

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-13092
Exam Date: 06/30/2015

1. Current Owner:
HELEN PARK IRRIGATION ASSN 302 W CONKLING PARK DR WORLEY ID 83876
2. Accompanied by: James Stillwell & Dennis Gilbert
Phone No: 509-951-9575 & 503-866-3504
Address: 430 W Conklin Park Drive, Worley ID 83876
Relationship to permit Holder: President of Assn & water system operator respectively.

3. **SOURCE:**
COEUR D ALENE LAKE

Tributary
SPOKANE RIVER

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
95-7165	GROUNDWATER	MUNICIPAL	DECREED

Comments: Decreed right 95-7165 uses groundwater for municipal purposes which serves 115 homes which includes those parcels associated with this permit's POU. Following research of 95-7165's backfile I identified that if each home uses 0.6 af the total volume equals 69 af. 95-7165's max diversion volume of 86.7 af minus 69 af = 17.7 af, which doesn't represent enough volume to support external use for irrigation of ½ acre per home in the municipal system. Mr. Stillwell, the Association's president, asserts the parcels associated with this permit do not irrigate from the groundwater source, only from the irrigation system. Due to the irrigation system being separate from the groundwater system, and no irrigation occurring from the groundwater source municipal right 95-7165, condition X35 was not recommended regarding combined use limitations for licensing Permit 95-13092.

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

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

COEUR D ALENE LAKE L5 (NW¼ SW¼), Sec. 20, Twp 47N, Rge 03W, B.M. KOOTENAI County

Method of Determination: GPS; POD located at -116°45.400, 47°24.298, intake pipe in lake

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	
47N	03W	19				0.4 L2									3.0				3.4

Total Acres: 3.4

Method of Determination: beneficial use field examination & 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
Lake Diversion	FRANKLIN	2			

D. FLOW MEASUREMENTS

1.

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

2. Measurements: Three 5-gallon bucket tests were completed from a system blow out valve located at the pump station, with average of three resulting in a diversion rate of 5 gal / 16.28 sec x 60 sec/min = 18.43 gpm = **0.04 cfs**, considering department rounding standards. A Theoretic Pump Equation was completed as a second type of flow measurement, resulting in 19.9 gpm or 0.04 cfs considering department rounding standards, which reinforces the 5 gal bucket tests.

E. FLOW CALCULATIONS

☒ Additional Computation Sheets Attached

Measured Method: 5-GAL Bucket Test = (5 gal / 16.13 sec) x 60 sec/min = 18.71 gpm
 = (5 gal / 16.66 sec) x 60 sec/min = 18.00 gpm
 = (5 gal / 16.05 sec) x 60 sec/min = 18.69 gpm

Average of 3ea 5-GAL Bucket Tests = (18.71 gpm + 18.00 gpm + 18.69 gpm) / 3 = 18.47 gpm = 0.04 cfs considering department rounding standards.

A theoretic pump equation was calculated as a second form of measurement, with results equaling 2 hp pump @ 180 ft depth operating @ 60 PSI produces 19.9 gpm or 0.04 cfs considering department rounding standards.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 3.4 \text{ ac} \times 3.0 \text{ afa} = 10.2 \text{ af}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.04 \text{ cfs} \times 231\text{-days} \times 1.9835 = 18.3 \text{ af}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = \mathbf{10.2 \text{ af}}$$

2. Volume Calculations for Other Uses: N/A

G. NARRATIVE/REMARKS/COMMENTS

Department staff performed an initial field examination on 6/30/2015 with the applicant's representative, Fred Newman (association president at that time), which showed lake water being diverted for irrigation purposes. Department staff's field exam notes do not support sufficient data about the diverting works nor irrigation acreage to finalize the permit for licensing purposes.

A follow-up site visit was conducted on 5/16/2022 with the current Helen Park Irrigation Assn President, Mr. James Stillwell, to collect photographs and irrigation system data needed to accurately license the permit. While the development period for the permit closed on 10/5/2012, aerial imagery shows no new development with the parcels in question, and review of Arcmap aerial imagery shows the irrigation system was active throughout the time leading up to 5/16/2022. As such, current year aerial imagery was used to license this permit.

