

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 87-10956
Exam Date: 10/15/2020

1. Current Owner:
MARCUS MEAD 3123 W TWIN RD MOSCOW ID 83843-8129
2. Accompanied by: Marcus Mead
Phone No: 509-386-7128
Address: Same as above
Relationship to permit Holder: Permit holder

3. **SOURCE:**
SURFACE RUNOFF

Tributary
PARADISE CREEK

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
87-11067	GROUNDWATER	DOMESTIC, STOCKWATER	BENEFICIAL USE CLAIM, ACTIVE RECOMMENDATION STATUS

Comments: 87-11067 is a beneficial use claim that uses water from a groundwater well for domestic and stockwater use that overlaps this right's POU. 87-11067 has been recommended in the PRBA, awaiting partial decree. After field exam, Arcmap aerial imagery was used to validate that the ½ acre of irrigation occurring from storage is the same irrigation acreage occurring under domestic use. Condition 928 was added to this permit during licensing to mitigate overlap concerns.

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

Water Right No.	Source	Purpose of Use	Basis

Comments: _____

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

SURFACE RUNOFF SW¼ SW¼, Sec. 27, Twp 40N, Rge 05W, B.M. LATAH County

Method of Determination: GPS. Pond with Earthen dam location -116°57.356, 46°46.448

PLACE OF USE: IRRIGATION STORAGE and AESTHETIC STORAGE

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
40N	05W	27											X						

PLACE OF USE: IRRIGATION FROM STORAGE

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
40N	05W	27											0.5						0.5

Total Acres: 0.5

Method of Determination: Field exam and Arcmap aerial imagery.

3.

Delivery System Diagram Attached (required). Indicate all major components and distances between components.

X 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

X 1:24,000 or greater.

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

X 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
N/A					

D. FLOW MEASUREMENTS

1.

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

2. Measurements: N/A

E. FLOW CALCULATIONS

Measured Method: N/A

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 0.5 \text{ acres} \times 3.0 \text{ afa} = 1.5 \text{ af}$$

$$V_{DR} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \text{N/A, there is no diversion rate applied to license.}$$

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = 1.5 \text{ af}$$

2. Volume Calculations for Other Uses:

- See attached pond analysis worksheet
- Aesthetic storage annual volume = 2.9 af (pond capacity) + 1.4 af (seepage/evaporation loss) = **4.3 af**
- Maximum diversion volume = 4.3 af (aesthetic storage) + 1.5 af (irrigation storage/from storage) = **5.8 af**

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed on 10/15/2020 with the current permit holder, Marcus Mead, showed a pond receiving runoff water for aesthetic storage, irrigation storage, and irrigation from storage uses. The pond's POD is an earthen dam, and there was no overflow discharge system constructed for the pond. There is no diversion rate applied to this water right.

Photographs were taken of the pond, and during licensing review Arcmap aerial imagery was used to trace out the pond's surface area. The pond has a surface area of 0.6 acres and a pond capacity of 2.9 af. The pond has a maximum depth of 12 feet, an average depth of 4.8 feet, a seepage rate of 0.7 af, and an evaporation rate of 0.7 af. The pond has a multi fill component equaling 1.5 af for irrigation from storage use annually. The total volume required for pond equals 5.8 af, the sum of afore mentioned pond components. The aesthetic annual volume equals 2.9 af (pond capacity) + 1.4 af (seepage/evaporation loss) = **4.3 af**, which will be carried forward to licensing. The irrigation storage and from storage annual volume equals 0.5 ac x 3.0 afa = **1.5 af**, which will be used for licensing purposes.

