

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-17523
Exam Date: 07/23/2020

1. Current Owner:
HOWARD E AND ROBERTA WELCH TRUST C/O HOWARD & ROBERTA WELCH
8865 E FERNAN LAKE RD COEUR D'ALENE ID 83814

2. Accompanied by: Howard Welch
Phone No: 208-667-2371
Address: Same as above
Relationship to permit Holder: Permit Holder Trustee

3. **SOURCE:**
UNNAMED STREAM
GROUND WATER

Tributary
FERNAN CREEK
FERNAN 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
95-8072	UNNAMED STREAM	RECREATION STORAGE	DECREED

Comments: right 95-8072's POU is the same storage pond as this right, for recreation storage purposes, by same applicant. As the storage volume for rights 95-8072 and 95-17523 are not additive, there is no overlap concern.

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 SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER NW¼ SW¼, Sec. 10, Twp 50N, Rge 03W, B.M. KOOTENAI County
UNNAMED STREAM NW¼ SW¼, Sec. 10, Twp 50N, Rge 03W, B.M. KOOTENAI County

Method of Determination: Arcmap, DRG, and GPS. Groundwater source is within the pond high water mark; the pond is an instream pond, with dam culvert discharging back to unnamed stream at -116°41.716, 47°41.547.

PLACE OF USE: IRRIGATION STORAGE, WILDLIFE STORAGE, and FIRE PROTECTION 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	
50N	03W	10									X	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	
50N	03W	9				6.0									5.1				11.1
50N	03W	10							4.6		8.4	27.0	0.4	1.6					42.0

Total Acres: 53.1

Method of Determination: field exam and Arcmap.

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
N/A					

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
N/A						

2. Measurements: N/A

E. FLOW CALCULATIONS

Additional Computation Sheets Attached

Measured Method: N/A

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 53.1 \text{ ac} \times 3.0 \text{ afa} = \mathbf{159.3 \text{ af}}$$

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

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = 159.3 \text{ af}$$

2. Volume Calculations for Other Uses:

See attached pond analysis sheet.

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed on 7/23/2020 with applicant, Howard Welch, showed a large pond that was being fed by groundwater and an unnamed stream. The pond is considered in-stream, and the overflow discharges by culvert back to the unnamed stream channel. As this is an in-stream pond that is used for multiple storage components and irrigation from storage, there is no diversion rate applied to this license. Seasonal water enters the pond from the northwestern side by natural stream channel, and groundwater influences the pond from within the pond's banks.

The pond has a surface area of 3.1 acres. The pond has a maximum depth of 20 feet, an average depth of 8 feet, a pond capacity of 24.8 af, and an evaporation rate of 4.4 af. The pond has a multi fill component equaling irrigation from storage volume of 159.3 af annually. The total volume required for pond equals 188.5 af, the sum of afore mentioned pond components. The Maximum diversion volume for this water right will be licensed at **188.5**.

During field exam it was identified that the applicant withdraws water from the pond using pvc pipe to a small pump house co-located on the western side of the pond. Water enters a pressurized irrigation system for use to irrigate stock pens for horses throughout the applicant's property. Active irrigation was noted during exam, with sprinklers routed alone fencing to irrigate for feed grass throughout the summer months. Applicant stated he also irrigated by frost free hydrants to rain bird sprinklers, with the irrigation system operating at 160 gpm. Applicant started irrigated after first cutting of hay was complete on the larger fields at the irrigation from storage POU, which was delayed this year due to an abnormally wet spring. Applicant withdraws water from the eastern side of the pond using a large water transfer pump, to irrigate hay fields. Field notes and sketches were used during licensing review, along with Arcmap aerial imagery to trace out the irrigated acreage at POU equaling 53.1 acres. The annual volume for irrigation storage and irrigation from storage components equals 53.1 ac x 3.0 afa = **159.3 af**, which will be applied to license.

Applicant was permitted for 29.2 af of wildlife and fire protection storage(s) annual volume equals 24.8 af (pond capacity initial fill) + 4.4 af (evaporation rate) = **29.2 af**; the two components annual volume is not additive.

