

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 98-7937

Exam Date: 05/14/2024

1. Current Owner:
GARY REGEHR 978 TWENTY MILE CREEK RD NAPLES ID 83847
2. Accompanied by: Gary Regehr
Phone No: 208-290-1329
Address: Same as above
Relationship to permit Holder: Permit Holder

3. **SOURCE:**
UNNAMED STREAM
TWENTY MILE CREEK

Tributary
SINKS
BROWN CREEK

Method of Determination: ArcMap and DRG layer.

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
98-7750	GROUNDWATER	MUNICIPAL	LICENSE

Comments: Licensed Right 98-7750 uses ground water source(s) for municipal water use by Cabinet Mountain Water District with a POU service area which overlaps this Permit's POU. There is no concern for overlap between WRs as the sources are separate and the municipal system doesn't interact with this surface source water right.

2. Other water rights with the same point-of-diversion: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
98-8137	Twenty Mile Creek & Unnamed Stream	Recreation, Recreation Storage, Diversion to Storage, Fire Protection Storage	Application for Permit – in process permit approval status

Comments: Right 98-8137 has returned to the Department from the two-week public advertisement cycle without protest or negative agency comments; 98-8137 shares the same 20 Mile Creek point of diversion and was filed due to the diversion rate as system developed exceeds what Permit 98-7937 authorizes. Condition F06 was added to 98-8137 during permit approval processing and F06 was added to this Permit during licensing review describing the shared POD use between the two WRs.

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

TWENTY MILE CREEK SE¼ SE¼, Sec. 32, Twp 61N, Rge 01E, B.M. BOUNDARY County
UNNAMED STREAM SE¼ SE¼, Sec. 32, Twp 61N, Rge 01E, B.M. BOUNDARY County

Method of Determination: GPS. POD is a 8 inch corrugated poly pipe located at -116°21.3049, 48°35.3669 from Twenty Mile Creek and an earthen pond dam impounding unnamed stream source water located at -116°21.306, 48°35.438.

PLACE OF USE: WILDLIFE STORAGE, RECREATION STORAGE, FIRE PROTECTION STORAGE, and RECREATION

Twp	Rng	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
61N	01E	32																X	

Method of Determination: beneficial use field examination 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 1:24,000 or greater.

XX Aerial Photo Attached (required for irrigation of 10+ acres).XX Photo of Diversion and System AttachedX

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
TWENTY MILE CREEK	N/A	N/A	8-INCH CORRUGATED POLY PIPE WITH METAL PLATE HEADGATE DEVICE	N/A	GRAVITY FLOW – 8-INCH PIPELINE FOR 56 FT WITH 2.25-FT SLOPE
UNNAMED STREAM	N/A	N/A	EARTHEN DAM WITH OVERFLOW CHANNEL	N/A	EVALUATED AS IN-STREAM FLOW & INSTREAM POND FOR THIS SOURCE

D. FLOW MEASUREMENTS

1.

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

2. Measurements: I was unable to complete a flow measurement due to the nature of the diverting works installed at the 20-Mile Creek POD and the Unnamed Stream POD not receiving a diversion rate as the earthen dam impounding unnamed stream water is considered to be "in-stream" for the system. A Manning's Equation was developed after evaluating the corrugated pipe at the 20-Mile Creek POD which derived a flow rate of 1.49 cfs.

E. FLOW CALCULATIONSX Additional Computation Sheets Attached

Measured Method: See attached Manning's Equation calculation worksheet. The Manning's Equation derived a flow rate of 1.49 cfs considering the 8-inch corrugated polyethylene pipe with rise of 2.25 ft over run of 56 ft and slope of 0.0402 ft/ft.

I'm only authorized to recommend **0.20 cfs** for licensing purposes based on the Permit approved diversion rate limiting the applicant to 0.20 cfs or 90 gpm.

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation: N/A

2. Volume Calculations for Other Uses:

- See attached pond analysis worksheet for storage related beneficial use(s) volume analysis.
- Recreation (flow through water) annual volume = 0.09 cfs x 365 x 1.9835 = **65.2 af**.

