6 af**.

I removed conditions 26A & 046 during licensing review, as the applicant had complied with each one. All other conditions except X35 have been carried forward to licensing. I have recommended licensing with additional conditions of approval as follows:

- X59 – describes the well POD being in a subdivision tract.
- 175 & 01R – both conditions are required as the applicant's POD/POU are located within the Rathdrum Prairie Ground Water Management Area (RPGWMA). Condition 174 was on the permit approval, but all three are required for licenses within the RPGWMA.

Overlap concerns: I performed a water right overlap evaluation during licensing review and did not find any overlap concerns for this water right. The permit was approved with condition X35 designating combined use limitations between the permit and two separate licensed rights: 95-7006 & 95-7013. Both WRs are owned by the municipal provider the applicant was previously connected to. During the exam I validated the applicant has disconnected from the municipal provider. Proof report for 95-7013 has a comment dated 10/17/2018 that explicitly describes the applicant's parcel RP057600000110 was one of three that have been removed from the municipal providers service area; the POU was updated for 95-7006 & 95-7013 to exclude three total parcels at time of recommendation for decree. I have removed condition X35 from the permit during licensing review. There are no other overlapping concerns for this water right.

Have conditions of permit approval been met?   X   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            | 03/15 to 11/15       | 0.05 CFS                 | 21.0 AF              |
| DOMESTIC              | 01/01 to 12/31       | 0.04 CFS                 | 0.6 AF               |
| <b><u>Totals:</u></b> |                      | 0.05 CFS                 | 21.6 AF              |

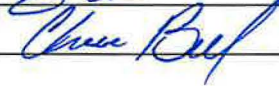
**2. Recommended Amendments**

\_\_\_\_\_ Change P.D. as reflected above      \_\_\_\_\_ Add P.D. as reflected above       X  None

\_\_\_\_\_ Change P.U. as reflected above      \_\_\_\_\_ Add P.U. as reflected above       X  None