At the POD, the applicant has a 2 HP Franklin submersible pump located in Lake Coeur D'Alene. There is a manual shutoff ball style valve located on the shore at the POD. From the shoreline, the 2-inch buried PVC main service line routes up-hill within an easement, crosses a paved road via culvert, and continues upgrade to a small pump station. The pump station houses 2ea pressure tanks & the 2 hp Franklin pump control panel. Three 5-gallon bucket tests were completed from a system blow out valve located at the pump station, with average of three resulting in a diversion rate of $5 \text{ gal} / 16.28 \text{ sec} \times 60 \text{ sec/min} = 18.43 \text{ gpm} = 0.04 \text{ cfs}$, considering department rounding standards that is recommended for licensing this permit.

A Theoretic Pump Equation (T.P.E) was completed as a second type of flow measurement, resulting in 19.9 gpm or 0.04 cfs considering department rounding standards, which reinforces the 5-gal bucket tests. The T.P.E factors a pump-to-pumphouse elevation gain of 180 ft & 2 hp pump operating at 60 PSI. The value from the T.P.E is consistent with the 5-gal flow measurement, which was taken when the system was first turned on for year 2022. I was concerned the pressure tanks would directly influence the 5-gal bucket measurement, but as they were empty at time of exam, we were able get a reasonable flow rate for the system. A typical 2 hp pump has a greater capacity than 0.04 cfs, once pumped 180 ft up-hill the production is reduced to what was observed at time of exam.

The irrigation POU consists of 12 parcels (some double parcels) which are bounded by a paved road on the eastern side & a gravel road on the western side. Mr. Stillwell and I walked the POU & photographs were taken to illustrate the irrigation occurring. Irrigation occurred using a variety of sprinkler systems depending on property owner, ranging from hose to sprinkler, micro emitter for landscaping, & rainbird pressurized sprinklers. From the pumphouse a main irrigation trunk line runs north along the gravel road, with irrigation riser pipes stubbed at intervals (several per parcel) for watering use. The irrigation system was activated for the year at time of exam, so no active irrigation was observed during the exam; the Assn's irrigation practices are clearly developed based on photographic evidence captured.

The irrigation POU was sketched out on field maps, and during licensing review Arcmap aerial imagery was used to accurately trace out the acreage which equals 3.4 acres. The annual volume for irrigation equals $3.4 \text{ ac} \times 3.0 \text{ afa} = 10.2 \text{ af}$ which is recommended for licensing the annual volume & maximum diversion volume for this permit. The permit approved diversion rate of 0.12 cfs is limited primarily by the 2 hp pump installed in the irrigation system, which limits my recommendation to the pump performance observed at time of follow-up exam. Mr. Stillwell asserts the property owners connected to the Helen Park Irrigation Assn water on a rotating basis, so that normal irrigation occurs by only one parcel at any given time. This offsets the need for a larger capacity pump & head pressure that would be necessitated if all parcels irrigated at one time.

Condition 26A was removed from the permit during licensing review. Condition X60 was added to describe the POU residing in the Helen Park Subdivision. All other conditions on the permit shall be carried to licensing. Overlap Concerns: Decreed right 95-7165 uses groundwater for municipal purposes which serves 115 homes that includes those parcels associated with this permit's POU. Research of 95-7165's backfile identified that if each home uses 0.6 af the total volume equals 69 af. 95-7165's max diversion volume of 86.7 af minus 69 af = 17.7 af, which doesn't represent adequate volume to support external use for irrigation of ½ acre per home in the municipal system. Mr. Stillwell, the Association's president, asserts the parcels associated with this permit do not irrigate from the groundwater source, only from the irrigation system. Based on these factors condition X35 was not recommended for inclusion during licensing review for Permit 95-13092. There are no additional overlap 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 10/31	0.04 CFS	10.2 AF

Totals: 0.04 CFS 10.2 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 [Signature] Date 5/17/2022

Reviewer [Signature] Date 7/21/2022

State of Idaho
Department of Water Resources
Attachment to Field Exam
95-13092

IRRIGATION system diagram.



Legend

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

0 0.0425 0.085 0.17 Miles



THEORETICAL PUMPING EQUATION(S) FOR WR# 95-13092

Theoretical Pumping Equation is required because system did not allow for a proper measurement. Pump is estimated to lift 180 ft, and running at 60 psi.