Condition R58 was added to describe no more than 3.0 af per acre for irrigation at the place of use; all other conditions from permit will remain on license. Condition 259 describes the pond components and incorporates water right 95-8072, which was previously decreed for recreation storage. Right 95-8072's POU is the same storage pond as this right, for recreation storage purposes, by same applicant. As the storage volume for rights 95-8072 and 95-17523 are not additive, there is no overlap concern. There are no other overlap concerns for this right.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS**1. Recommended Amounts**

Beneficial Use	Period of Use	Annual Volume
IRRIGATION STORAGE	01/01 to 12/31	159.3 AF
IRRIGATION FROM STORAGE	03/15 to 11/15	159.3 AF
WILDLIFE STORAGE	01/01 to 12/31	29.2 AF
FIRE PROTECTION STORAGE	01/01 to 12/31	29.2 AF

Totals: 188.5 AF

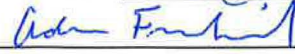
2. Recommended Amendments

☐ 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 - Water Resource Agent

Field Examiner's Name  Date 8/25/2020
 Reviewer  Date 8/31/2020

State of Idaho
Department of Water Resources
Attachment to Field Exam
95-17523

IRRIGATION STORAGE, WILDLIFE STORAGE, and FIRE PROTECTION STORAGE system diagram.



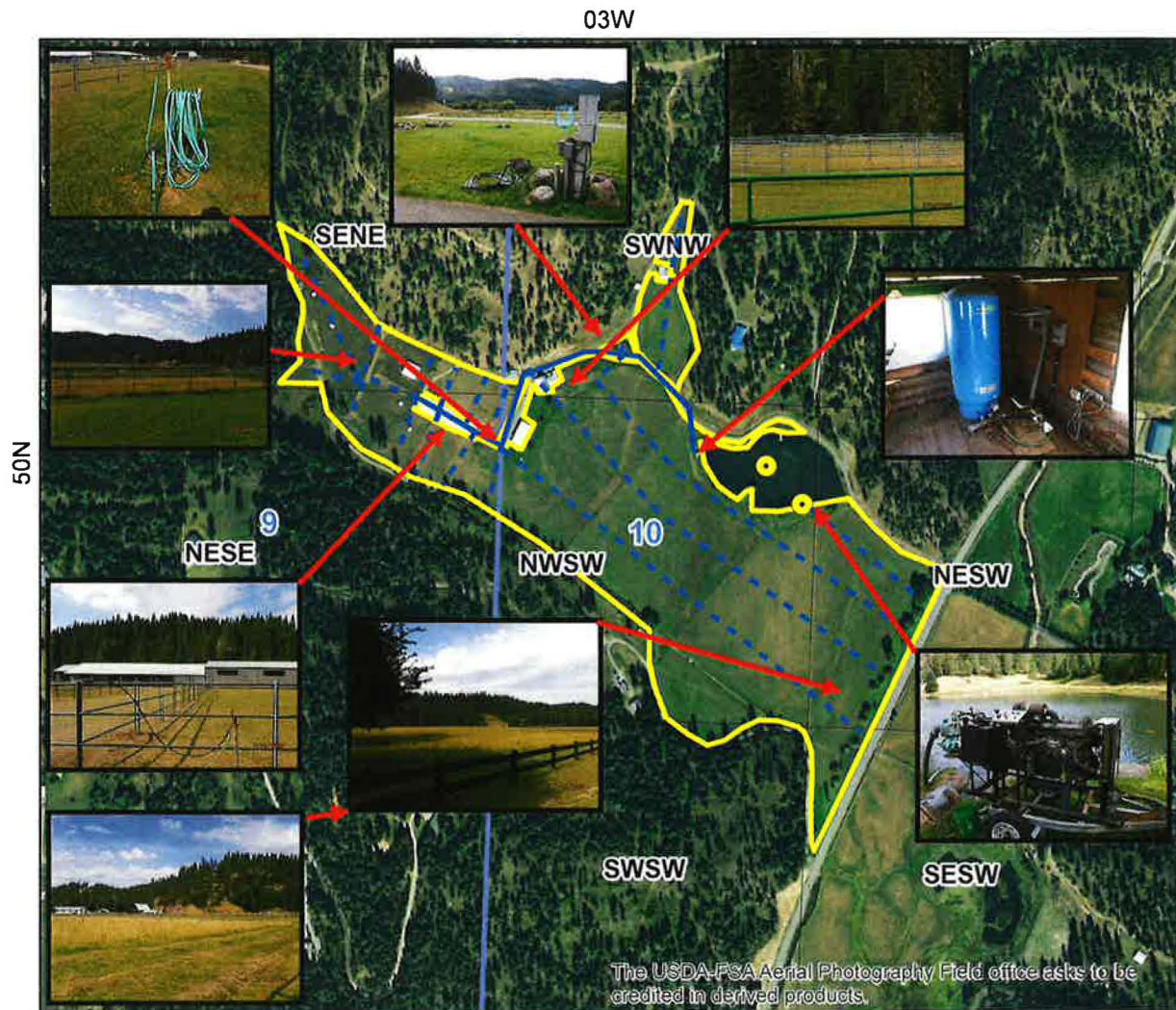
- Point of Diversion
- Place Of Use Boundary
- Townships
- PLS Sections
- Quarter Quarters