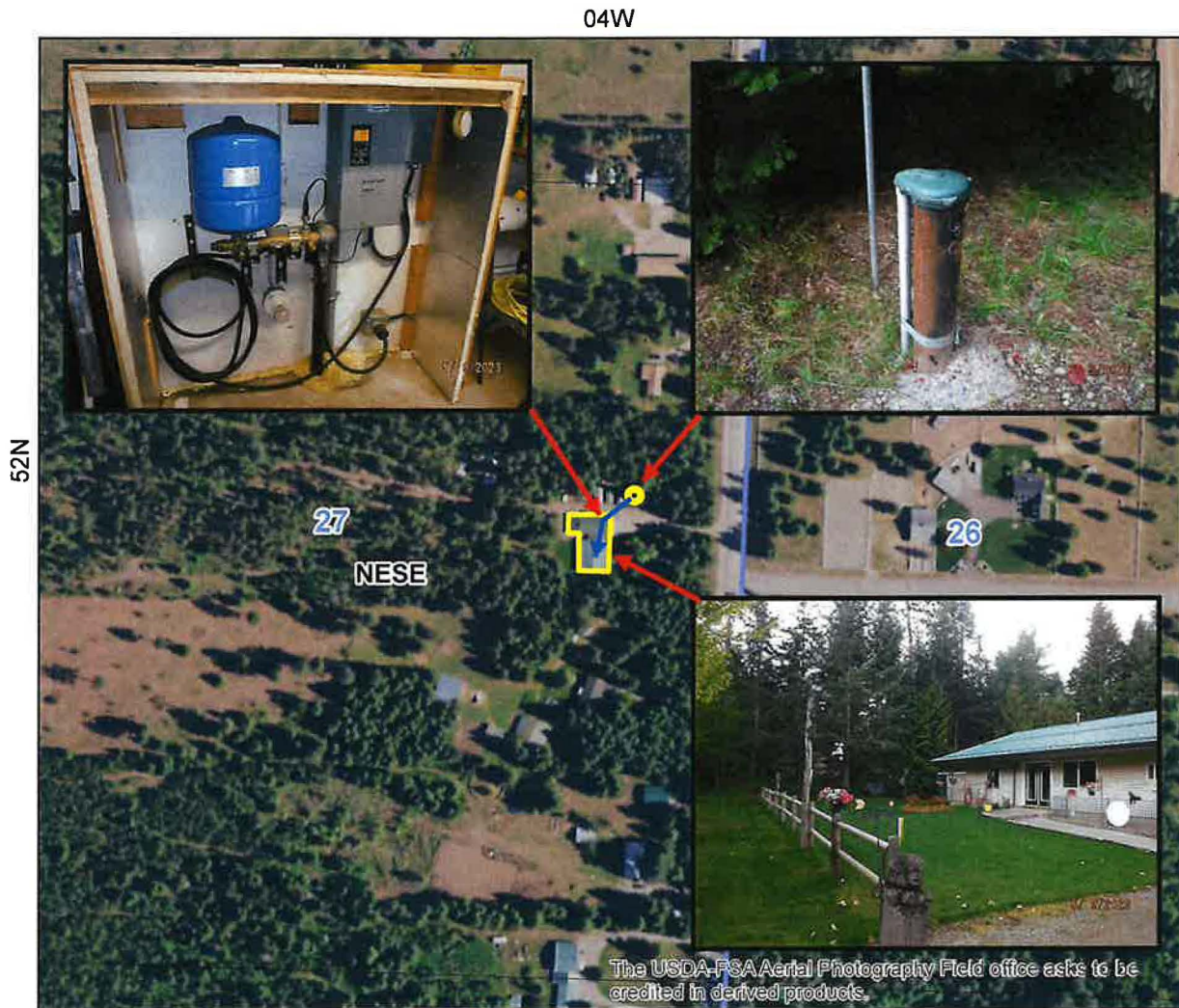
**I. AUTHENTICATION**

Luke Bates -

Field Examiner's Name  Date 11/15/2023Reviewer  Date 5/23/24

State of Idaho  
Department of Water Resources  
**Attachment to Field Exam**  
95-17375

This map depicts the DOMESTIC system diagram.



0 0.035 0.07 0.14 Miles

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



This map depicts the IRRIGATION system diagram.

04W



- 



Example Information Only - use 5-gal Bucket measurements to recommend for licensing. (Bates 7/20/23)

THEORETICAL PUMPING EQUATION(S) FOR WR# 95-17375

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to lift 305 ft, and running at 55 psi.

**PUMP EQUATION**

**WATER RIGHT No. 95-17375**

| D0073353                                      | HP | H in feet | Efficiency as a decimal | Pumping lift in feet | System pressure in PSI |
|-----------------------------------------------|----|-----------|-------------------------|----------------------|------------------------|
| $Q = \frac{HP \cdot 8.8 \cdot \text{Eff}}{H}$ | 5  | 432.2109  | 0.8                     | 305                  | 55                     |
| Q = <b>0.082 cfs</b> <b>36.6 gpm</b>          |    |           |                         |                      |                        |

