

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 96-9726
Exam Date: 05/25/2021

1. Current Owner:
TODD HARKINS 24 SHIRAS DR SANDPOINT ID 83864
2. Accompanied by: Todd Harkins
Phone No: 208-255-1404
Address: Same as above
Relationship to permit Holder: Permit holder.

3. **SOURCE:**
UNNAMED STREAM

Tributary
SYRINGA CREEK

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 SYSTEM1. **LOCATION OF POINT(S) OF DIVERSION:**

UNNAMED STREAM NW¼ SW¼, Sec. 16, Twp 57N, Rge 02W, B.M. BONNER County

Method of Determination: GPS; POD is an earthen dam located at -116°35.338, 48°17.181.

PLACE OF USE: IRRIGATION STORAGE, STOCKWATER STORAGE, STOCKWATER FROM STORAGE, RECREATION STORAGE, and WILDLIFE 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	
57N	02W	16										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	
57N	02W	16										1.9							1.9

Total Acres: 1.9

Method of Determination: Field exam 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
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:

$$V_{IR} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 1.9 \text{ acres} \times 3.0 \text{ afa} = 5.7 \text{ af}$$

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

$$V = \text{Smaller of } V_{IR} \text{ and } V_{DR} = \mathbf{5.7 \text{ af}} \quad \text{Irrigation storage \& irrigation from storage volume}$$

2. Volume Calculations for Other Uses:

- See attached pond analysis worksheet
- Stockwater storage & stockwater from storage volume = 4 cows x 12 gpd x 365 days = 17,520 gallons per year / 325,850 gal per af = 0.05 af = **0.1 af** considering department rounding standards.
- Recreation & wildlife storage volume = 0.6 af (pond capacity) + 0.5 af (seepage & evaporation loss) = **1.1 af**
- Maximum diversion volume = 5.7 af (irrigation components) + 0.1 af (stockwater components) + 1.1 af (recreation/wildlife storage components) = **6.9 af**

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed on 5/25/2021 with the applicant, Todd Harkins, showed an Unnamed Stream filling an in-stream pond excavated by the applicant for multiple storage uses, and irrigation & stockwater from storage uses. At the POD, an earthen dam less than 4 feet in depth was developed with a rock filled overflow channel located on the NE corner of the pond allowing stream water to overflow and continue down-stream. There is no diversion rate applied to this license.

During the field exam, field maps were used to trace out the irrigation storage, stockwater storage, recreation storage, and wildlife storage pond POU. During licensing review Arcmap aerial imagery was used to accurately trace out the pond's surface area, which equals 0.2 acres. The applicant had applied for a larger storage pond than was developed at time of field exam, resulting in smaller beneficial use volumes being recommended at time of licensing. The pond has a maximum depth of 8 ft, an average depth of 3.2 feet, pond capacity of 0.6 af, and estimated seepage/evaporation loss of 0.5 acres. A multiple fill factor of 5.8 af was added to the pond analysis worksheet to account for irrigation storage for 1.9 acres, and stockwater storage for 4 cows. The pond's total volume required annually equals 6.9 af, broken down by uses below:

- Irrigation & Irrigation from storage volume = 1.9 acres x 3.0 afa = **5.7 af** (not additive between the two uses)

- Stockwater & Stockwater from storage volume = 4 cows x 12 gpd x 365 day per year = 17,520 gal / 325,850 gal per af = **0.1 af** considering department rounding standards. (not additive between the two uses)
- Recreation & Wildlife storage volume = 0.6 af (pond capacity) + 0.5 af (seepage/evaporation loss) = **1.1 af** (not additive between the two uses)
- Maximum diversion volume recommended for licensing = 5.7 af (irrigation components) + 0.1 af (stockwater components) + 1.1 af (recreation/wildlife storage components) = **6.9 af**

At time of field exam, an old 8HP water transfer pumps is being utilized by the applicant along with several lengths of fire hose to flood irrigate the pasture land for stock feed purposes. Stockwater from storage use is accomplished filling small portable tanks that are positioned within small stock pens on the property. During the exam field maps were used to trace out the pasture land consisting of irrigation acreage; during licensing review Arcmap aerial imagery was used to trace out the irrigation from storage & stockwater from storage POU, which equal 1.9 acres. The applicant is looking to replace his flood irrigation practices with small pipes and tripod sprinklers in the near future, as it will increase efficiency in water usage throughout the summer. Regardless of irrigation components, the applicant is limited to the Department standard of 3.0 afa per acre for irrigation use.

