

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 98-7795
Exam Date: 06/28/2001

1. Current Owner:
BENJAMIN T CORSON 93 INNER WAY BONNERS FERRY ID 83805-5984
2. Accompanied by: Ben Corson
Relationship to permit Holder: Permit holder

3. **SOURCE:**
SNYDER CREEK

Tributary
MOYIE RIVER

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
98-7078	Snyder Creek	Irrigation, Stockwater, Domestic	License
98-7807	Snyder Creek	Irrigation, Stockwater, Domestic	License

Comments: _____

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:**

SNYDER CREEK NE¼ NE¼ NE¼, Sec. 26, Twp 64N, Rge 02E, B.M. BOUNDARY County

Method of Determination: Maps and GPS. POD located at -116° 09.338, 48° 52.603

PLACE OF USE: IRRIGATION 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	
64N	02E	26	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	
64N	02E	26	2.5	0.5															3.0

Total Acres: 3.0

PLACE OF USE: STOCKWATER 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	
64N	02E	26	X																

PLACE OF USE: RECREATION 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	
64N	02E	26	X																

Method of Determination: Google Earth and Arcmap.

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.

 X 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
5 GALLON BUCKET						

5 gallon bucket test performed in 4.2 seconds.

2. Measurements: 5 gal / 4.2 sec X 60 sec = 71.4 gpm or 0.16 cfs

448.8 gpm
CS**E. FLOW CALCULATIONS**

____ Additional Computation Sheets Attached

Measured Method: N/A

F. VOLUME CALCULATIONS

1. Volume Calculations for irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 3 \text{ AC} \times 3.0 \text{ AF} = 9.0 \text{ AF}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = \text{N/A}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 9.0 \text{ AF}$$

2. Volume Calculations for Other Uses: See attached pond analysis sheet.

G. NARRATIVE/REMARKS/COMMENTS

Northern Region was tasked with licensing permits that had been examined during the late 1990's and early 2000's. This file required a 2nd field exam to try and verify the point of diversion, place of use, diversion point, and annual volume. The original field exam was performed on 6/28/2001 and was conducted by Wayne Baldwin.

The 2nd field exam was performed on 7/3/2019 with Ben Corson and his wife. The exam showed a check structure in Snyder Creek which backed up enough water to divert through a 6 inch pipe into a pond. The applicant had been nice enough to take an excavator and clear where the pipe flowed into the pond. The clearing was big and deep enough that a 5 gallon bucket test was able to be performed. The bucket was filled in an average of 4.2 seconds which was equal to 71.4 gpm or 0.16 cfs. This number did differ from the original field exam which was 0.1 cfs. The measurements were taken around the same time of year, but differing water flow and precipitation could be the reason for the difference. Mr. Baldwin said he performed the measurement at the outflow and mine was taken at the inflow. At time of 2nd exam, there was no way to measure the outflow because it was armored with rocks with no way to get a bucket underneath. The license will be issued with a diversion to storage rate of 0.16 cfs.

The water from Snyder Creek was diverted into a large pond. The surface area of pond was equal to 1.2 acre and had a maximum depth of 20 feet. This permit was issued long before the department had a pond analysis sheet or factored in evaporation or seepage. A pond analysis sheet was filled out during the evaluation of license and showed the pond capacity was equal to 9.6 acre-feet with 2.4 acre-feet for evaporation and seepage. The permit was issued for 10.0 acre-feet for recreation, irrigation, and irrigation from storage along with 0.2 acre-feet for stockwater storage. The 10.0 acre-feet that was applied for recreation storage will cover the pond capacity of 9.6 acre-feet and also cover 0.4 acre-feet of evaporation and seepage. Irrigation storage and irrigation from storage will be licensed for 9.0 acre-feet because there was 3 acres of irrigation. The stockwater component will be given the full amount of 0.2 acre-feet which was applied for. The license will issued with an overall annual volume of 19.2 acre-feet.