During the field exam, the irrigation from storage POU was observed as lawn and tree area around one home. The irrigation area was sketched out using field maps, and during licensing review Arcmap aerial imagery was used to validate the irrigation acreage equaled 0.5 acres. The applicant had a small intake pipe with submersible pump in the pond, which routed to a small pump house situated at the pond. Water was pumped upgrade for use by a pressurized irrigation system. Mr. Mead asserted he recently purchased the property from the original property/permit owner Larry Woodbury. Mr. Mead stated the irrigation system was plumbed to accept either pond water or ground water from the well, and could be switched on using controls at the home. Mr. Mead stated the irrigation system while set to divert from the pond worked well, and the dual connectivity for water sources was likely to serve as redundancy in the event the pond ran dry in future years.

Condition 259 was updated to reflect pond analysis worksheet volume metrics and irrigation from storage volume metrics. A text condition was added describing that pond storage is for aesthetic purposes. R58 was replaced with X31 to describe irrigation of less than 1 acre and associated volume limitations. Condition 928 was added to describing overlap in POU between this permit and right 87-11067 as described below.

Overlap concerns: 87-11067 is a beneficial use claim that uses water from a groundwater well for domestic and stockwater use that overlaps this right's POU. 87-11067 has been recommended in the PRBA, awaiting partial decree. After field exam, Arcmap aerial imagery was used to validate that the ½ acre of irrigation occurring from storage is the same irrigation acreage occurring under domestic use. Condition 928 was added to this permit during licensing to mitigate overlap concerns. 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**

Beneficial Use	Period of Use	Annual Volume
IRRIGATION STORAGE	01/01 to 12/31	1.5 AF
IRRIGATION FROM STORAGE	04/01 to 10/31	1.5 AF
AESTHETIC STORAGE	01/01 to 12/31	4.3 AF

Totals: 5.8 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 - Water Resource Agent