Conditions 26A and X02 were removed from the permit during licensing review. Condition 259 and 220 were updated to reflect post-field exam pond analysis worksheet size and volume metrics. All other conditions on the permit will be carried forward to licensing. There are no 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>Annual Volume</u>
IRRIGATION STORAGE	01/01 to 12/31	5.7 AF
IRRIGATION FROM STORAGE	04/01 to 10/31	5.7 AF
STOCKWATER STORAGE	01/01 to 12/31	0.1 AF
STOCKWATER FROM STORAGE	01/01 to 12/31	0.1 AF
WILDLIFE STORAGE	01/01 to 12/31	1.1 AF
RECREATION STORAGE	01/01 to 12/31	1.1 AF

Totals: 6.9 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

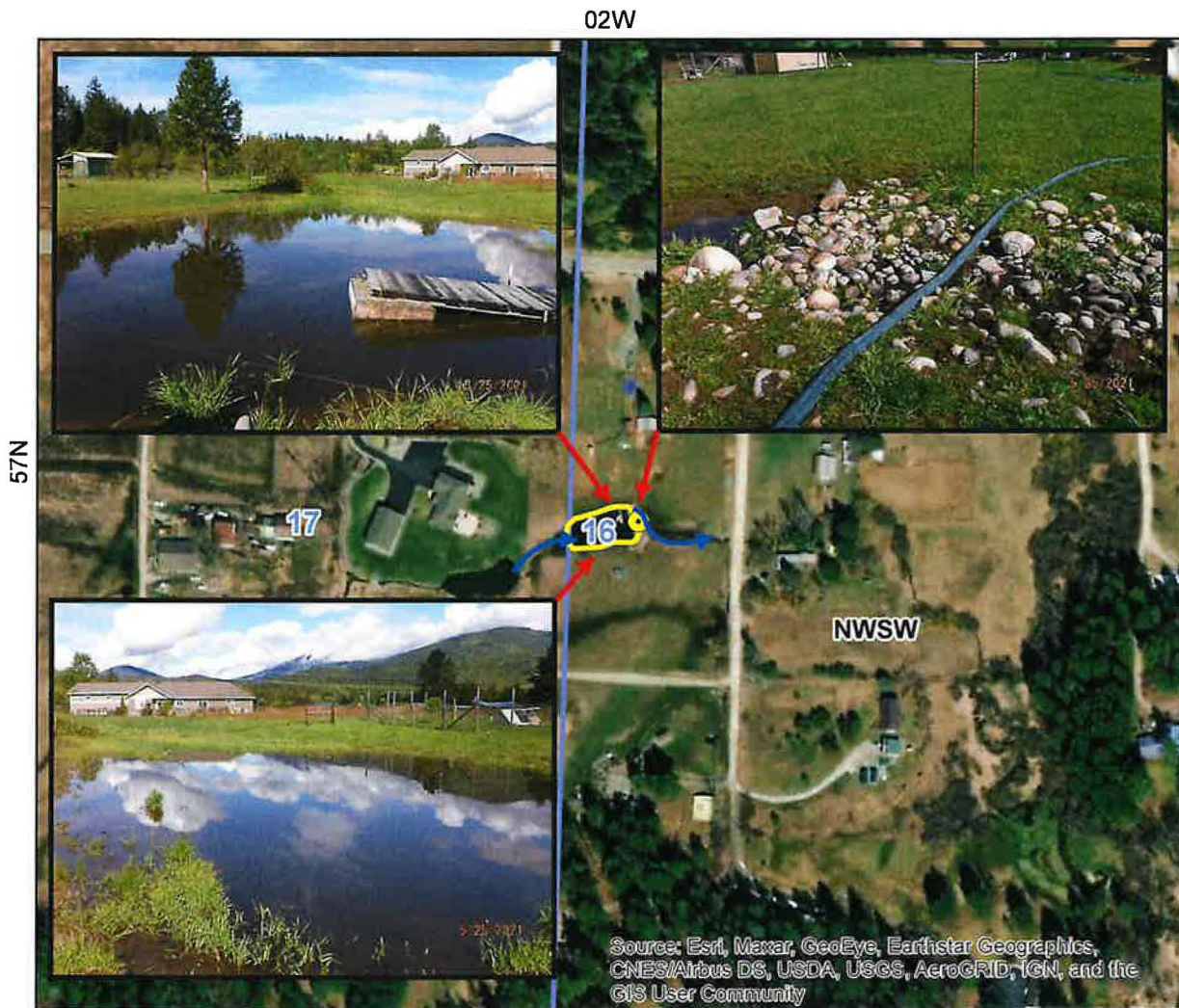
I. AUTHENTICATION Luke Bates - Water Resource Agent

Field Examiner's Name ZABP Date 6/4/2021

Reviewer A. E. Fink Date 6/14/2021

State of Idaho
Department of Water Resources
Attachment to Field Exam
96-9726

IRRIGATION STORAGE, STOCKWATER STORAGE, RECREATION STORAGE,
and WILDLIFE STORAGE system diagram.