At time of 2nd exam there was no irrigation occurring from the pond and no stock present. Elements of this license will still be based upon the original examiners recommendations and old aerial photography. All conditions will be removed from the permit and new conditions added to the license. Condition 227

will be added to the license to address the minimum stream flow on the Moyie River. Conditions 259 and 220 will be added to the license to describe the components related to the storage of water and pumping from the pond. Condition X35 was added to address two other irrigation rights that overlapped with this right. Water Rights 98-7078 and 98-7807 also listed irrigation in the same QQ as this right. Those two rights had direct flow irrigation and this right had a from storage irrigation component. The overlap condition only limited the number of acres between the three rights. There was only one common QQ between the three rights and one right had 40 acres of irrigation in it. All other QQ's listed on the rights had no other overlap with others so that acreage was added to 40 acres. The overall irrigation between the three rights is limited to 58.5 acres of irrigation with no limit on diversion rate. Water Right 98-7807 also listed the same 10 acre tract for the point of diversion as this right. There was a separate pipe for that system and no commonality so there was no need to put a POD overlap condition.

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>
IRRIGATION STORAGE	4/15 to 10/31		9.0 AF
IRRIGATION FROM STORAGE	4/15 to 10/31		9.0 AF
STOCKWATER STORAGE	1/01 to 12/31		0.2 AF
RECREATION STORAGE	1/01 to 12/31		10.0 AF
DIVERSION TO STORAGE	1/01 to 12/31	0.16 CFS	