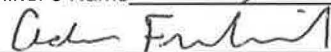
Field Examiner's Name



Date

12/29/2020

Reviewer

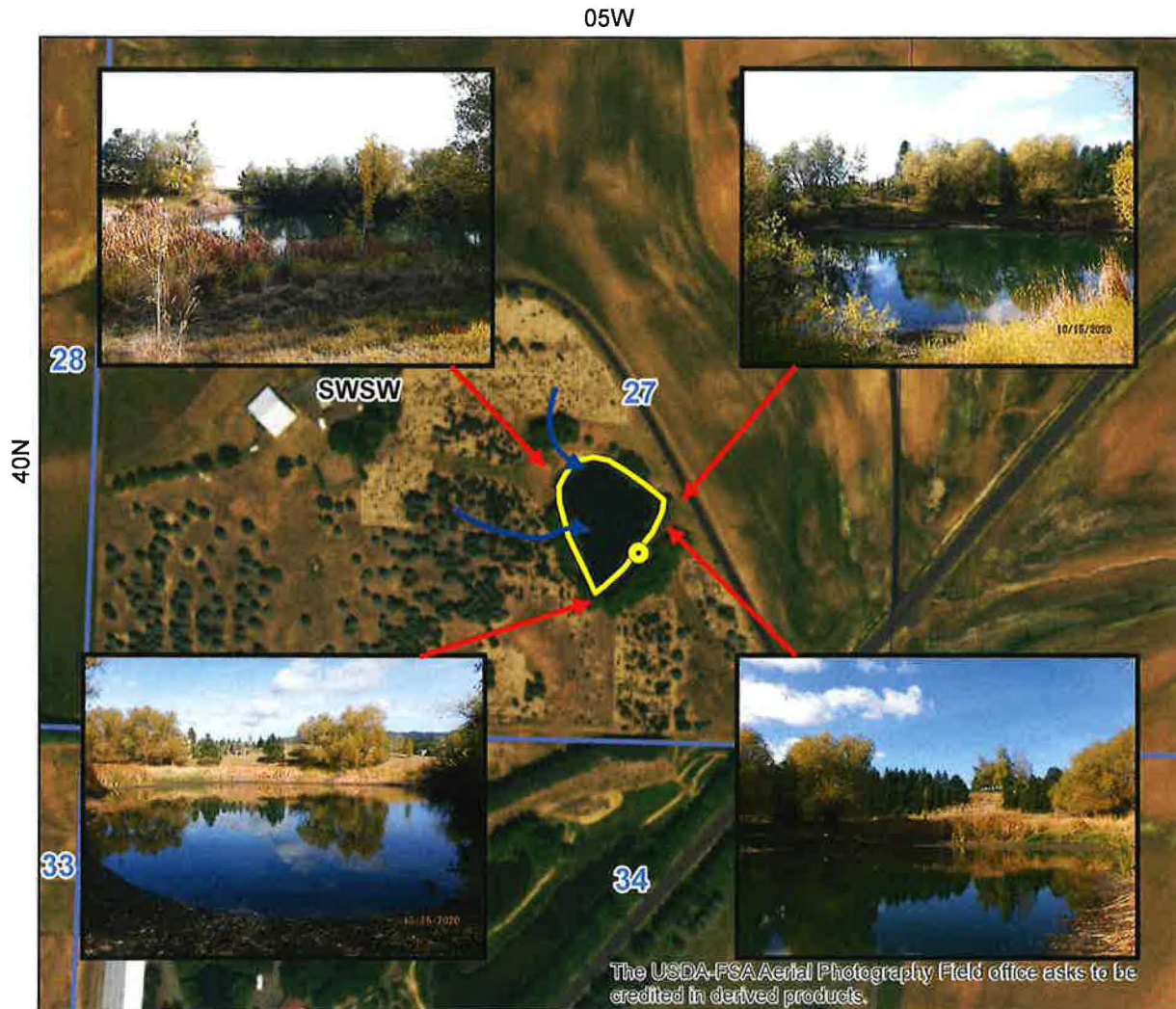


Date

1/11/2021

State of Idaho
Department of Water Resources
Attachment to Field Exam