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 0.075 0.15 0.3 Miles



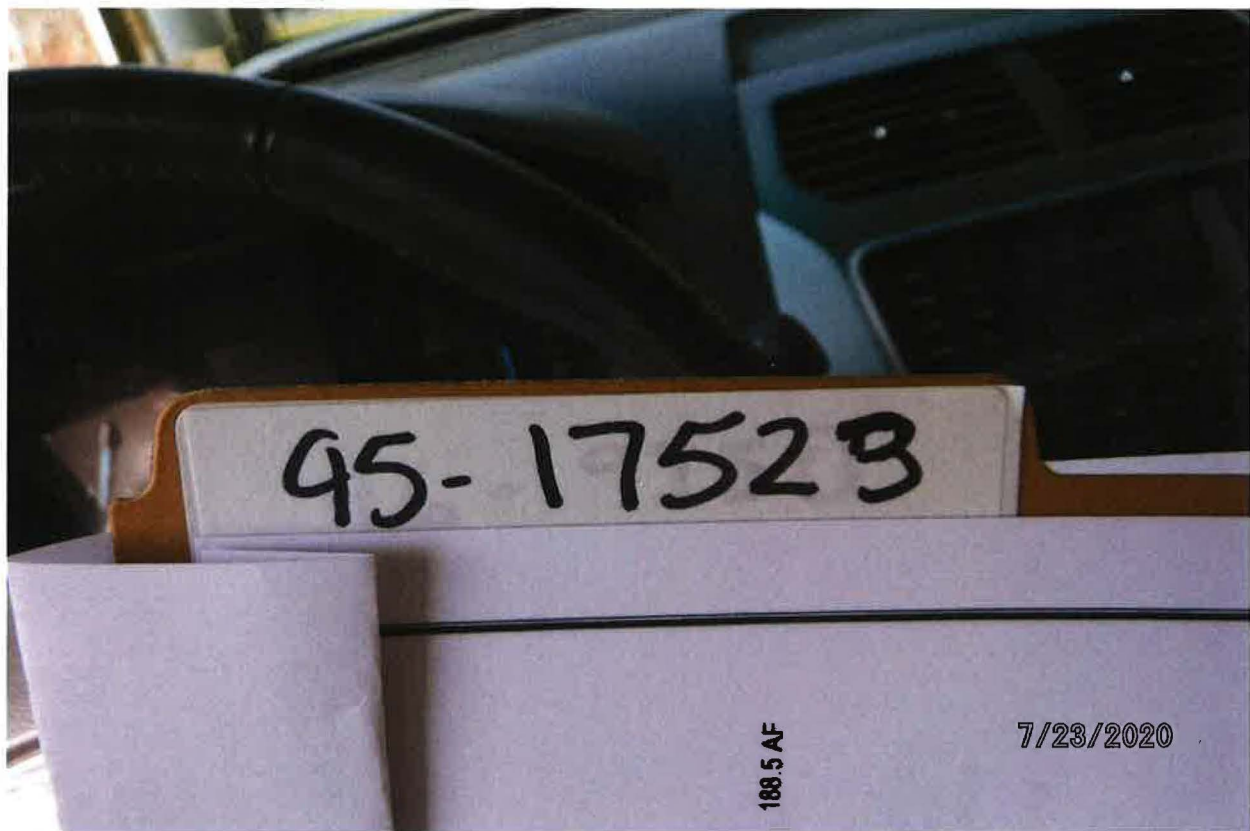
Total Storage Calculations

FILE NUMBER	95-17523
REVIEWER	Luke Bates
DATE	8/25/2020

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.)	3.1	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	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)	24.8	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)	159.3	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)	0.0	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	4.4	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	188.5	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.