PUMP EQUATIONS

WATER RIGHT No. 95-13092

LAKE PUMP	HP	H in feet	Efficiency as a decimal	Pumping lift in feet	System pressure in PSI
Q = $HP \cdot 8.8 \cdot \text{Eff} / H$	2	318.7755	0.8	180	60

Q = **0.044 cfs** **19.9 gpm**

Diver Sp... Suite C
4444 W. Industrial Loop 83815
Coeur d'Alene, Idaho

INVOICE

July 12th, 2017

Fred Neumann
302 W. Conkling Park Dr.
Worley, Idaho 83876-8783

Having completed the following project, we respectfully request payment.

Repairs to irrigation system:
Replace the 2 HP- 25 GPM Pump, Motor, and Control Box.
Replace the Galv. 1 1/4" x 12" nipple, 10" x 4" Well Seal.
Replace the 10-3 control wire from the pump to the check valve.

\$ 2051.00

\$ 1125.00

TOTAL

Materials.....

Labor.....

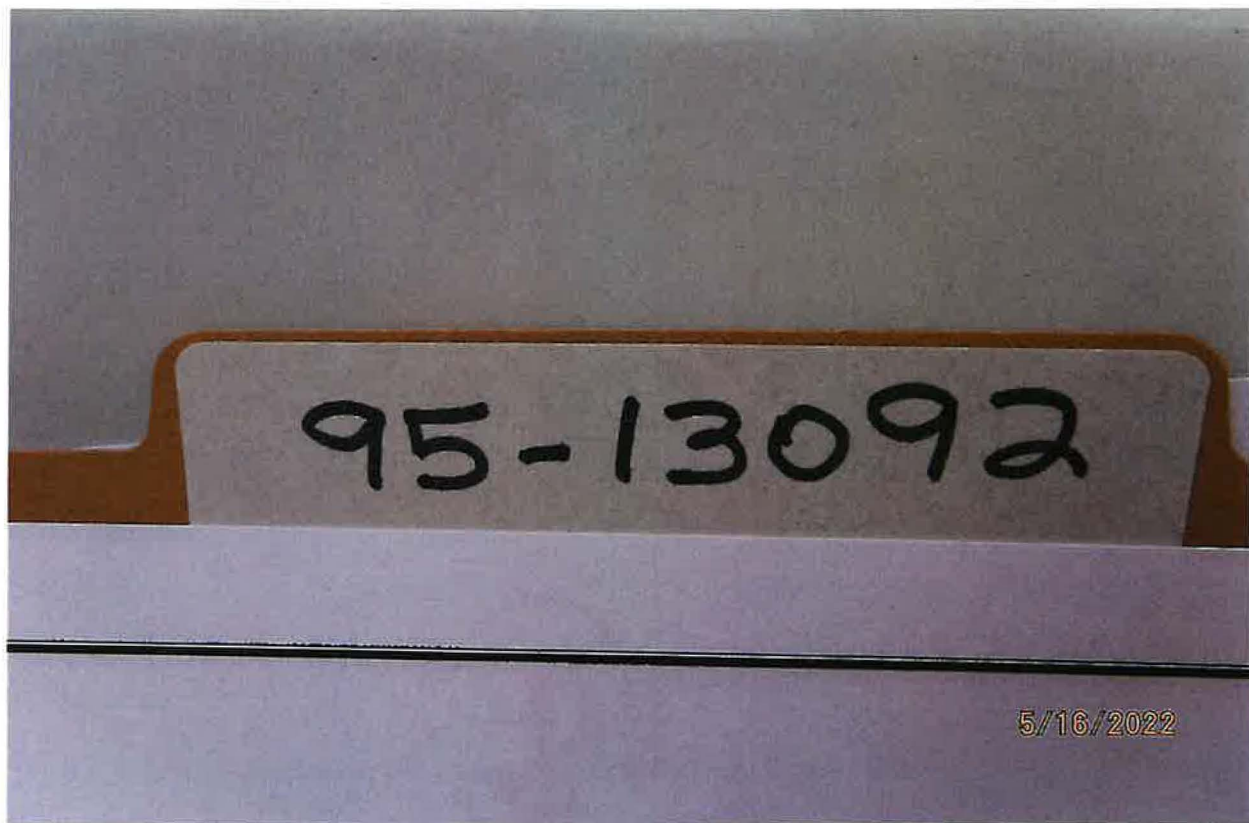
\$3176.00

Paid by Check # 8958 7-12-2017 \$3176.00

50

454
7 | 3176

Thank You for the opportunity to serve.