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed on 5/14/2024 with the applicant, Gary Regehr, showed Twenty Mile Creek water being diverted along with Unnamed Stream water which is impounded in an excavated pond for Wildlife Storage, Recreation Storage, Fire Protection Storage, and Recreation beneficial uses. I've detailed the two water sources and corresponding POD(s) below:

- Twenty Mile (20-Mile) Creek POD – an 8-inch corrugated polyethylene pipe with metal headgate place diverts from the creek outflowing at a earthen ditch conveyance system that overland flows some distance before discharging into the storage pond via a second section of pipe. I was unable to complete flow measurements due to inadequate pipe requirements and a Manning's Equation was developed determining a flow rate of 1.49 cfs or 670 gpm. From the 56-ft run of pipe at the POD I observed both reduced flow with the metal headgate lowered to approximately 2 inches flow allowance in the pipe up to full pipe flow with headgate pipe removed. The applicant has installed a wooden log device in 20-Mile Creek which allows him to add pooled water in late summer to continue diverting during lower flow periods in the creek.
- Unnamed Stream POD – a separate water system user, Twenty Mile Creek Water Assn (Assn), diverts from a higher reach in the 20-Mile Creek drainage and the unnamed stream source designated in this filing is from overflow discharge exiting the Assn's storage facility where it overland flows intercepting the earthen conveyance ditch from the applicant's 20-Mile Creek diversion. Once joined unnamed stream water is co-mingled with 20-Mile Creek water inflowing to the storage pond. I've assigned the Unnamed Stream POD as the earthen dam constructed with gravel overflow channel to a lower pond developed by the applicant. I
 - I was uncertain if the overflow discharge from the Assn's water system should be characterized as an unnamed stream, but there is sufficient distance from overflow point to earthen ditch channel that additional unnamed stream water(s) may contribute to the flow depending on seasonal flow variations. As assigned, I've evaluated the Unnamed Stream as "in-stream" flow which doesn't benefit from a diversion rate prior to impoundment in the storage pond.
- The Permit authorized a maximum diversion rate of 0.20 cfs. The 1.49 cfs exceeds this value, which necessitated reducing diversion from 20-Mile Creek from 670 gpm to 90 gpm or the applicant needed to file for additional water rights to satisfy the current diverting practices. The Applicant has applied for a new water right, Application 98-8137, which is currently in the permit approval process but contemplates a Recreation direct flow diversion rate of 0.20 cfs and Diversion to Storage rate of 1.50 cfs. I'm recommended the maximum diversion rate and Diversion to Storage diversion rate applied to licensing 98-7937 as the permit approval rate of **0.20 cfs**. I don't recommend combined use limitations between 98-7937 and 98-8137 because the latter is in process and no beneficial use exam has taken place to evaluate combined use diversion rates. In the event the new filing 98-7937 doesn't reach the licensing review stage of the Permit-License process, the applicant will be required to use the steel headgate to limit diversion to 90 gpm or 0.20 cfs from 20-Mile Creek.

From the 20-Mile Creek conveyance ditch water inflows by buried pipes into two ponds; the upper or most eastern pond is associated with this Permit and the 2nd pond is one of 5 total (includes this pond) storage ponds which have been developed by the applicant. This Permit focuses on the upper/eastern most pond in the series of stepped ponds. In the application backfile I note a correspondence letter from Kieth Franklin, IDWR staff, to the applicant dated 2/28/2013 which identified insufficient information on the initial application filing with a request to work with IDWR staff to correct the filing. The applicant asserts the original filing was intended for all 5 ponds, but I wasn't able to find any correspondence on file that explains why this permit authorized only a single storage pond.

The approved permit authorized a maximum diversion volume of 6.7 af. This is an erroneous max volume applied to the permit due to the Recreation (direct flow) beneficial use not receiving a volume until post-beneficial use field exam. The

storage pond was limited by condition to 6.7 af for initial fill & accounting for seepage and evaporation, which I've limited recreation storage, wildlife storage and fire protection storage to but the Recreation flow through diversion volume requires factoring toward my license recommended maximum diversion volume. I've broken down each beneficial use POU below:

- Wildlife Storage / Recreation Storage / Fire Protection Storage POU – single pond excavated by the applicant in a pre-existing gravel pit. During licensing review, I developed a pond analysis worksheet after evaluating the pond which reflects pond volume factors. The pond has a surface area of 0.4 acres, a maximum depth of 16 ft, an average depth of 2.6 af, seepage of 3.7 af and evaporative loss rate equal to 0.4 af. The total volume required equals **6.7 af** which was designated as the annual volume for each respective storage beneficial use category. These volumes are not additive toward the maximum diversion volume.
 - The pond was primarily constructed as a fish stocking pond with appropriate Idaho Fish & Game permits complied with at time of construction.
 - I used Arcmap Aerial imagery and field map sketches to accurately trace the pond out, which isn't accurately depicted in current or past year aerial imagery which projects tree shadow across much of the pond's surface area.
- Recreation POU – this beneficial use authorizes the applicant to pass water through the pond allowing overflow to discharge via an earthen gravel and dirt channel to the next lower pond in stepped series. Pass through circulates water to help maintain aquatic habitat for stocked fish throughout the year. The permit authorized 0.09 cfs for Recreation flow through.
 - I wasn't able to measure overflow discharge due to the gravel overflow being of uneven width and depth cascading into the next lower pond. The pond overflow was observed with the diverting works headgate plate positioned to allow 2 inches (3-finger width) of diversion from the 8-inch diverting pipe. With the system set up this way I measured 5 gal / 2/12 sec x 60 sec/min = 141.5 gpm or 0.3 cfs inflowing to the pond whereas what appeared to be much less outflowing in the overflow channel. Regardless, the diverting system and conveyance ditch demonstrate adequate flow to achieve 0.09 cfs pass through water as permitted and I'm recommending 0.09 cfs toward licensing 98-7937.
 - I've recommended the annual volume equal to 0.09 cfs x 365 days x 1.9835 = **65.2 af** for Recreation flow through water toward licensing approval. This recreation water use is not considered non-consumptive as water sinks into the prior existing gravel pit and overflow once exiting the 5-pond system sinks into pastureland and doesn't flow back to 20-Mile Creek. I've assigned the Recreation POU as the storage pond shape for licensing purposes, or the body of water through which water is actively passed through.
 - The applicant's new application for permit 98-8137 contemplates a Recreation direct flow of 0.20 cfs to accommodate additional flow through in the 5-pond system. I'm not recommending combined use limitations on this license recommendation which may result in combined use diversion rate up to 0.29 cfs if filing 98-8137 is developed to the license review phase of the permit-license process.
- The maximum diversion volume recommended for licensing purposes equals the sum of storage pond volume + recreation flow through volume or 6.7 af + 65.2 af = **71.9 af**.

Conditions 26A, 082, and a text condition related to recreation use for fishing were removed from the Permit during licensing review. Condition 219 was revised to reflect current pond analysis worksheet data. Condition 220 was removed based on guidance from Deputy Director Shelley Keen. I added condition F06 describing shared POD between Rights 98-7937 and 98-8137. I added a text condition asserting that Recreation Storage water use is for fish stocking and a text condition that Recreation water use is to circulate pond water. All other conditions on the permit shall be carried forward to licensing. Overlapping water right analysis is described in detail on PG 1 of this report, but there are no concerns for overlap toward licensing this Permit.

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		6.7 AF
RECREATION STORAGE	01/01 to 12/31		6.7 AF
FIRE PROTECTION STORAGE	01/01 to 12/31		6.7 AF
DIVERSION TO STORAGE	01/01 to 12/31	0.20 CFS	
RECREATION	01/01 to 12/31	0.09 CFS	65.2 AF