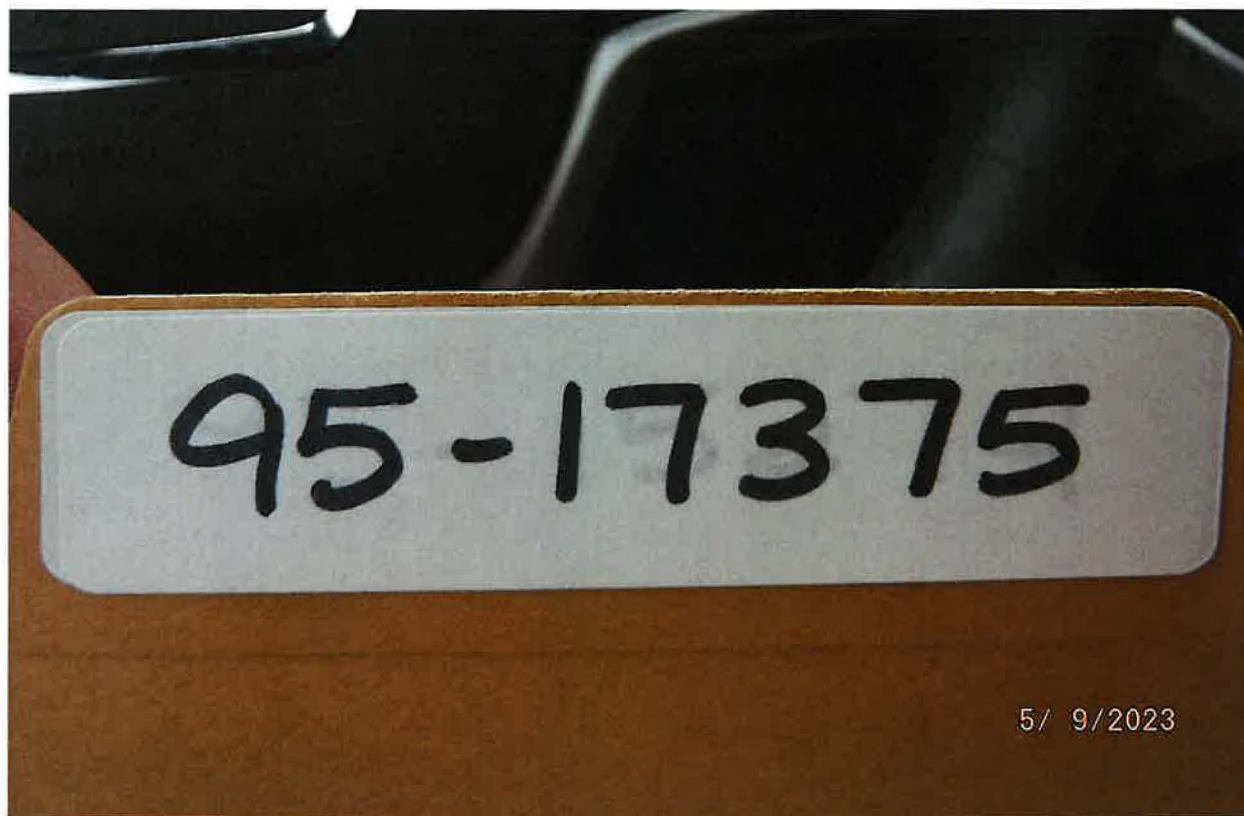
**NOTE:** Applicant has a 5 HP Variable Frequency Drive Pentek pump motor installed in his well; the pump is set at the lowest Hz setting and performs at a 3 HP pump capacity with flow rates using the 3 HP theoretic pump equation which is comparable to the 5-Gal bucket measurements taken during the field exam on 5/9/2023 (23.5 gpm or 0.05 CFS considering department rounding standards).

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to lift 305 ft, and running at 55 psi.

**PUMP EQUATION**

**WATER RIGHT No. 95-17375**

| D0073353                                      | HP | H in feet | Efficiency as a decimal | Pumping lift in feet | System pressure in PSI |
|-----------------------------------------------|----|-----------|-------------------------|----------------------|------------------------|
| $Q = \frac{HP \cdot 8.8 \cdot \text{Eff}}{H}$ | 3  | 432.2109  | 0.8                     | 305                  | 55                     |
| Q = <b>0.049 cfs</b> <b>22.0 gpm</b>          |    |           |                         |                      |                        |