INITIAL FIELD EXAM CONDUCTED 6/30/2015; FOLLOW-UP EXAM PERFORMED 5/16/2022



POD – BLACK POLY INTAKE PIPE AND WHITE PVC CONDUIT PIPE IN LAKE



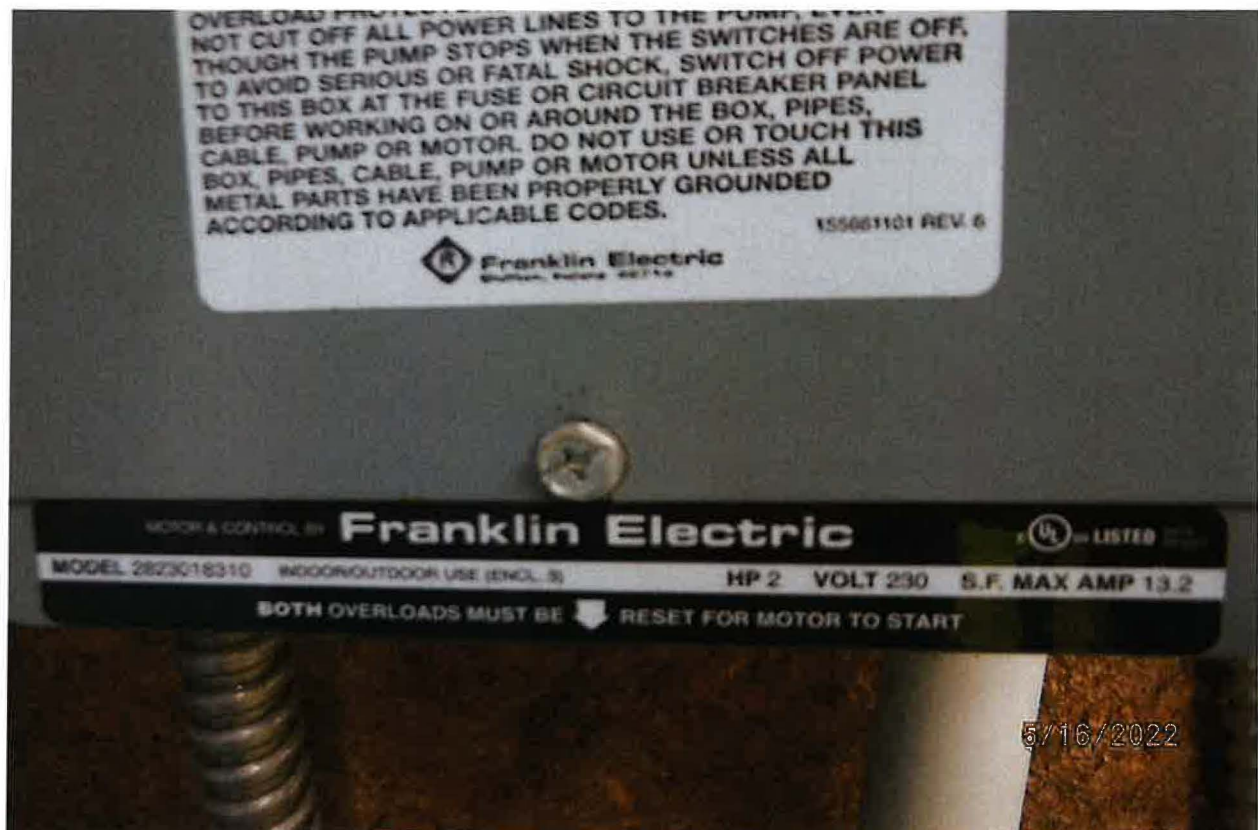
WATER SYSTEM MAIN SHUTOFF BALL VALVE – LOCATED AT POD ALONG SHORELINE



BURIED 2 INCH PVC PIPE ROUTES UPHILL APPROX 180 FT, CROSSING ROAD THROUGH A CULVERT



WATER SYSTEM POWER STATION – PUMP CONTROL HEAD LOCATED HERE – INFLOW ON LEFT, OUTFLOW TO IRRIGATION SYSTEM ON RIGHT; 2 EA PRESSURE TANKS INCORPORATED IN SYSTEM.