Totals: 0.16 CFS 19.2 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

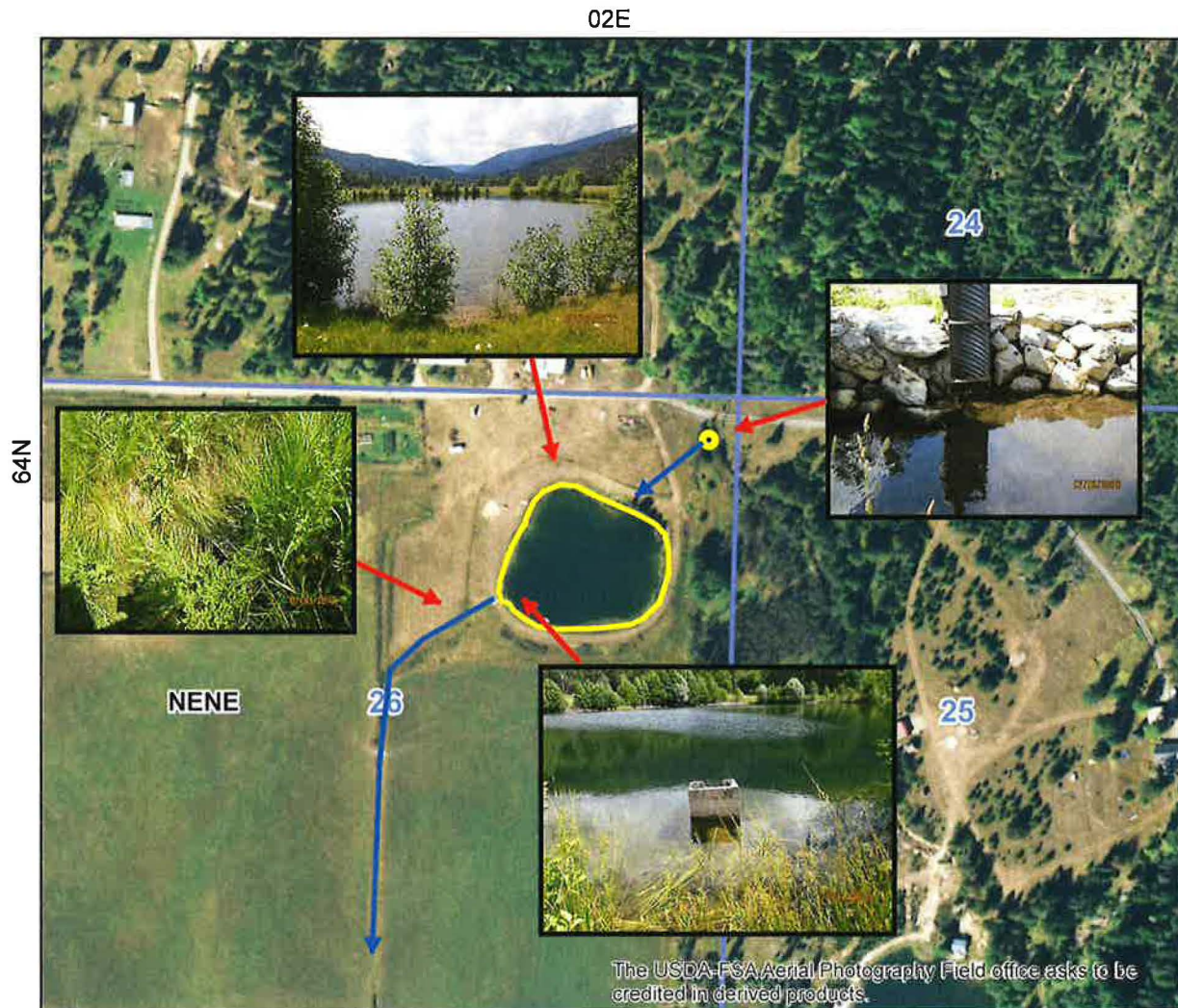
I. AUTHENTICATION

Adam Frederick - Water Resource Agent, Senior

Field Examiner's Name Adam Frederick Date 11/19/2019
 Reviewer Douglas Jones P.E. Date 12/30/2019

State of Idaho
Department of Water Resources
Attachment to Field Exam
98-7795

IRRIGATION STORAGE, STOCKWATER STORAGE, and RECREATION STORAGE / SYSTEM DIAGRAM



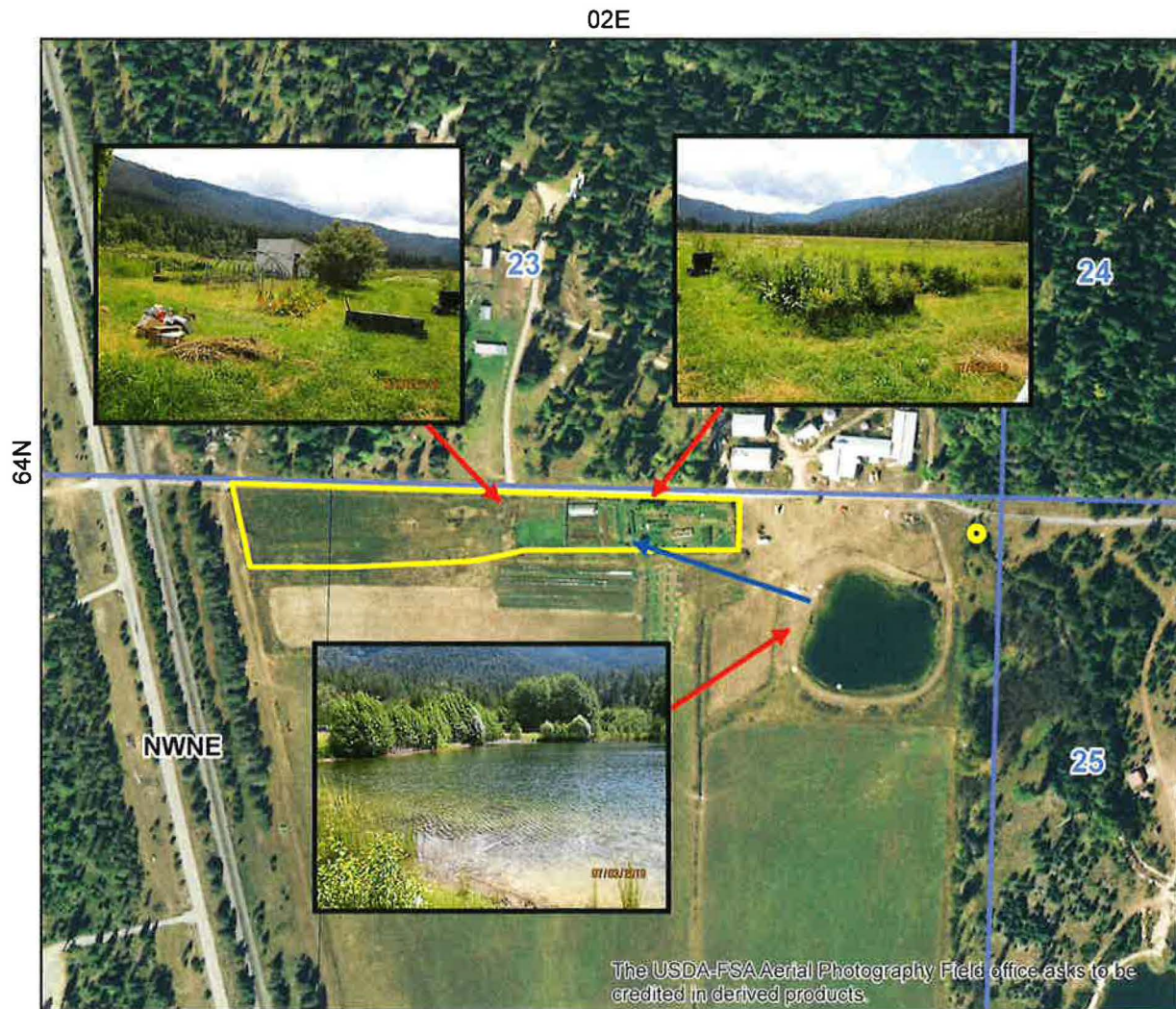
- Point of Diversion
- Place Of Use Boundary
- Townships
- PLS Sections
- Quarter Quarters