BENFICIAL USE FIELD EXAMINATION DATE 5/9/2023



POD – GROUNDWATER WELL D0073353



WELL D-TAG D0073353

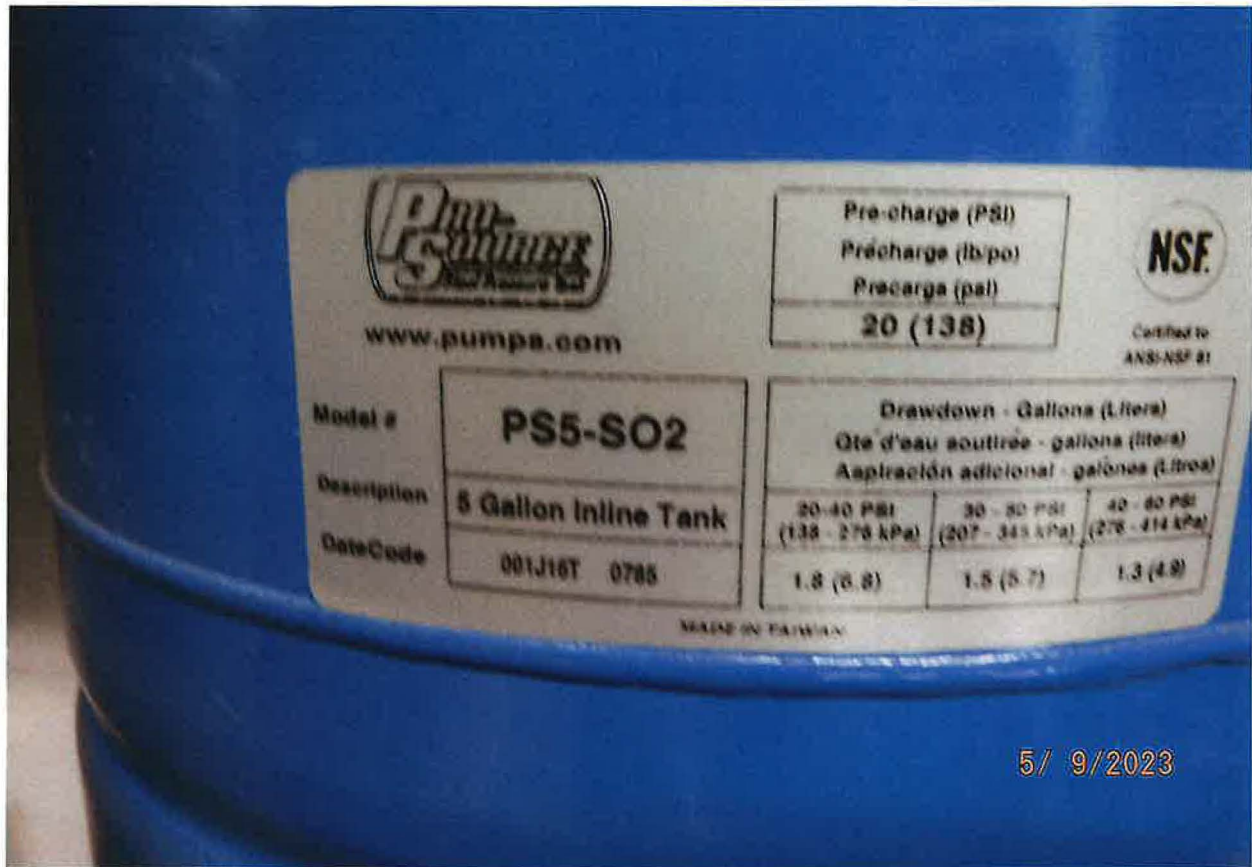


DIVERTING WORKS – LOCATED IN GARAGE/SHOP

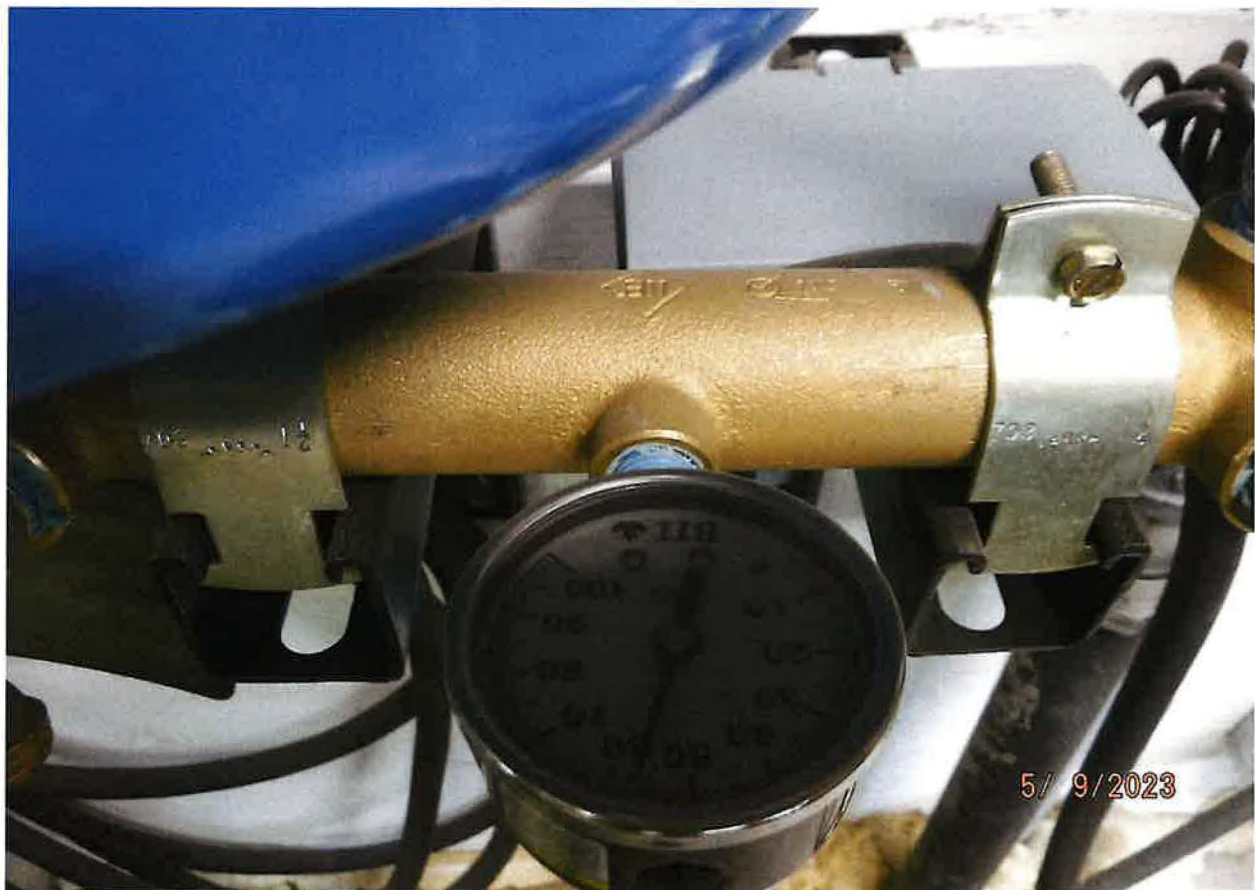


PENTEK 3 PHASE, 5 HP PUMP MOTOR INSTALLED





5 GAL PRESSURE TANK INSTALLED IN ON SYSTEM



55-60 PSI OPERATING PRESSURE



DOMESTIC POU – 1 HOME & PART OF IRRIGATION POU – LAWN SPACE FRONT & BACK OF HOME





IRRIGATION SYSTEM COMPONENTS – MULTIPLE FROST-FREE HYDRANTS OF MAIN TRUNK LINE TO HOSE  
& RAINBIRD IMPACT SPRINKLERS





IRRIGATION POU – INTERVAL WATERING BY HOSE & SPRINKLER FOR TIMBER SALE PLOT





IRRIGATION POU – APPLICANT CUTS A LOG TRUCK OF TIMBER OFF PROPERTY AS TREES GROW TO MATURITY





IRRIGATION POU





TREE PLOT IRRIGATION – VARIETY OF TREE SPECIE GROWN ON PARCEL





IRRIGATION POU – ROAD FRONT SIDE OF PARCEL





IRRIGATION POU – APPLICANT IRRIGATES RAMSEY ROAD FRONTAGE WITH IMPACT SPRINKLERS  
ATTACHED TO PRIVACY FENCE

