

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No. 67-7878 (208) 256-4437

1. Owner: Little Weiser Irrigation District Phone No. (520) 381-8241
cell # (208) 741-0215
 Current Address: 40 J. Wayne Burkhardt 2410 Little Weiser Rd, Indian Valley, ID
83632

2. Accompanied by: Gerry Jaeger EXAM DATE: 1/29/2009
Address: c/o 2410 Little Weiser Rd, Indian Valley, ID 83632 Phone No (208) 257-3713

Relationship to Permit Holder:

3. Source: Little Weiser River tributary to Weiser River

B. OVERLAP REVIEW

1. Other water rights with the same place of use: 67-2385
2. Other water rights with the same point of diversion: 67-2385

C. DIVERSION AND DELIVERY SYSTEM

1. Point(s) of Diversion:

[illegible]

2. Place(s) of Use:

Indicate Method of Determination *Garmin GPS*

[illegible]

3 **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe i.d. as applicable.

- See Arc Maps + drawing attached

Scale: 1" = _____

☒ Copy of USGS Quadrangle Attached Showing location(s) of point(s) of diversion and place(s) of use (required).

☒ Aerial Photo Attached
(required for irrigation of 10+ acres)

☒ Photo of Diversion and System Attached

4. *gravity flow system w/existing system for 67-2385*

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size

*Code to correspond with No. on map and aerial photo

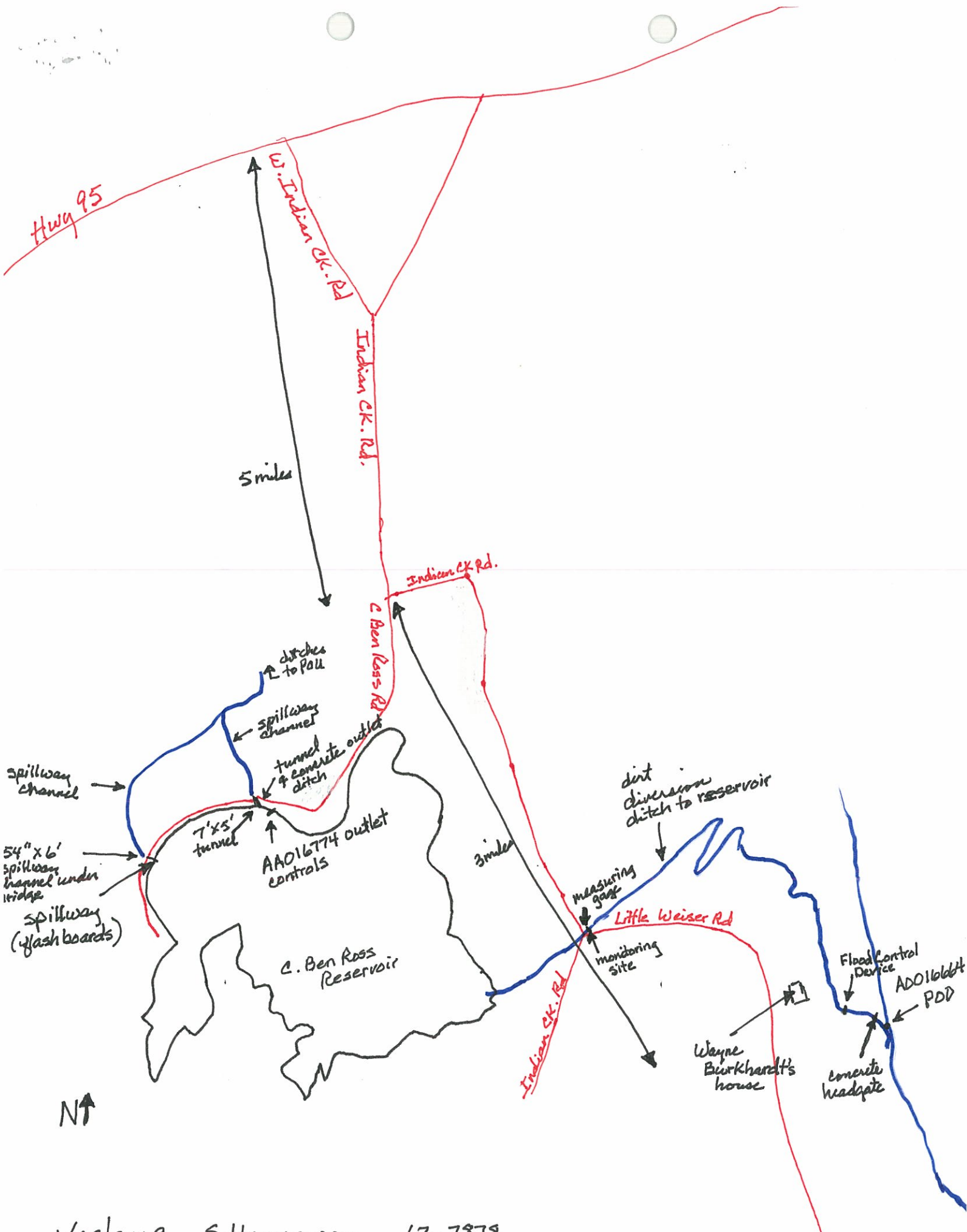
D. FLOW MEASUREMENTS

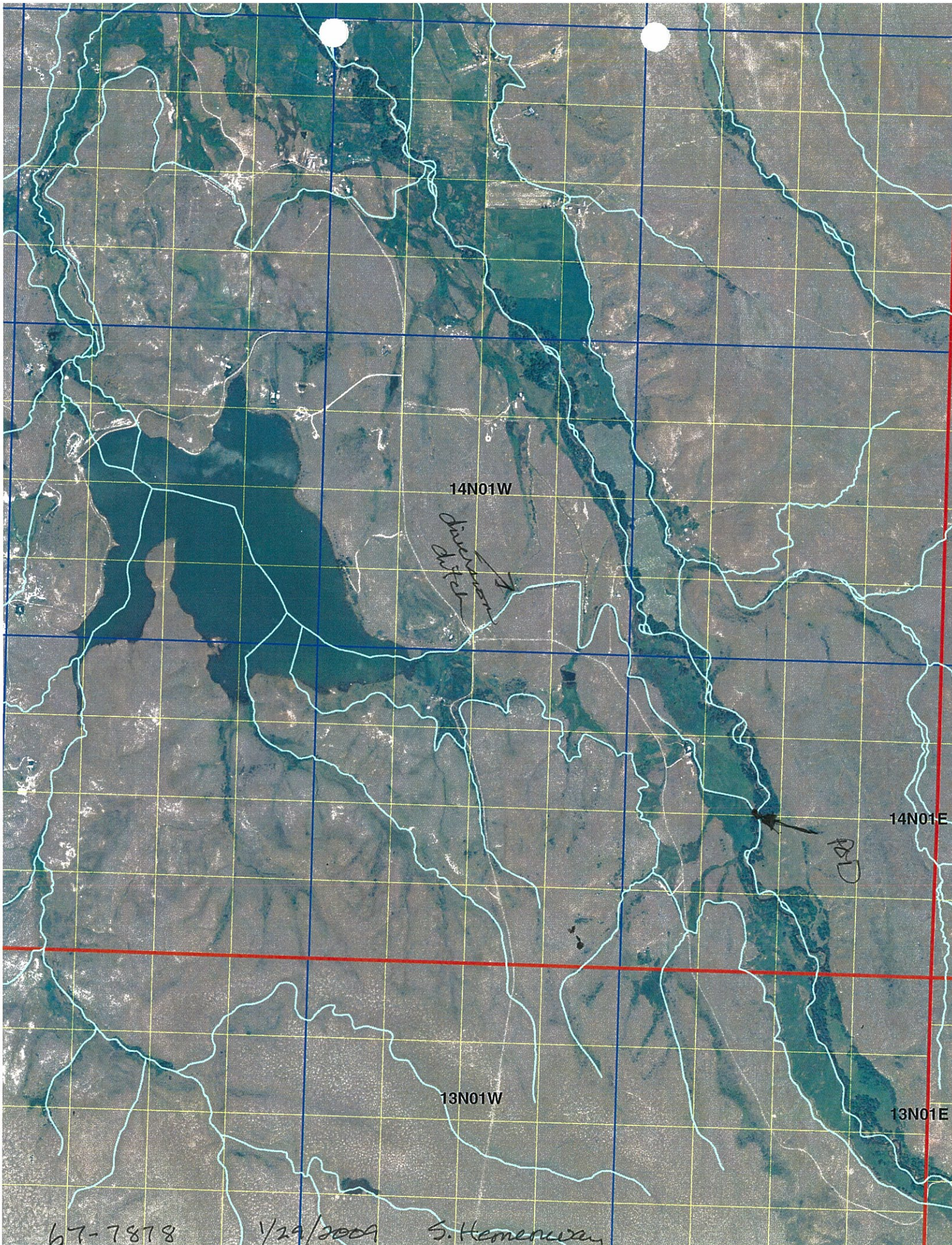
1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date

