

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-18091
Exam Date: 4/19/2021

1. Current Owner:
TIMOTHY TOPE 132 SUNSET RD ATHOL ID 83801
BEVERLY JOAN TOPE 132 SUNSET RD ATHOL ID 83801
2. Accompanied by: Timothy Tope
Phone No: 208-683-2753
Address: Same as above
Relationship to permit Holder: Permit holder

3. SOURCE:
CAREYWOOD CREEK

Tributary
SINKS

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
95-17253	CARYWOOD CREEK	STOCKWATER	DECREED

Comments: 95-17253 is an in-stream stockwater right recently decreed in the CSRBA, with overlapping POU with this right. Due to the in-stream stockwater use, and the fact that this right is a storage pond not used by stock, there is no overlap concerns between 95-17253 & 95-18091.

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

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**
CAREYWOOD CREEK SE¼ SW¼, Sec. 18, Twp 54N, Rge 02W, B.M. BONNER County

Method of Determination: GPS. POD is a screened 14 inch corrugated pipe located at -116°37.346, 48°01.383.

PLACE OF USE: WILDLIFE STORAGE, RECREATION 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	
54N	02W	18												X					

Method of Determination: Field exam and Arcmap aerial imagery.

3.
 - X Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
 - X Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 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
14 INCH PIPE					

D. FLOW MEASUREMENTS

1.

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

2. Measurements: At time of field exam, a 5-gal bucket test measurement was attempted; the bucket test filled in less than 5 seconds, and is not authorized for use as a qualifying measurement. As a result, a Manning Equation was used to derive the flow rate for licensing purposes equaling **0.31 cfs**, which is recommended for licensing purposes.

E. FLOW CALCULATIONS

X Additional Computation Sheets Attached

Measured Method: see attached Manning Equation calculation worksheet

- Manning Equation = 14 inch diameter pipe with rise of 0.01 feet & run of 28 feet (slope = 0.0004 ft/ft) = 0.55 cfs. A tape measure was used to determine water level in pipe at time of exam equaling 8 inches, or 57% pipe full.
- Maximum diversion rate = 0.55 cfs (14" pipe full rate) x 0.57 (57% water level in pipe at time of exam) = **0.31 cfs**.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A
2. Volume Calculations for Other Uses: See pond analysis worksheet.

G. NARRATIVE/REMARKS/COMMENTS

Administrative note: right 95-18091 was split from right 95-10939 based on having a separate POD & separate POU from three additional storage ponds associated with 95-10939. Resulting from the split, two PODs in the SW¼SE¼, Sec. 18, Twp 54N, Rge 02W, B.M. were removed from this right during licensing review. Irrigation, Irrigation Storage, and Irrigation from Storage beneficial uses were removed from this newly split right during licensing review.

Field exam performed on 7/16/2020 with the applicant, Timothy Tope, showed an off-stream pond impounding water from Careywood Creek for multiple storage uses. At the POD, the applicant has installed 28 feet of screened 14 inch corrugated pipe to divert water from the creek. At time of field exam, a 5-gal bucket test was attempted; the bucket test filled in less than 5 seconds, and is not authorized for use as a qualifying measurement. As a result, a Manning Equation was used to derive the flow rate for licensing purposes equaling **0.31 cfs**, which is recommended for licensing purposes. The diversion rate of 0.31 cfs when combined with the recommended diversion rate for 95-10939 (0.57 cfs) equals 0.88 cfs, which is less than the parent right's permit approved diversion rate of 1.00 cfs; there is no enlargement of diversion rate between 95-10939 & 95-18091 when combined.

Photographs of the storage pond POU for wildlife storage, recreation storage, and fire protection storage were taken during the initial exam and the pond was approximately half full. A follow-up drive by exam was performed on 4/15/2021 to validate water levels in the pipe for diversion rate calculations, and additional pond photographs were taken showing the pond full in April.

During the development of the application, a Department pond analysis sheet was not utilized, resulting in seepage and evaporation volume not being factored into the total annual storage volume. A pond analysis sheet was calculated during licensing review, but is recommended for reference only, as seepage and evaporation rates exceed the combined storage volume between 95-10939 & 95-18091.