Totals: 0.20 CFS 71.9 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

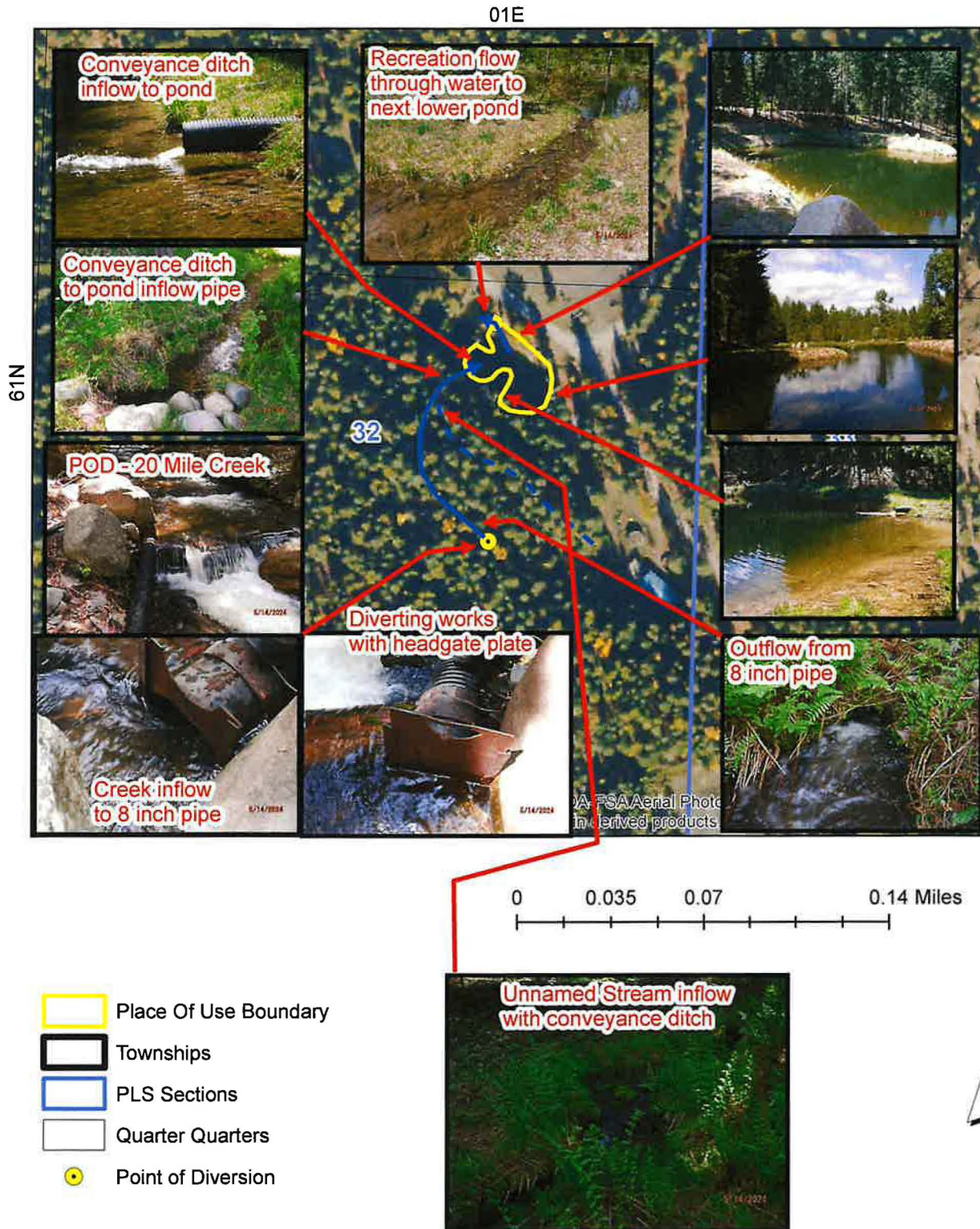
Luke Bates – Sr Water Resource Agent

Field Examiner's Name *LS 26.12* Date 7/17/2024

Reviewer *Chris Bell* Date 7/21/2025

State of Idaho
Department of Water Resources
Attachment to Water Right
98-7937

This map depicts the WILDLIFE STORAGE, RECREATION STORAGE, FIRE PROTECTION STORAGE, and RECREATION place of use boundary for this water right at the time of this approval and is attached to the approval document solely for illustrative purposes.



98-7937

MANNING EQUATION – Prepared on 5/20/2024 by L.Bates – Sr Water Resource Agent IDWR

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

S = 0.0402 ft/ft

n = 0.021 manning's coefficient

d = 8.0 pipe diameter (inches)

D = 0.67 pipe diameter (feet)

r = 0.33 pipe radius (feet)

A = 0.35 area (ft²)

WP = 2.09 wetted perimeter (ft)

R = 0.17 hydraulic radius (ft)

Q = 1.49 flow rate (CFS)

Channel Slope

Slope Options



Manual Entry



Slope Calculator

Slope Calculator

Rise = 2.25 feet

Run = 56 feet

Slope, S = 0.0402 ft/ft

Pipe Material, (n):



corrugated polyethylene



Pipe Diameter (inches)



8.0 inches



Table 10--Manning's n Values for Culverts.*

Type of Culvert	Roughness or Corrugation	Manning's n	Reference
Concrete Pipe	Smooth	0.010-0.011	(64, 66, 67, 70)
Concrete Boxes	Smooth	0.012-0.015	(23)
Spiral Rib Metal Pipe	Smooth	0.012-0.013	(65, 69)
Corrugated Metal Pipe, Pipe-Arch and Box (Annular and Helical corrugations -- see Figure B-3, Manning's n varies with barrel size)	68 by 13 mm 2-2/3 by 1/2 in Annular	0.022-0.027	(25)
	68 by 13 mm 2-2/3 by 1/2 in Helical	0.011-0.023	(25, 68)
	150 by 25 mm 6 by 1 in Helical	0.022-0.025	(25)
	125 by 25 mm 5 by 1 in	0.025-0.026	(25)
	75 by 25 mm 3 by 1 in	0.027-0.028	(25)
	150 by 50 mm 6 by 2 in Structural Plate	0.033-0.035	(25)
	230 by 64 mm 9 by 2-1/2 in Structural Plate	0.033-0.037	(25)
Corrugated Polyethylene	Smooth	0.009-0.015	(71, 72)
Corrugated Polyethylene	Corrugated	0.018-0.025	(73, 74)
Polyvinyl chloride (PVC)	Smooth	0.009-0.011	(75, 76)