0 0.035 0.07 0.14 Miles



State of Idaho
Department of Water Resources
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IRRIGATION FROM STORAGE / SYSTEM DIAGRAM



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

0 0.0425 0.085 0.17 Miles



Total Storage Calculations

FILE NUMBER	98-7795
REVIEWER	Adam Frederick
DATE	10/29/2019

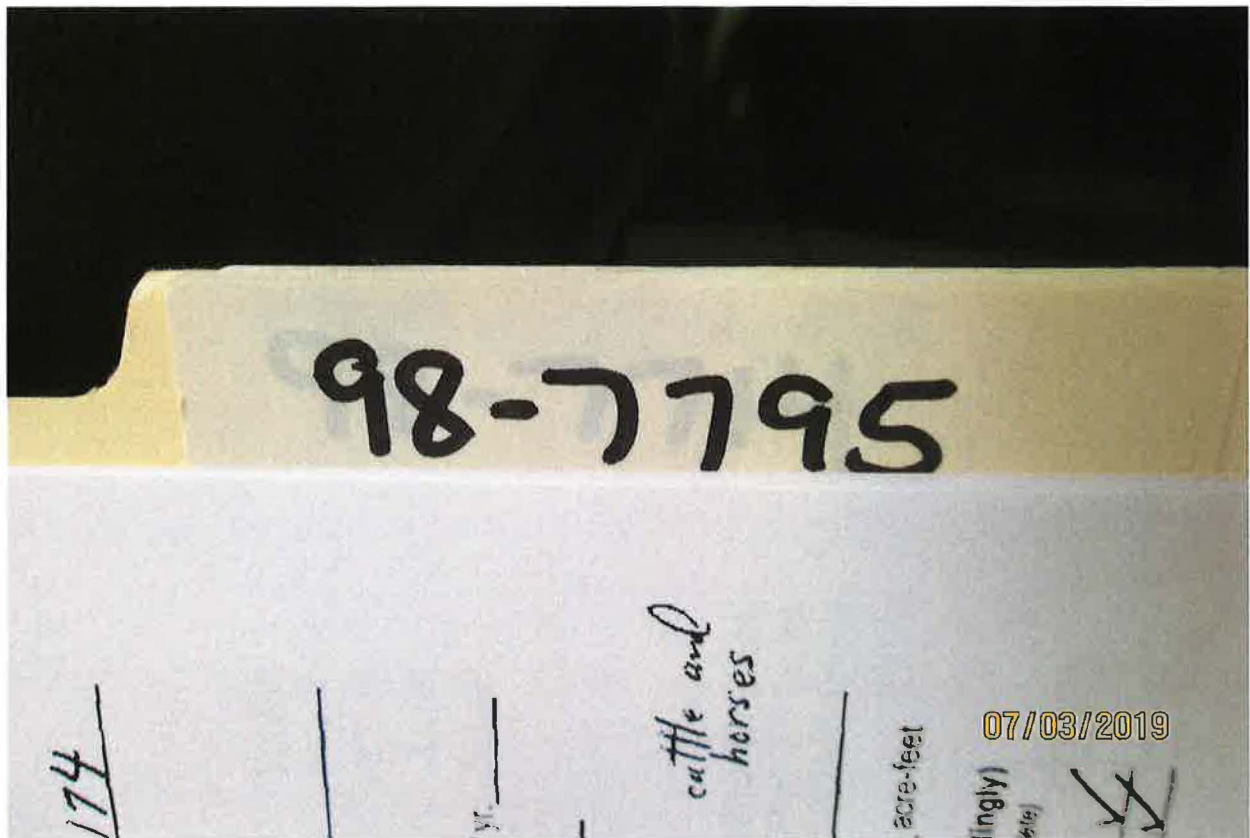
This spreadsheet has been designed by Idaho Department of Water Resources to estimate the total seepage, evaporation and fill capacity required for a pond.