2.

Measurements:





14N01W

directly adjacent

14N01E

P.D.

13N01W

13N01E

67-7878

1/29/2009

S. Hemerway

POD(ADD16664)

Description of system: Diverted off the Little Weiser River is a

1/24/2009 E. 'wide 3.5' up moderate flow, new tested) Diversion ditch 8' wide X 3' deep, through a 36" X 60" concrete headgate, & continuing 2 miles to E. Ben Ross Reservoir (per 5/3/1940 engineering report; App Map calculated 1.65 mile long ditch). From 5/3/1940 report, earthfill dam 60' high + 1300' long, impounding 7800 af. 1/29/2009 inspections confirmed spillway on west side of dam with concrete supports for flashboards to be installed for raising level of reservoir. At the spillway there is a 54" X 16' spillway channel going under the bridge discharging to a dirt spillway ditch that merges with the spillway ditch on the east side of the dam from water discharged from the reservoir through a 7' X 5' tunnel. Southeast from the tunnel are the ^{outlet} controls + (E) 9' X 5' outlet gate. Distribution to ROW by use of Anderson CK, existing ditches, + Weiser River. (AA016774).

Notice of Hearing on Status of Licensure Proceedings for 67-7878 + 67-2385 (dated 1/13/2009, signed by John M. Melanson presiding judge SRBA): Both WR's are uncontested overlapping claims. A hearing scheduled for 5/19/2009 for estimated time on issuance of license for 67-7878.

List of Users on System: see By-Laws of Little Weiser Irrigation District (aeros + d);

Unable to get good picture of tunnel, due to snow, also covered gates.

5/3/1940 Engineering report stated: "land areas located above the reservoir are irrigated by substitution of lower decreed water for storage"

* Picture showing flashboards inserted: See 7/2/02 dam inspection by J. West

Other contacts for system:

Isaac Ward 257-3812
for Steppich/Watermaster 67A (208) 355-2208
Easement: have recorded easement for diversion ditch

Little Weiser Irrigation District office is located west of the post office.
(turn west 1st street after the store/market).

If additional info needed, contact Holliday Engineering or A+B Engineering.

Moderate Flow:

F. FLOW CALCULATIONS

Measured Method:

Diversion to Storage

Additional Computation Sheets Attached

4/24/2009 Submerged Orifice Formula (per John Westra/Western):

$$\text{Flow Rate} = 0.7 (4.83 \text{ sq. ft}) \sqrt{(64.4 \frac{\text{ft}}{\text{sec}} \times 3.5 \text{ ft})}$$

$$= 50.76$$

$$= 50.8 \text{ cfs}$$

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I,R} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) =$$

$$V_{D,R} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 =$$

$$V = \text{Smaller of } V_{I,R} \text{ and } V_{D,R} =$$

Reservoir (Irrigation Storage)

Are Map calculated 352.6 acres

$$352.6 \text{ acres} \times 57' (\text{when full}) =$$

$$20098.2 \text{ af}$$

2. Volume Calculations for Other Uses:

Other Flow Calculation: (Orange Peel - to fast to Pigmy)
+ unsafe to stand

Corner of Indian Valley + Little Weiser Rd

$$V = \frac{20'}{4 \text{ sec}} = 5 \text{ ft/sec}$$

$$A = 2 \text{ ft} \times 14 \text{ ft} = 28 \text{ ft}^2$$

$$Q = \frac{5 \text{ ft}}{\text{sec}} \times 28 \text{ ft}^2 = 140 \times 0.68 \text{ coefficient} = 95.2 \text{ cfs}$$