During the splitting of rights, the pond capacity(s) for 4 total ponds was used to determine how to delegate volume between rights. Parent right permit 95-10939 authorizes 6.2 af annual storage volume to be developed (not including irrigation components). Three ponds associated with 95-10939 have a total capacity of 0.6 af; the pond associated with this right (95-18061) has a pond capacity of 0.4 af. I recommend using 40% of the total permit authorized annual volume for right 95-18061 = $0.40 (40\%) \times 6.2 \text{ af} = 2.5 \text{ af}$, considering department rounding standards. The recommended annual volume for licensing purposes of wildlife storage, recreation storage, and fire protection storage shall equal **2.5 af respectively**, and are not additive in nature.

Field maps were used to sketch out the pond, and during licensing review Arcmap aerial imagery was used to accurately trace out the pond, which has a surface area of 0.1 acres, pond capacity of 0.4 af, maximum depth of 10 ft, and an average depth of 4 ft. Seepage and evaporation loss equals 7.4 af, but only 2.1 af is being used to derive the total pond volume required limited to 2.5 af per beneficial use listed above ($0.4 \text{ af} + 2.1 \text{ af} = 2.5 \text{ af}$). The applicant has installed an overflow discharge pipe that allows water to route back to Careywood Creek on the northeastern edge of the pond.

The applicant states that as constructed, by late July minimal flow enters the intake pipe, as creek levels are low enough and do not reach the bypass level to inflow to the pond. Based on this information, the diversion rate of 0.31 cfs is likely only achieved during peak runoff months, mitigating concerns for annual creek diversion.

Conditions 26A and R62 were removed from the permit during licensing review. Condition 220 was updated to reflect post development/split pond size and capacity. Condition 219 was added describing pond storage volume factors. A text condition was added to describe recreation storage is for boating and swimming. All other conditions on the permit shall be carried forward to licensing. Overlap concerns: 95-17253 is an in-stream stockwater right recently decreed in the CSRBA, with overlapping POU with this right. Due to the in-stream stockwater use, and the fact that this right is a storage pond not used by stock, there is no overlap concerns between 95-17253 & 95-18091. There are no additional overlap concerns for this water right.

Have conditions of permit approval been met? ☒ 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>
WILDLIFE STORAGE	01/01 to 12/31		2.5 AF
RECREATION STORAGE	01/01 to 12/31		2.5 AF
FIRE PROTECTION STORAGE	01/01 to 12/31		2.5 AF
DIVERSION TO STORAGE	01/01 to 12/31	0.31 CFS	

Totals:

0.31 CFS

2.5 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

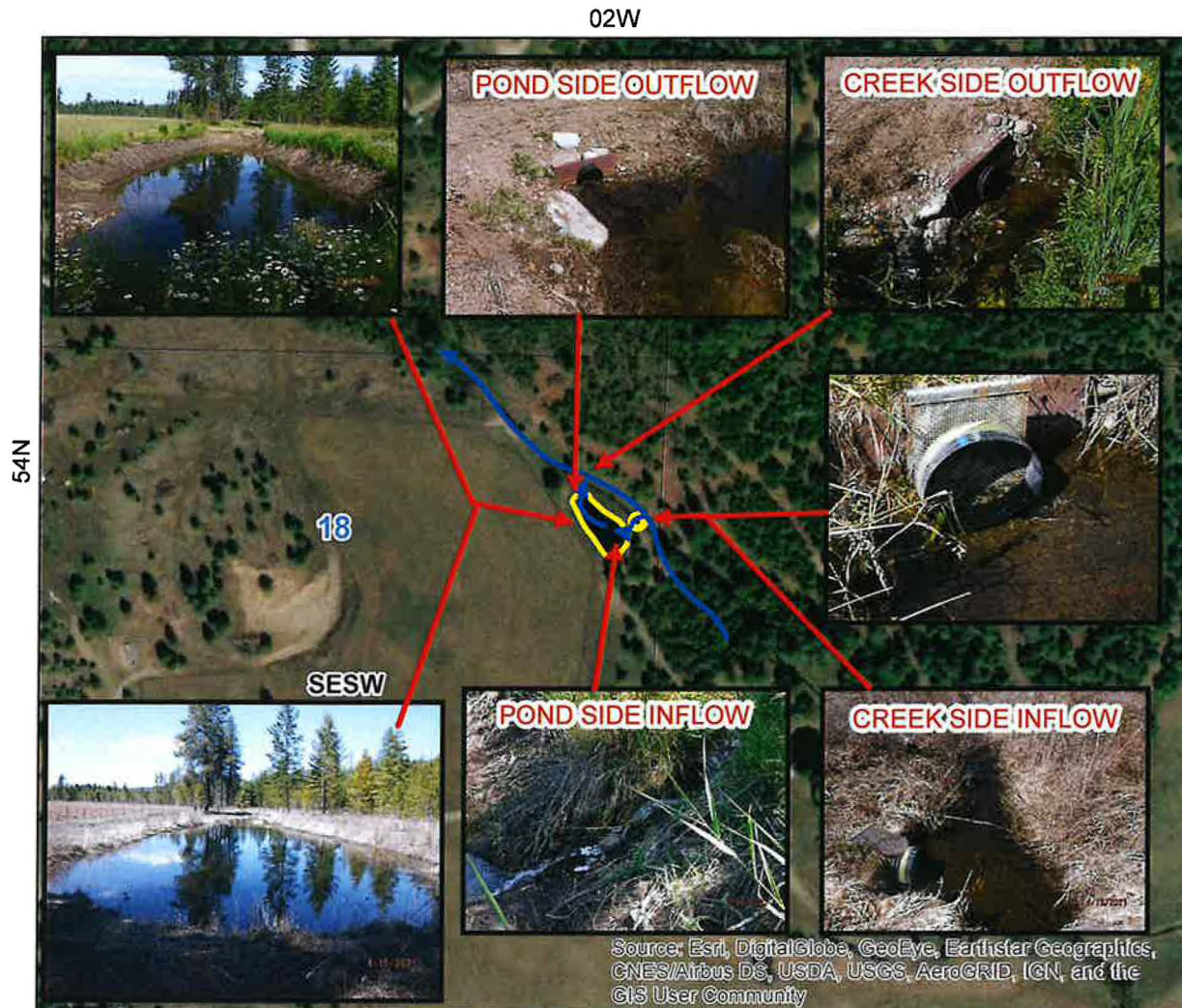
I. AUTHENTICATION Luke Bates - Water Resource Agent

Field Examiner's Name  Date 4/19/2021

Reviewer  Date 8/12/2021

State of Idaho
Department of Water Resources
Attachment to Field Exam
95-18091

WILDLIFE STORAGE, RECREATION 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



95-18091 FLOW CALCULATION

Manning's Equation Calculator for Flow Rate in a Circular Conduit Flowing Full

$S = 0.0004$ ft/ft
 $n = 0.024$ manning's coefficient
 $d = 14.0$ pipe diameter (inches)
 $D = 1.17$ pipe diameter (feet)
 $r = 0.58$ pipe radius (feet)
 $A = 1.07$ area (ft²)
 $WP = 3.66$ wetted perimeter (ft)
 $R = 0.29$ hydraulic radius (ft)

$Q = 0.55$ flow rate (CFS)

Channel Slope

Slope Options



Manual Entry



Slope Calculator

Slope Calculator

Rise = feet

Run = feet

Slope, $S = 0.0004$ ft/ft

Pipe Material, (n):



corrugated metal pipe (CMP)

Pipe Diameter (inches)



14.0 inches

WATER LEVEL IN PIPE AT TIME OF FIELD EXAM EQUALS 8.0 INCHES, WHICH EQUATES TO 57% PIPE FULL.
CONSIDERING $Q = 0.55$ CFS WITH PIPE FULL CONDITIONS, 57% OF 0.55 CFS = 0.31 CFS CONSIDERING
DEPARTMENT ROUNDING STANDARDS.