*NOTE: The Manning's n values indicated in this table were obtained in the laboratory and are supported by the provided reference. Actual field values for culverts may vary depending on the effect of abrasion, corrosion, deflection, and joint conditions.

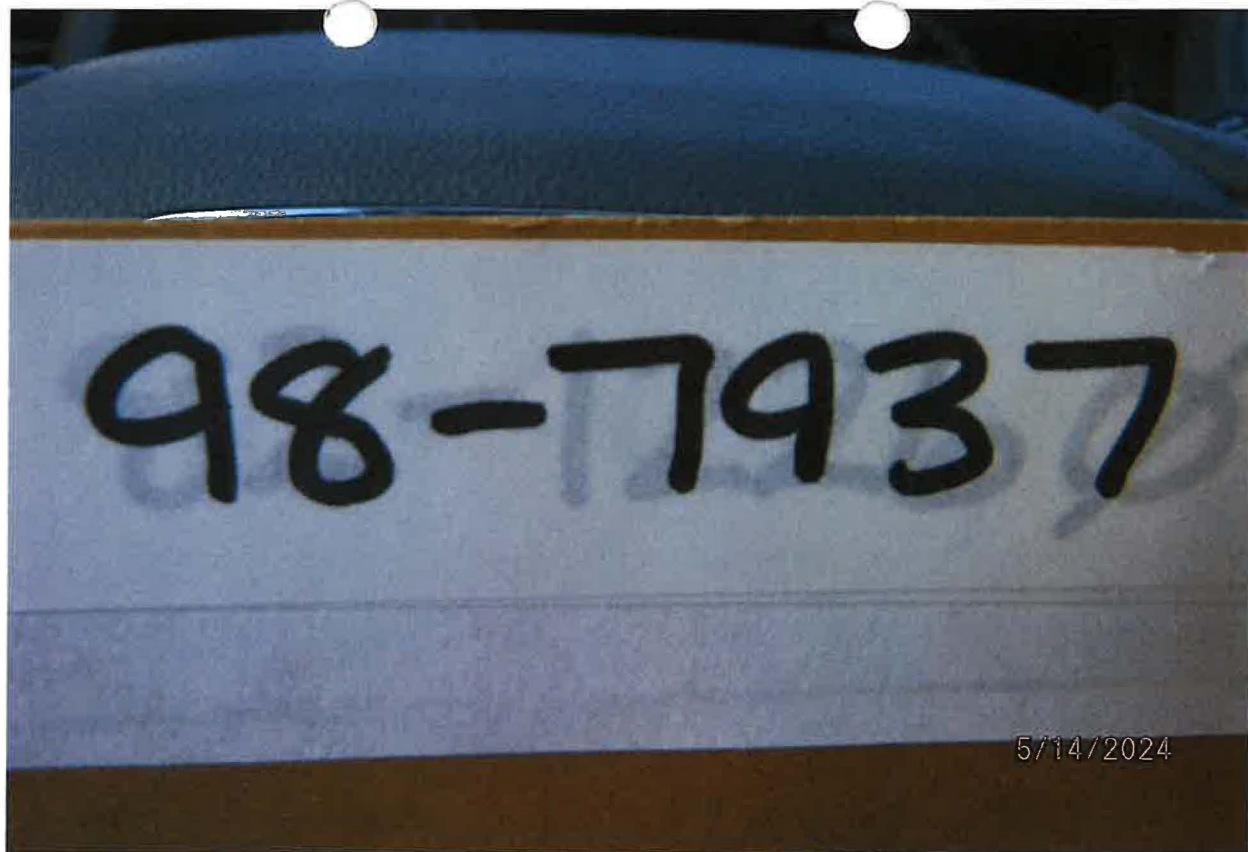
Total Storage Calculations

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

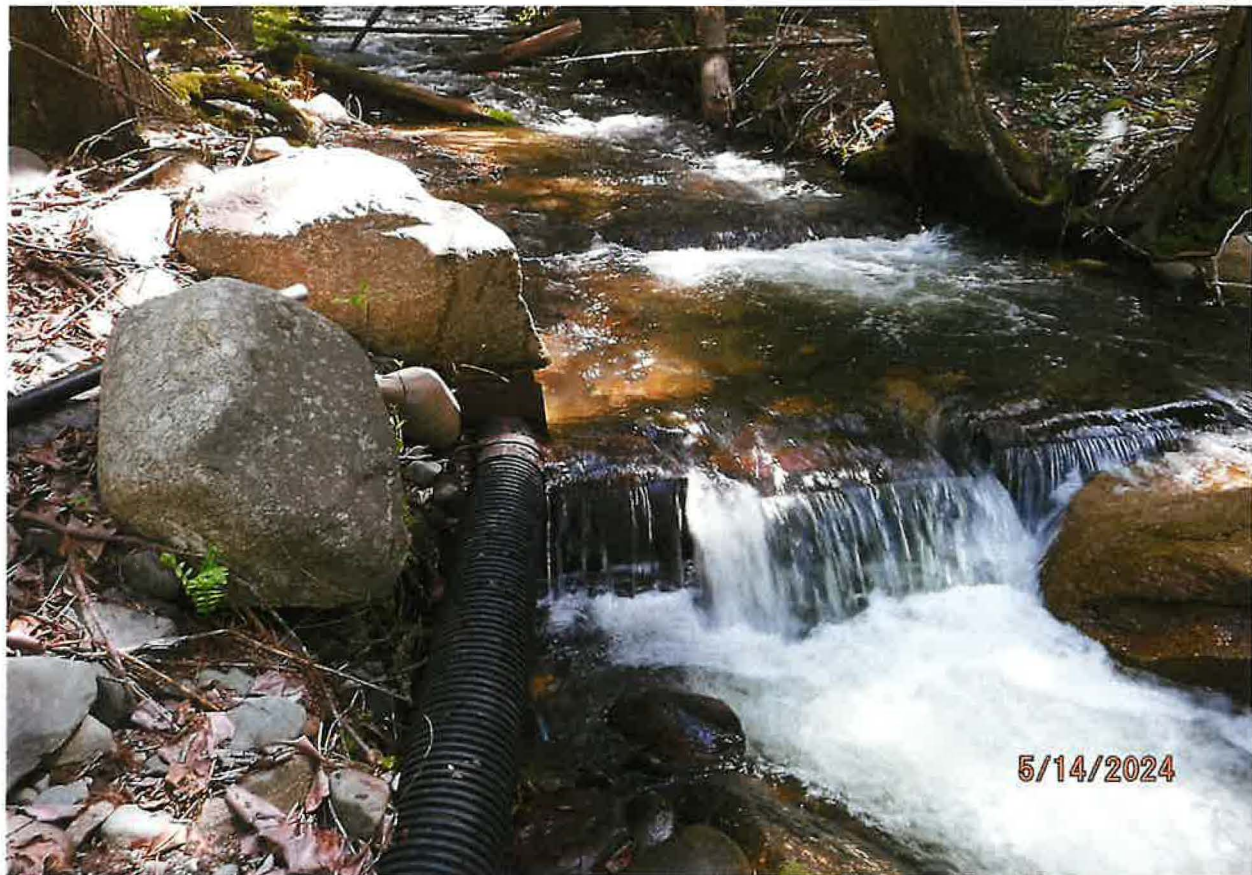
FILE NUMBER	98-7937
REVIEWER	Luke Bates
DATE	5/15/2024

User Input
Calculated value
Formula Explanations

Surface Area (AC.)	0.4	"Surface Area" is automatically carried over from the "Seepage Loss" sheet.
Average Pond Depth (FT.)	6.4	"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)	2.6	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)	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)	3.7	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	0.4	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	6.7	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.