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use From To	Rate of Diversion Q (cfs)	Annual Volume V (afa)
Irrigation Storage	1/1 - 12/31		870.0
Irrigation from Storage	3/15 - 10/31		870.0
Diversion to Storage	4/15 - 5/30	40 cfs	

(period of diverting additional flow during peak run-off)

Totals: 40 cfs

870.0 AF

2. Recommended Amendments

only one P.D. (not located on the boarder of 2 QQ's after all)

☒ 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 ☐ Other

- as a digital boundary for the Little Weiser Irrigation District
(Large Pole)

I. AUTHENTICATION

Field Examiner's Name

And Hemerway

Date

1/29/2009

Reviewer

And Hemerway 5/6/2009

SEAL

4/17/07

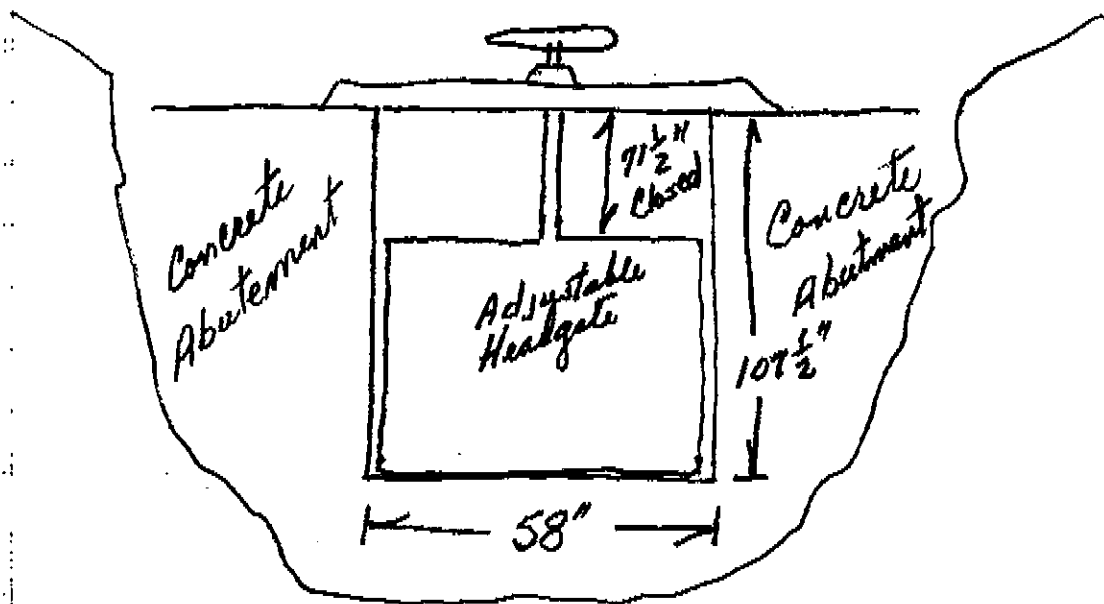
Ben Ross - Inlet Canal Headgate

1 page

Attached is the formula and charts for reading water flow through the Inlet Canal Headgate at the Little Sioux River.

John Westra of IDWR supplied this information for reading water flow through a "submerged orifice weir".

Dimensions for the Inlet headgate are shown below



Submerged Orifice Formula

-See attached sheets for water level height difference less than ½ ft.

-For height difference greater than ½ ft use formula below:

$$\text{Flow rate (cfs)} = .7 A \sqrt{(64.4 \text{ ft/sec } \Delta H)}$$

A = orifice cross area (ft)

ΔH = height difference upstream minus downstream (ft)

Given:

Gate: Width = 58 inches

Height = 12 inches

Δ Height difference = 1 ft.