87-10956

IRRIGATION STORAGE and AESTHETIC STORAGE system diagram.



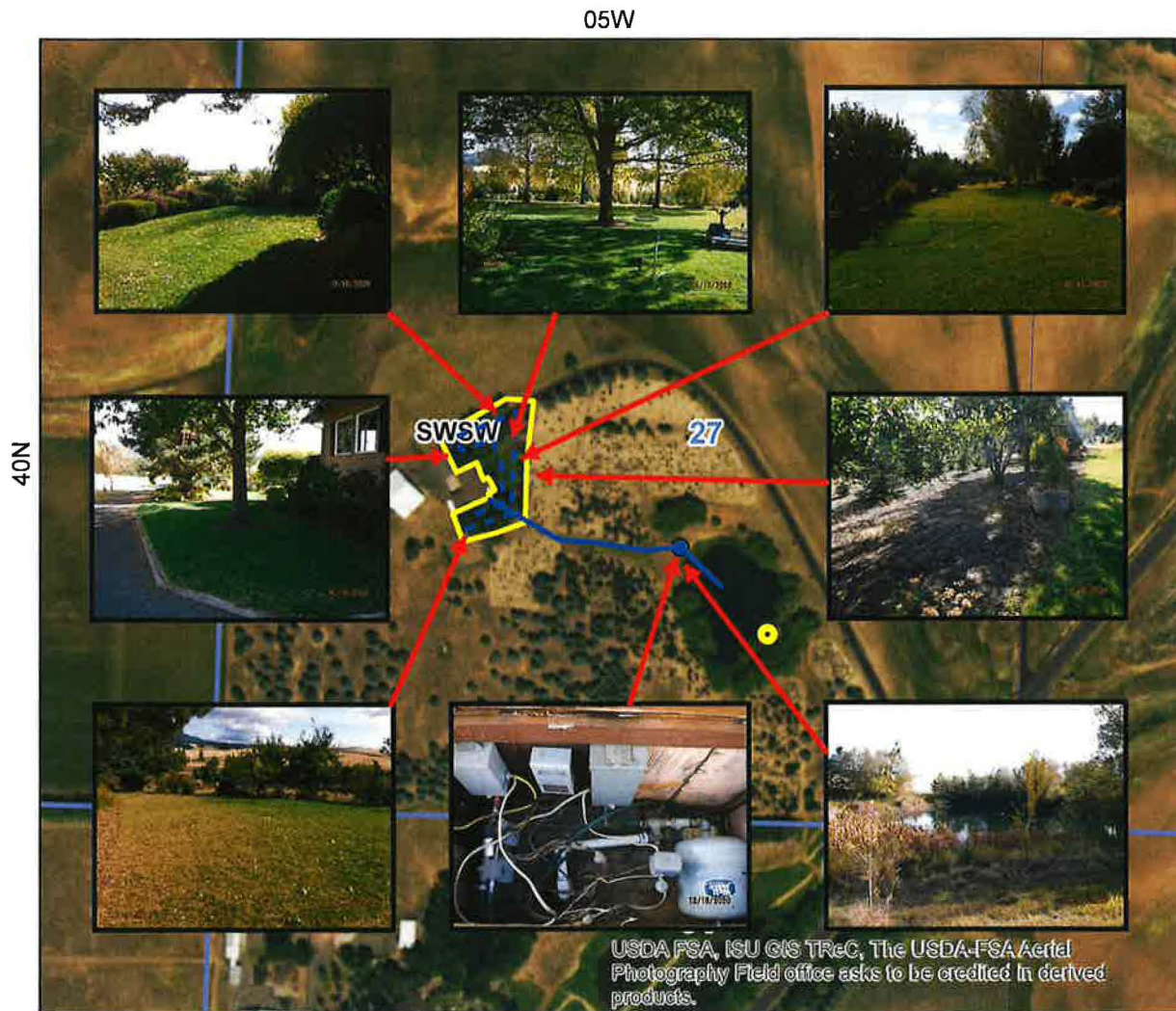
- Point of Diversion
- Place Of Use Boundary
- Townships
- PLS Sections
- Quarter Quarters