BENEFICIAL USE FIELD EXAM DATE 5/14/2024



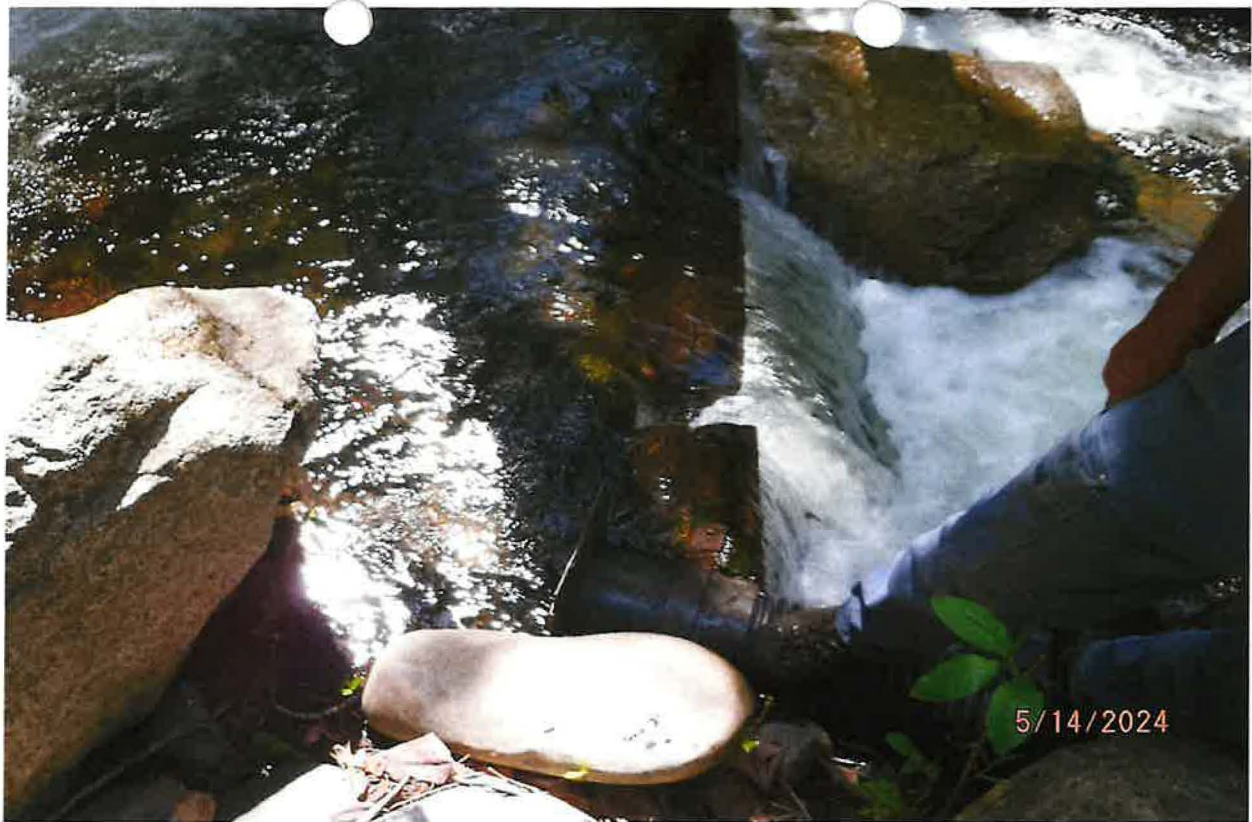
POD – TWENTY MILE CREEK DIVERSION & DIVERSION TO STORAGE – 8-INCH CORRUGATED POLY PIPE
WITH STEEL PLATE HEADGATE DEVICE