2 HP SUBMERSIBLE PUMP INSTALLED IN IRRIGATION SYSTEM



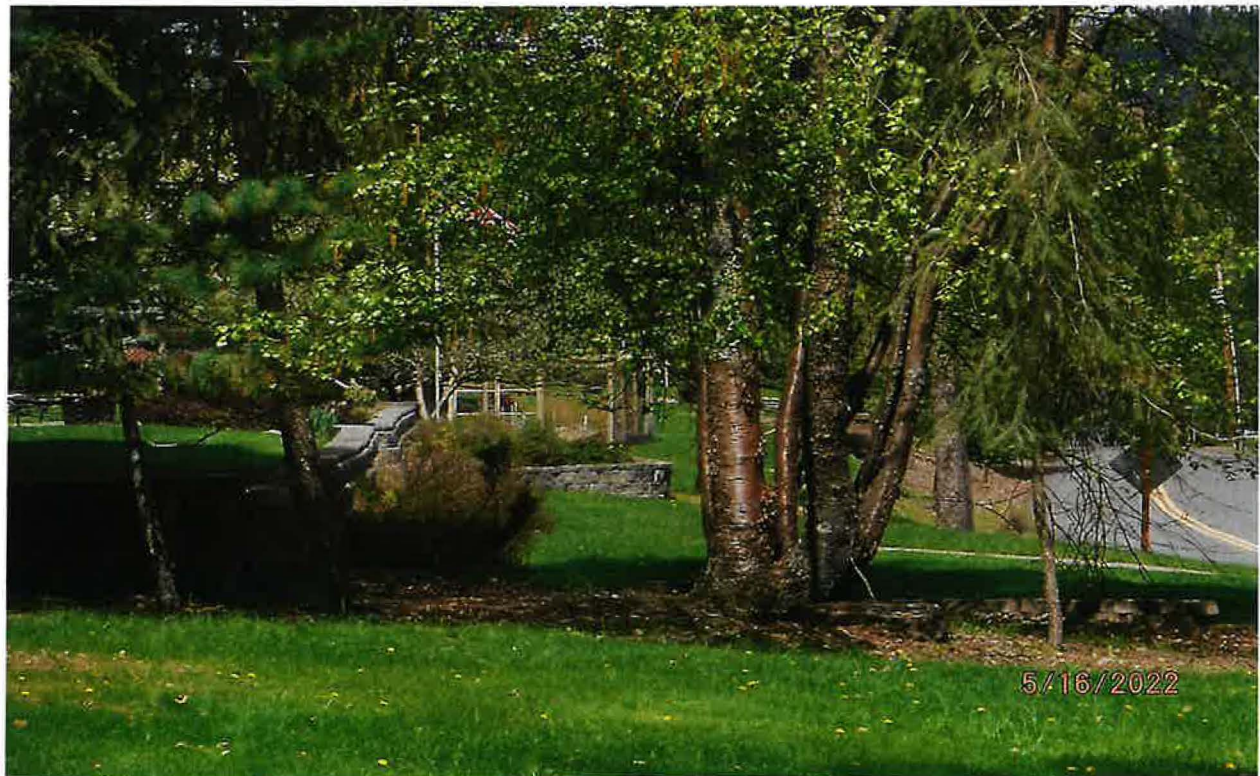
70 PSI HOLDING PRESSURE, OPERATING PRESSURE AT APPROX 60-70 PSI