User Input
Calculated value
Formula Explanations

Surface Area (AC.)	1.2	"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)	9.6	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. <i>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.</i>

Multiple Fill Volume Above Initial Fill to Fulfill From Storage Needs- "Multiple Fills" (AF)	9	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). <i>Note: You must have a "From Storage" component exceeding the initial fill on the permit to include a volume in this space.</i>
Estimated Seepage Loss (AF)	1.3	The "Estimated Seepage Loss" is automatically carried over from the "Seepage Loss" sheet.
Estimated Evaporation Loss (AF)	1.1	The "Estimated Evaporation Loss" is automatically carried over from the "Evaporation Loss" sheet.
Total Volume Required (AF)	21.0	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.

Flow Rate into Pond (CFS)	0.16	The "Flow Rate into Pond" depicts the actual flow, either measured or estimated, into the pond. For offstream facilities, this will be equivalent to "diversion to storage" rate.
Highest Daily Evaporation Rate From Evaporation Tab. (mm/Day)	2.58	This number is carried over from the "Evaporation Loss" sheet. It is the highest recorded number in the "Precipitation Deficit Table".
Required Daily Maintenance Volume (AF/Day)	0.01	"Required Daily Maintenance Volume" is the maximum volume of water needed on any given day during the year to maintain pond volume. It is calculated by adding the highest daily evaporation loss to the average daily seepage loss in acre feet. The average daily seepage loss is calculated by dividing the "Estimated Seepage Loss" by 365 days. This is acceptable, since the seepage rate shouldn't vary throughout the season unless the pond completely freezes over during the winter months. The highest daily evaporation loss is calculated by dividing the Highest Daily Evaporation Rate by the 304.8 conversion factor and multiplying this number by the pond surface area to attain a combined daily acre feet requirement.
Minimum Maintenance Flow (CFS)	0.01	The "Minimum Maintenance Flow" is the minimum amount of flow required to maintain the level of the pond. This number is determined by dividing the "Maximum Required Daily Maintenance Volume" by 1.9835. This flow can be used to determine if the flow rate into the pond is adequate to maintain the pond level.
Days Required to Fill the Pond	32	The "Days Required to Fill the Pond" is calculated by dividing the "Pond Capacity" by the "Flow Rate" minus "Minimum Maintenance Flow" multiplied by 1.9835. This section will assist you in determining if the flow rate being diverted to the pond is adequate to fill the pond while maintaining the pond level. The length of time to fill the pond will help determine if the flow rate is adequate for the size of pond being proposed. If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond.
Days Required to Fill the Pond at 13,000 Gallons per Day	367	Some water users may want to fill a pond under the 13,000 gallons per day domestic exemption. The "Days Required to Fill the Pond at 13,000 Gallons per Day" is calculated by converting the "Pond Capacity" and the "Required Daily Maintenance Volume" to gallons. The "Pond Capacity" is then divided by 13,000 gallons minus the "Required Daily Maintenance Volume" in gallons to determine the number of days to fill pond. If this number is approximately 6 months (180 days) or more, the reviewer should have a discussion with the applicant to make sure he/she understands that it will take a significant length of time to fill the pond. Negative values indicate that the supply of 13,000 gallons per day is not enough volume to overcome the required daily maintenance volume; the pond will never fill.



Check structure in creek for diversion pipe.



Screened diversion structure to pond.



Flow from pipe into pond.



Storage POU.





Storage POU.



Screened outflow structure.



Outflow from pond.



Irrigation POU.



Irrigation POU.