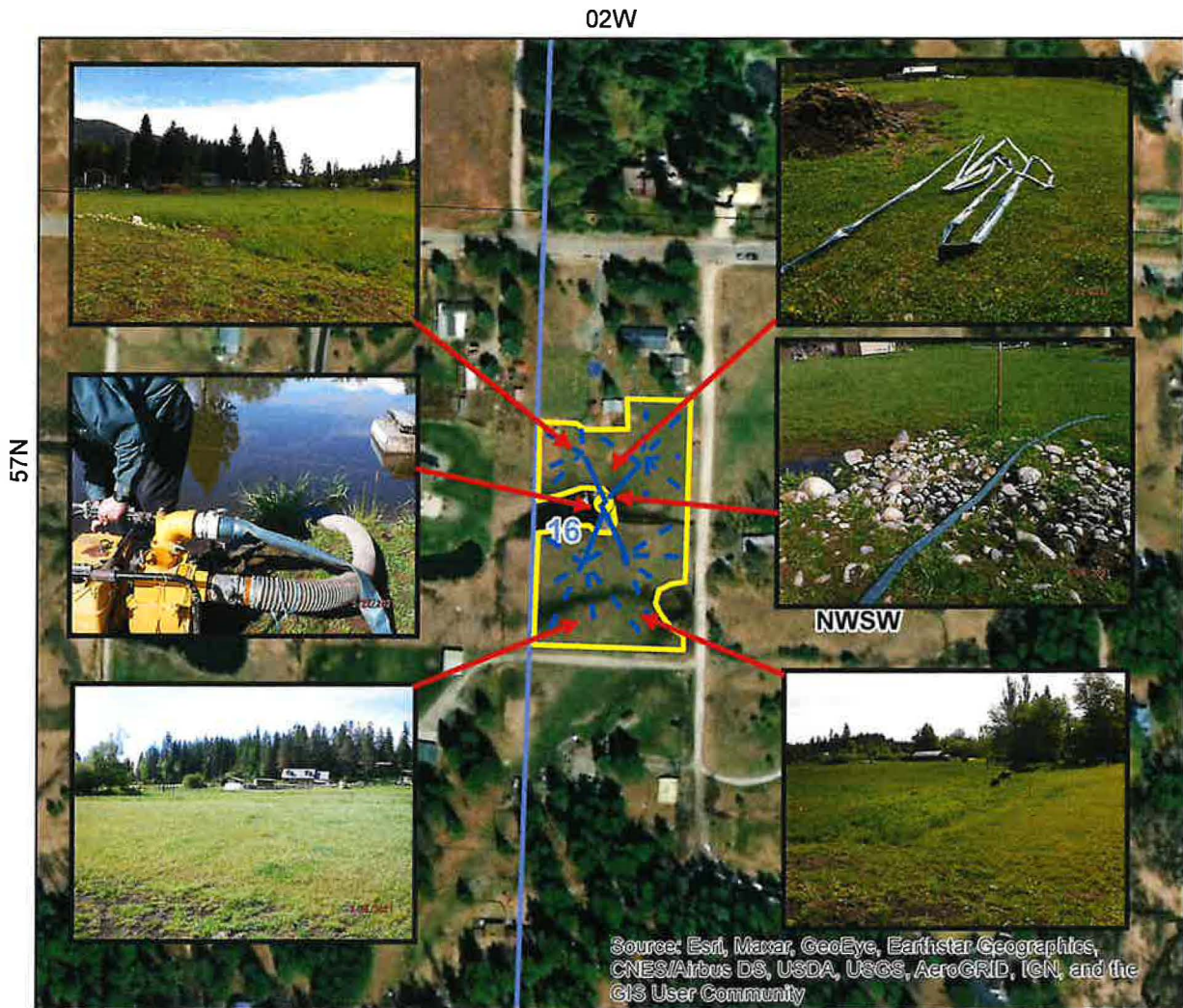
- Point of Diversion
- Place Of Use Boundary
- Townships
- PLS Sections
- Quarter Quarters

0 0.035 0.07 0.14 Miles



State of Idaho
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IRRIGATION FROM STORAGE and STOCKWATER FROM STORAGE system diagram.