0 0.035 0.07 0.14 Miles



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IRRIGATION FROM STORAGE system diagram.



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

0 0.035 0.07 0.14 Miles



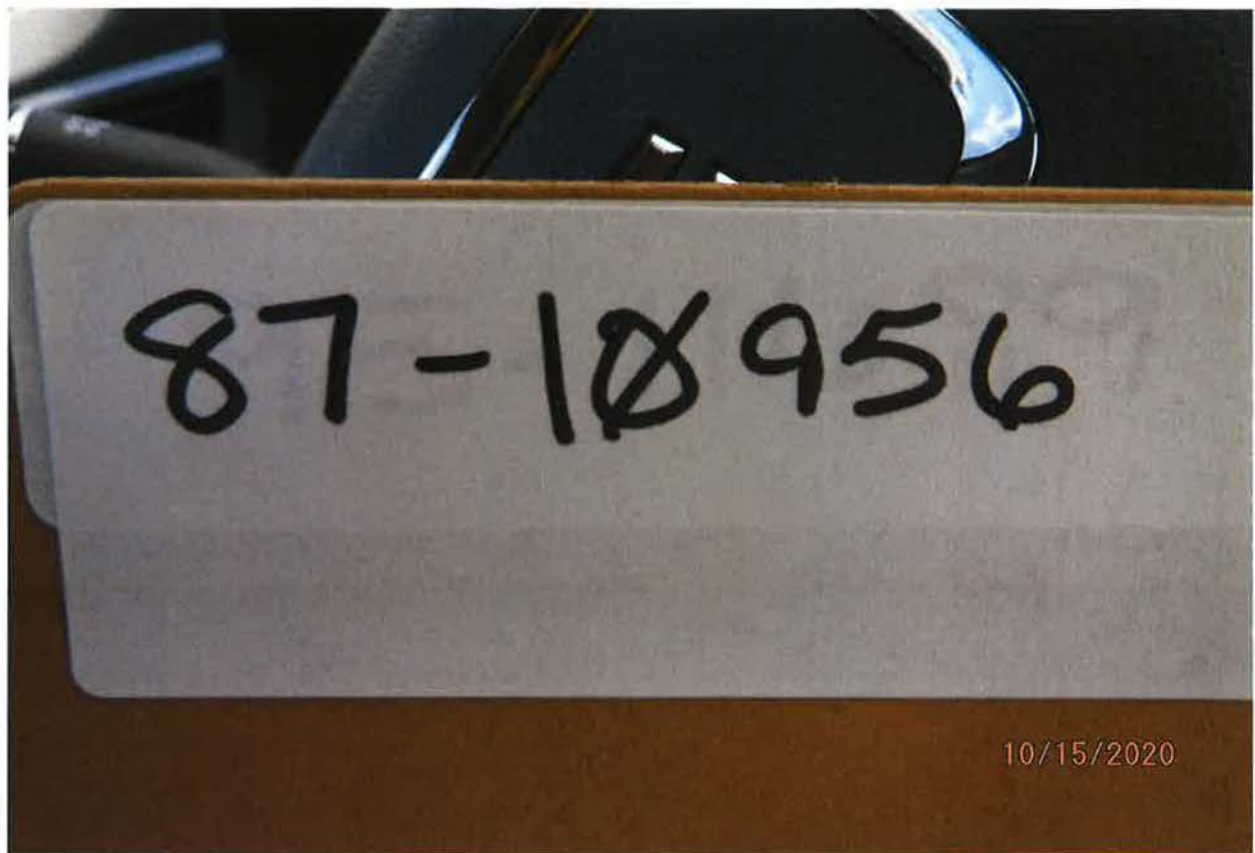
Total Storage Calculations

FILE NUMBER	87-10956
REVIEWER	Luke Bates
DATE	12/28/2020

This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total seepage, evaporation and fill capacity required for a pond.

User Input
Calculated value
Formula Explanations

Surface Area (AC.)	0.5	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	4.8	"Average Pond Depth" depicts the actual depth of the pond either measured or estimated. Note: If you know the maximum depth and not the average depth, the Field Examiner's Handbook suggests multiplying the maximum depth by 0.4 to get the average depth, or you can use any method that seems reasonable to attain average depth.
Pond Capacity (AF)	2.9	Pond Capacity is calculated by multiplying the Pond Surface Area by the Average Pond Depth. If you know the capacity, divide the capacity by surface area and enter the average pond depth in the space above. Note: If pond capacity is determined using a method shown on the "Pond Capacity" sheet, the user may need to modify the value of "Pond Capacity" (cell B9) manually. Note that if the value is modified manually, the formula will be altered for future use.
Multiple Fill Volume Above Initial Fill to Fulfill From Storage Needs- "Multiple Fills" (AF)	1.5	The "Multiple Fill Volume Above Initial Fill" is the acre-feet of water required to meet a <i>from storage</i> component if the <i>from storage</i> component exceeds a one time fill. This section should not include the amount of water needed to fill the pond initially or the amount of water needed to maintain the pond level due to evaporation or seepage. For example: if a pond has a capacity of 5 acre feet and 2.5 acre feet of seepage and evaporation, but the pond is used for irrigation that requires 10 acre feet of from storage for the irrigation use, then you would insert 5 acre feet into this location (10 acre feet needed - 5 acre feet from the initial fill = 5 acre feet of additional storage needed). Note: You must have a "From Storage" component exceeding the initial fill on the permit to include a volume in this space.
Estimated Seepage Loss (AF)	0.7	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.7	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	5.8	The "Total Volume Required" is calculated by adding the Pond Capacity, Multiple Fills, Seepage Loss, and Evaporation Loss amounts to determine the total amount of storage required.