POD – GROUNDWATER & UNNAMED STREAM – OVERFLOW PIPE FROM POND TO UNNAMED STREAM CHANNEL



DIVERSION – IRRIGATION FROM STORAGE FROM POND





DIVERSION – IRRIGATION FROM STORAGE FROM POND





SEASONAL UNNAMED STREAM INFLOW TO POND



IRRIGATION FROM STORAGE POU



POU – POND FOR MULTIPLE STORAGE COMPONENTS



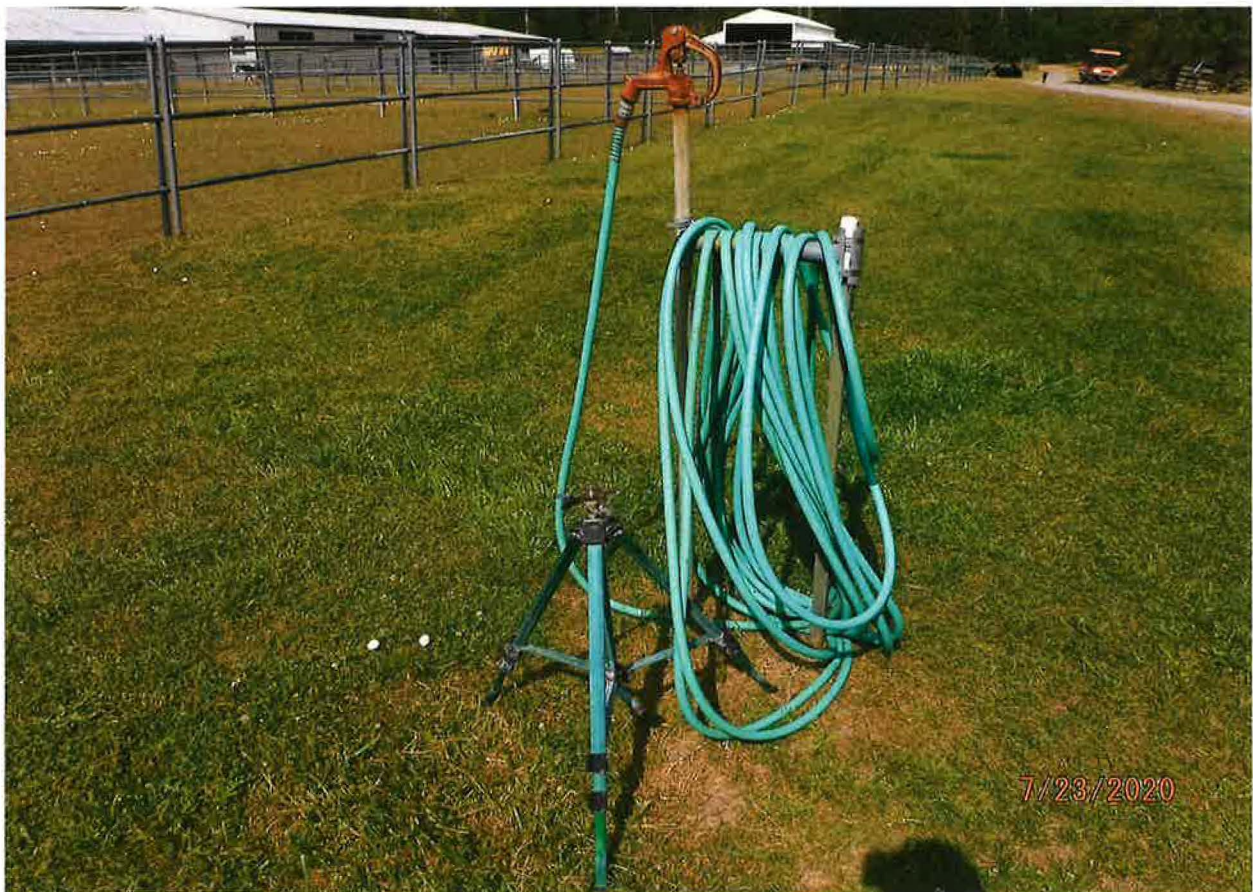


IRRIGATION FROM STORAGE POU





IRRIGATION FROM STORAGE POU



FROST FREE HYDRANT AND PORTABLE TRIPOD SPRINKLERS



IRRIGATION FROM STORAGE POU





IRRIGATION FROM STORAGE POU