Total Storage Calculations

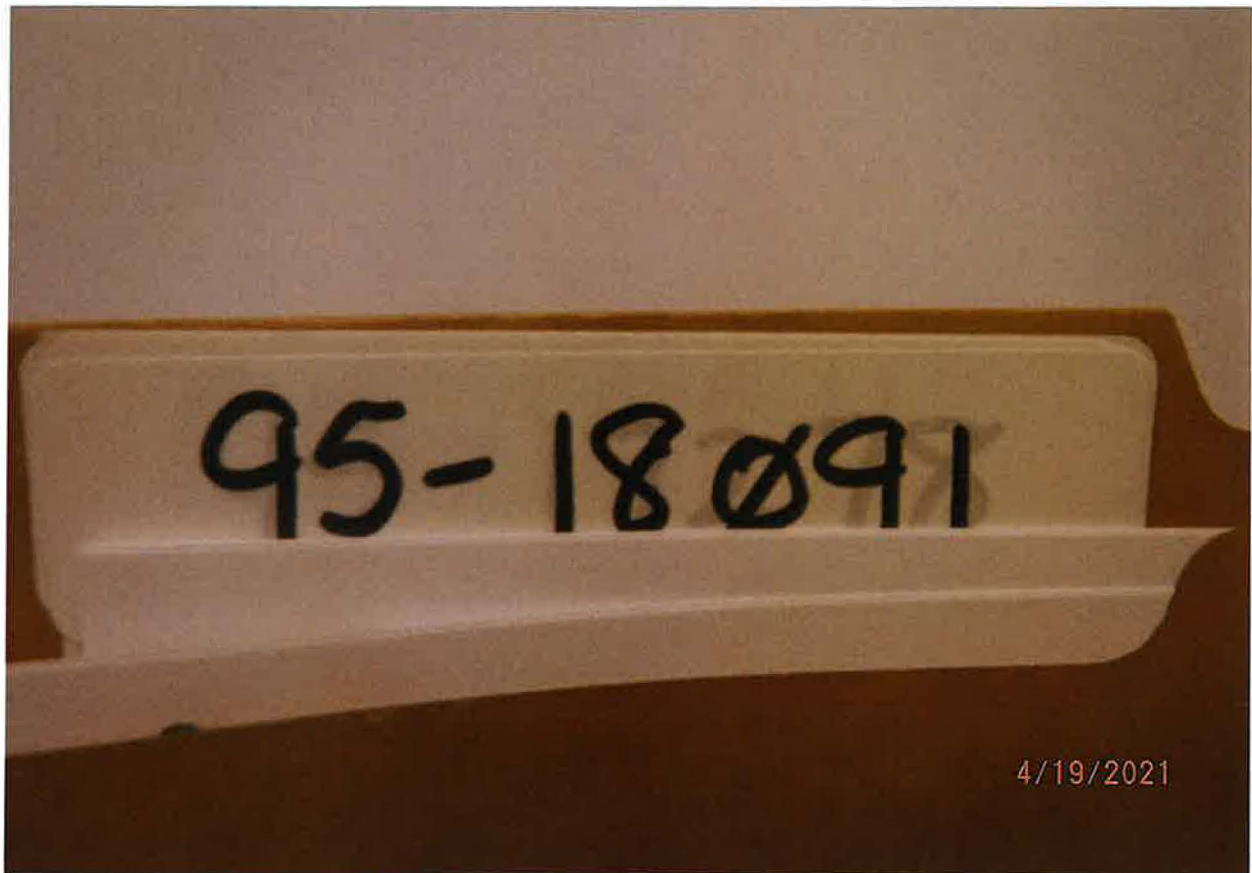
FILE NUMBER	95-18091
REVIEWER	LUKE BATES
DATE	4/19/2021

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.)	0.1	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	4	"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)	0.4	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)	0	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)	7.3	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.1	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	7.8	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.



SPLIT WATER RIGHT DATE 4/19/2021



POD – 14 INCH CORRUGATED PIPE DIVERTING FROM CAREYWOOD CREEK



INFLOW TO POND FROM POD



POD – INFLOW PIPE TO POND – PHOTO TAKEN 4/15/2021



WILDLIFE STORAGE, RECREATION STORAGE, FIRE PROTECTION STORAGE POU – POND (7/16/2020)



WILDLIFE STORAGE, RECREATION STORAGE, FIRE PROTECTION STORAGE POU – POND (4/15/2021)



OVERFLOW DISCHARGE PIPE FROM POND TO CAREYWOOD CREEK



CAREYWOOD CREEK SIDE OF OVERFLOW DISCHARGE PIPE