IRRIGATION POU – SERIES OF PVC RISER PIPES TO HOSE BIBS FOR IRRIGATION USE



IRRIGATION POU



IRRIGATION POU – VIEW OF SEVERAL PARCEL'S IRRIGATION BOUND BY LOWER ELEVATION ROADWAY



IRRIGATION POU



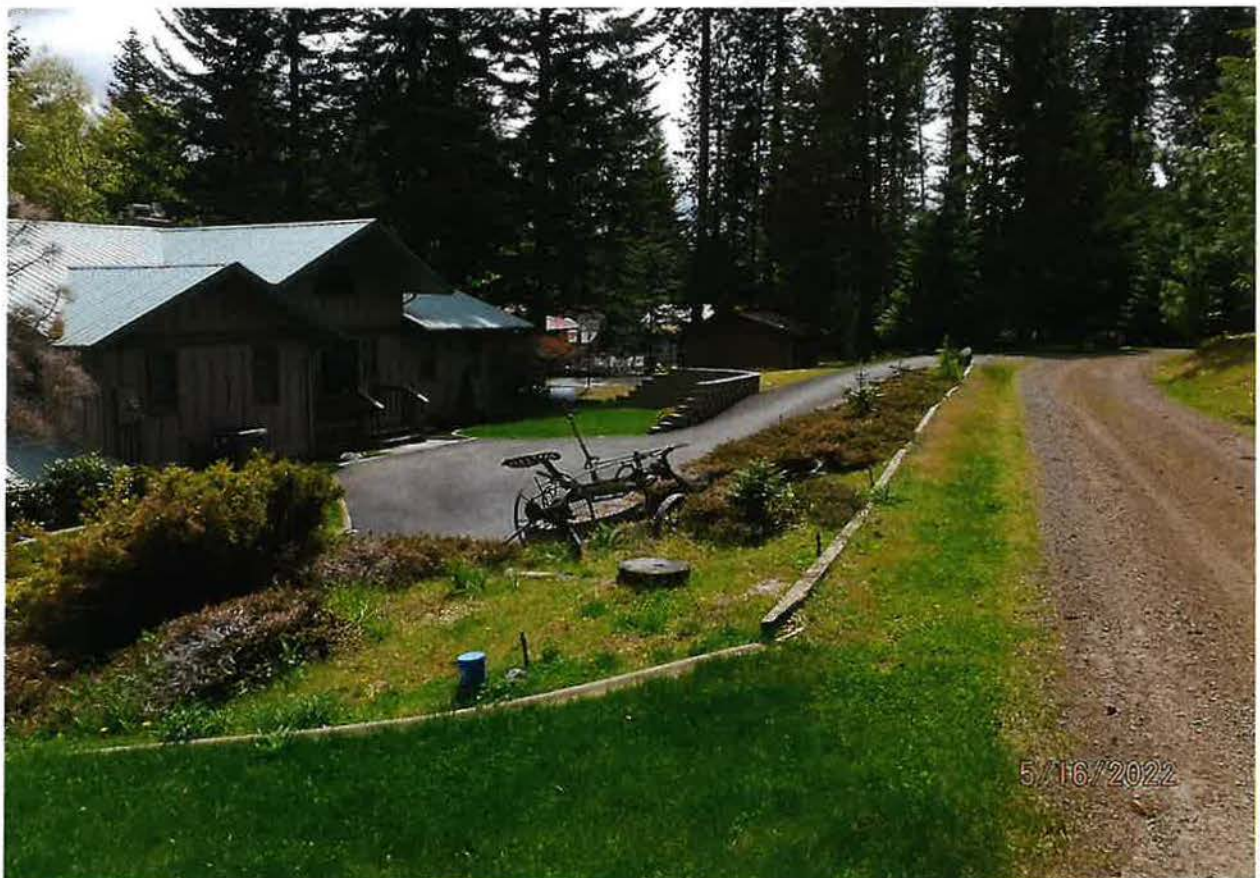


IRRIGATION POU





IRRIGATION POU





IRRIGATION POU





IRRIGATION POU





IRRIGATION POU



EXAMPLE IRRIGATION RISER PIPE TO HOSE BIB



IRRIGATION POU





IRRIGATION POU





IRRIGATION POU





IRRIGATION POU – PRESSURIZED SPRINKLERS



MICRO EMITTERS



IRRIGATION POU - PRESSURIZED RAINBIRD SPRINKLERS, & ASSORTED HOSE TO SPRINKLER, AND LAWN STYLE IRRIGATION SYSTEMS IN PLACE RANDOM PER PARCEL BUT SERVED BY COMMON IRRIGATION MAIN PIPELINE TO IRRIGATION RISERS.



INDIVIDUAL PARCEL SPRINKLER BLOW OUT PIPE