IRRIGATION STORAGE AND AESTHETIC STORAGE POU

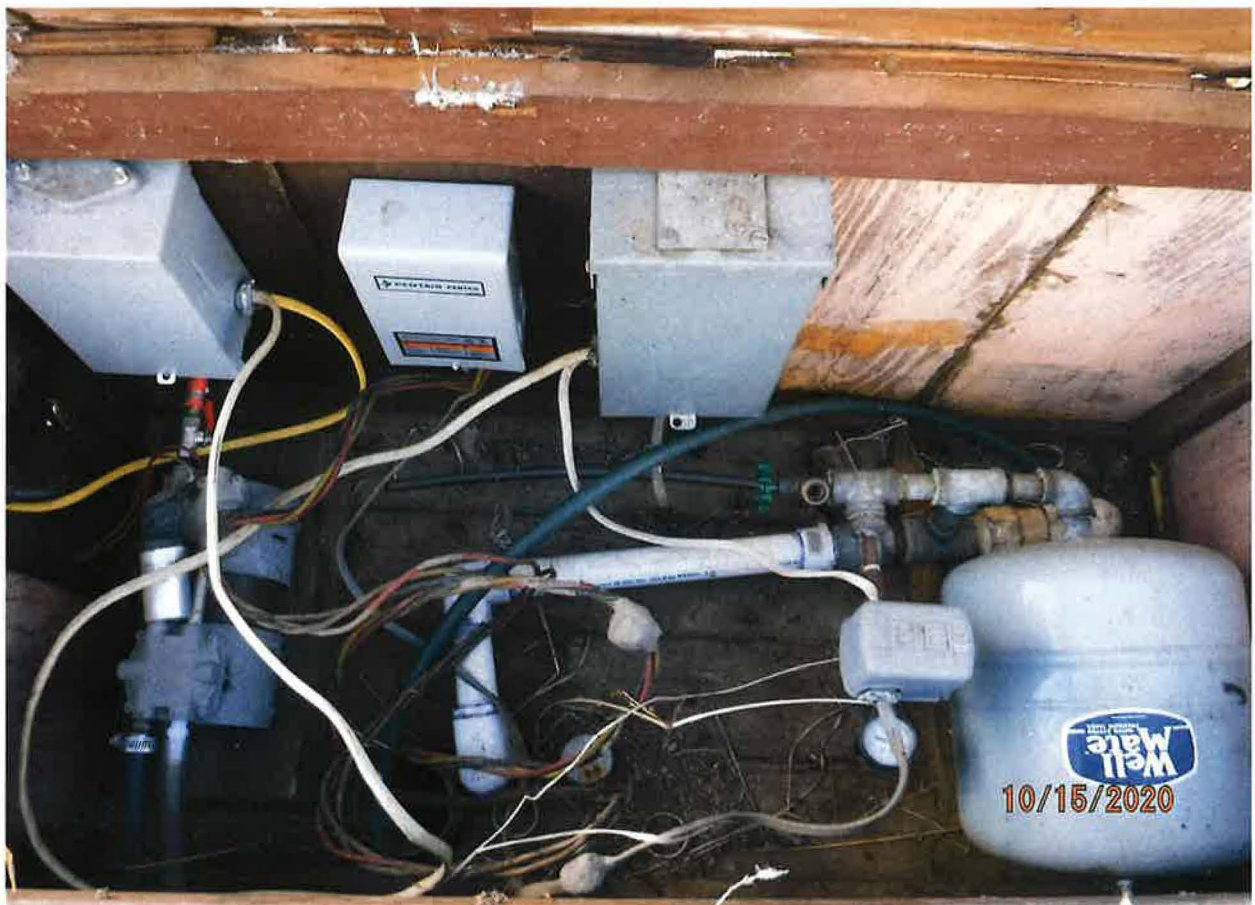


IRRIGATION STORAGE AND AESTHETIC STORAGE POU

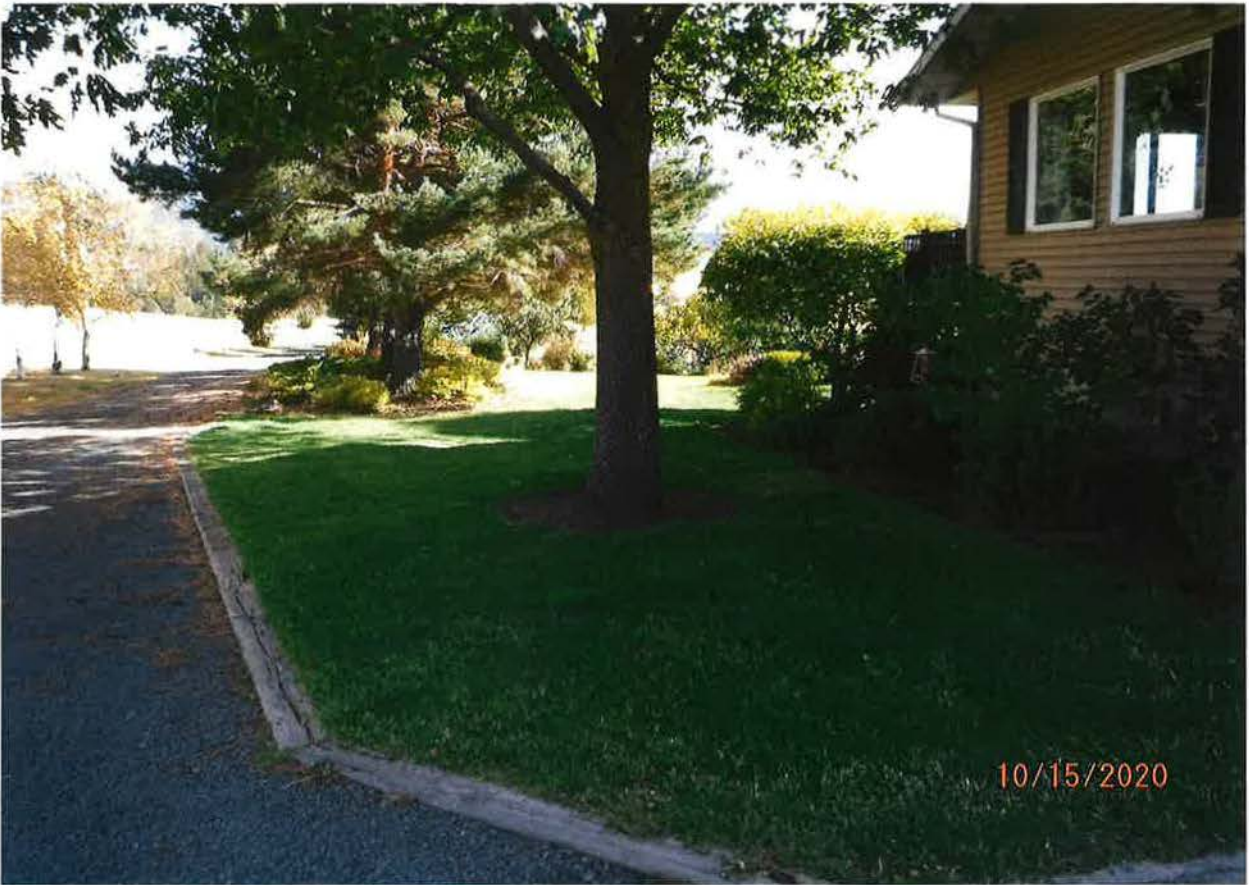




WOODEN PUMP HOUSE WITH IRRIGATION FROM STORAGE COMPONENTS



IRRIGATION FROM STORAGE PUMP CONTROLS



IRRIGATION FROM STORAGE POU





IRRIGATION FROM STORAGE POU





IRRIGATION FROM STORAGE POU – FROST FREE SERVICED WITH POND WATER



IRRIGATION FROM STORAGE POU