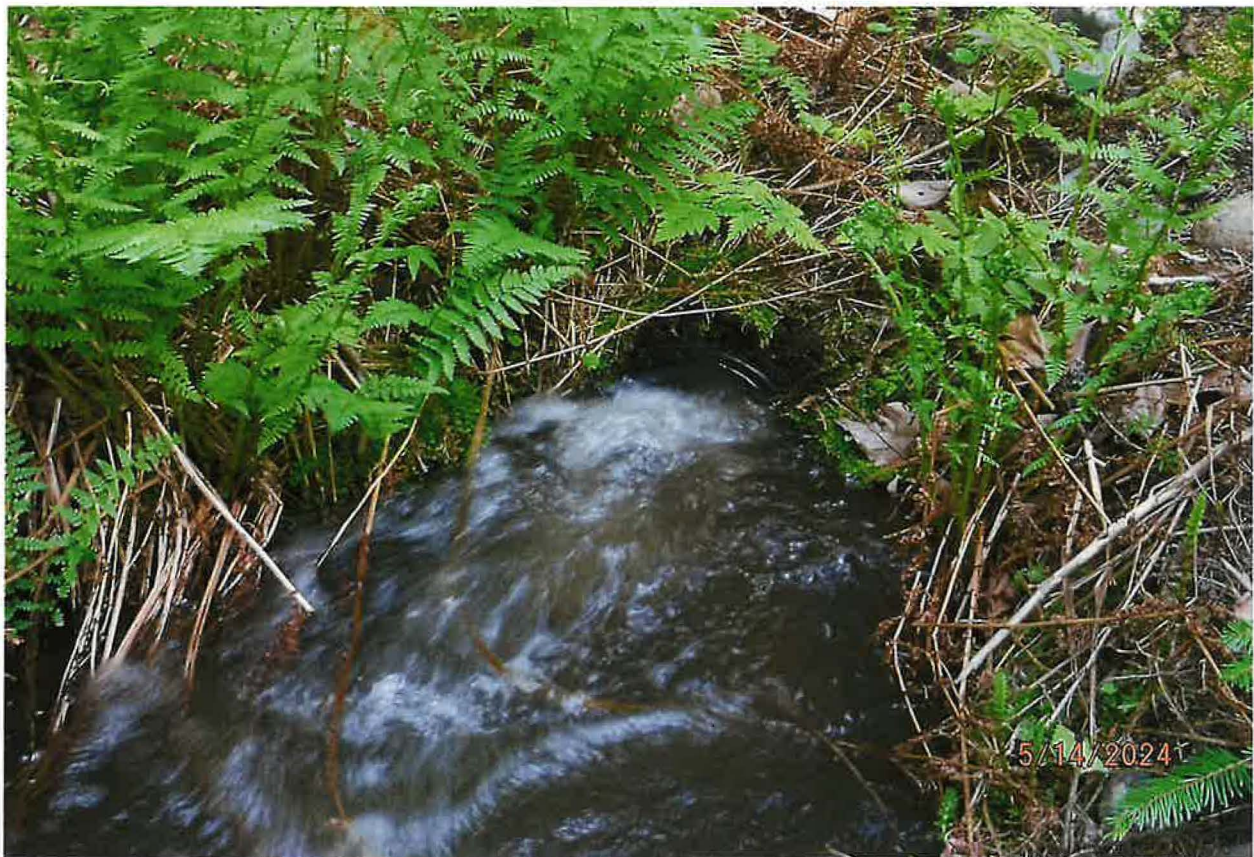
POD – PLATE METAL HEADGATE ON 8-INCH DIVERSION PIPE



POD – WITH PLATE METAL HEADGATE REMOVED 8-INCH PIPE FILLS TO CAPACITY



LOG CUT AND PLACED IN TWENTY MILE CREEK, KNOTCHED TO ALLOW BOARD PLACEMENT TO ADD POOLING IN LATE SUMMER TO FACILITATE DIVERSION INTO PIPELINE



56-FT OF 8-INCH CORRUGATED POLY PIPE TRANSITIONS TO OPEN DITCH SERVING AS DIVERSION TO STORAGE CONVEYANCE SYSTEM OFF TWENTY MILE CREEK



UNNAMED STREAM SOURCE MEANDERS FROM OUTFLOW OF UPSTREAM COMMUNITY WATER SYSTEM, JOINING DIVERSION TO STORAGE CONVEYANCE DITCH, AND FLOWING INSTREAM THROUGH PONDS PRIOR TO SINKING INTO PASTURE LANDS ON APPLICANT'S PROPERTY



POD – UNNAMED STREAM EARTHEN DAM WITH OVERFLOW CHANNEL CUT TO ALLOW RECREATION FLOW THROUGH WATER TO CONTINUE INTO FOUR (4) ADDITIONAL STEPPED PONDS PRIOR TO SINKING ON APPLICANTS' PROPERTY



DIVERSION TO STORAGE – OPEN CONVEYANCE DITCH TRANSITIONS TO A SECOND RUN OF 8" CORRUGATED POLY PIPE WHICH FILLS THE STORAGE POND



CONVEYANCE DITCH ENTERING POLY PIPE BEFORE INFLOW TO STORAGE POND



RECREATION (FLOW THROUGH WATER) POU – INFLOW TO POND FROM CONVEYANCE DITCH & PIPE CIRCULATES WATER WHICH OVERFLOWS BY EARTHEN CHANNEL TO LOWER GRADE POND(S)





RECREATION FLOW THROUGH WATER – OVERFLOW CHANNEL FROM STORAGE POND



STORAGE POND OVERFLOW CHANNEL AS IT ROUTES TO THE 2ND OF 5 TOTAL PONDS



RECREATION (FLOW THROUGH WATER), RECREATION STORAGE & WILDLIFE STORAGE, FIRE PROTECTION
STORAGE POU – EXCAVATED POND





MULTI-USE STORAGE POND POU





RECREATION STORAGE POU – APPLICANT STOCKS THE POND WITH FISH