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

0 0.035 0.07 0.14 Miles



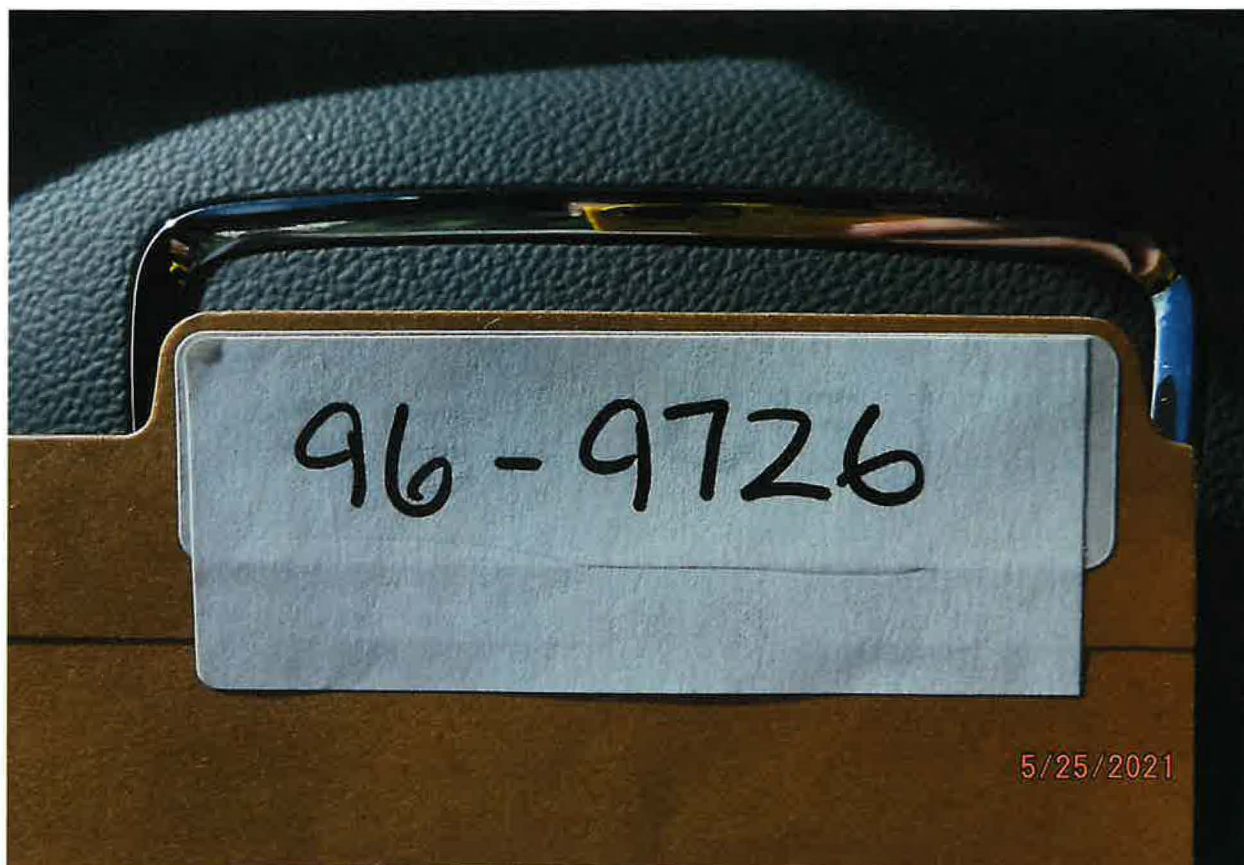
Total Storage Calculations

FILE NUMBER	96-9726
REVIEWER	LUKE BATES
DATE	6/4/2021

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.)	0.2	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	3.2	"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)	0.6	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)	5.8	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)	0.2	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.3	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	6.9	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.



FIELD EXAM DATE 5/25/2021



POD – POND EARTHEN DAM; ROCK-IN OVERFLOW CHANNEL ON SIDE OF DAM



WILDLIFE STORAGE, RECREATION STORAGE, IRRIGATION STORAGE, STOCKWATER STORAGE





IRRIGATION FROM STORAGE 8HP PUMP





IRRIGATION FROM STORAGE – FLOOD IRRIGATION BY FIRE HOSE IN FIELD FOR STOCK USE



IRRIGATION FROM STORAGE USE



IRRIGATION FROM STORAGE USE & STOCKWATER FROM STORAGE USE





EXAMPLE SRINKLER USED FOR IRRIGATION FROM STORAGE USE CURRENT YEAR