Orifice Area = 58 inches X 12 inches / 144 sq. inches per sq. ft
= 4.83 sq. ft.

$$\text{Flow Rate} = .7 (4.83 \text{ sq ft}) \sqrt{(64.4 \text{ ft/sec } \times 1 \text{ ft.})}$$

H	Flow rate
1 ft	27.1 cfs
2 ft	38.4 cfs
3 ft	47.0 cfs
4 ft	54.3 cfs

$$\text{Flow Rate} = (0.7) \times (\text{sf area of orifice}) \times \sqrt{(64.4 \text{ ft/sec } \times \text{head})}$$

ng. Turning the stick to an
the stick has been calibrated

the potential accuracy of
the normal manner. Weir
large along the crest of
gage indicates the
sign intent was to make
l for staff gage zero setting.
each at the crest could be
ents and averaging along
the depth on the crest and
ey compensate for velocity
deposits ahead of the weir

proximate velocity of flow
e determined by the use of
l). Because a number of
e accurate to use, this
er methods are impractical
nd uniform in cross
surface waves, should be
measurements should only
nd-caused deflection of the
rface floats are often
suring stations because of
urface floats are
oth. Rod floats are
pth but do not touch the

eight reach of the

The cross sections
ime interval required for
another can be accurately
ides a check on the
eginning and end
ions should be divided
ive, segments of equal
must then be

determined. The float must be released far enough upstream from the first cross section to attain stream velocity before reaching the cross section. The times at which the float passes each section should be observed by stopwatch and recorded. The procedure is repeated with floats in each of the segments across the canal, and several measurements should be made in each segment.

For flows in canals and reasonably smooth streams, the measured surface float velocities should be multiplied by the coefficients as listed below:

Table 13-1.—Coefficients to correct surface float velocities to mean channel velocities

Average depth in reach (ft)	Coefficient
1	0.66
2	0.68
3	0.70
4	0.72
5	0.74
6	0.76
9	0.77
12	0.78
15	0.79
≥20	0.80

The corrected velocities should then be multiplied by the cross-sectional area of the corresponding stream segments to obtain the segment discharges. The sum of the segment discharges will be the total discharge.

A method used extensively in India to determine velocities in open channels makes use of rod or tube floats. This device consists of a square or round wooden rod with a width or diameter of 1 to 2 in, depending on the length. The rod is designed with a weighted end so it will float in a vertical position with the length of the immersed portion about 0.9 times the depth of the water. This method is based on the reasonable assumption that the velocity of a rod float extending from the water surface to very near the bottom of a channel will closely represent the mean velocity of the water.

V. NOTCH TABLE



54"x16'
spillway under
bridge to
spillway dirt
ditch

flame
for inserting
flashboards



C. Ben Ross
Reservoir

67-7878

67-2385-CONST2-02

C Ben Ross Dam

From: J. Westra

Date: 7/2/02

RE: New Spillway Structure Const.

On 7/2/02 Mike Stubblefield and I visited the dam site. The new structure was being utilized with flashboards installed. Flashboards are locked in place with a channel iron across the top of the boards to prevent vandalism. Loose rock and fill had been removed from the channel upstream and downstream of the road bridge. Overall, the construction has turned out very well, no problems were noted.

PHOTOGRAPHS



Photo #1: Overview of the new structure with flashboards, good.

MICROFILMED

MAY 09 2003



Photo #2: Spillway channel looking downstream to road bridge, loose fill and rock have been removed from the channel, significant improvement.

MICROFILMED

MAY 09 2003



54" x 16'
spillway under
bridge to
spillway dirt
ditch



67-7878



C. Ben Ross
Reservoir

frame
for inserting
flashboards

01/29/2009



west side
spillway dirt
ditch
(left abutment)

01/29/2009

67-7878



west or left
abutment
spillway ditch



Outlet
Controls
AA016774
(east side or
right abutment)

67-7878



Outlet
Controls
AA016774
(on right
abutment on
east side)

67-7878



Gate
control stems

Outlet
Controls
AA016774



C. Ben Ross
reservoir

location of
spillway, in
relation to
controls

67-7878

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DAM SAFETY PHOTOGRAPHS

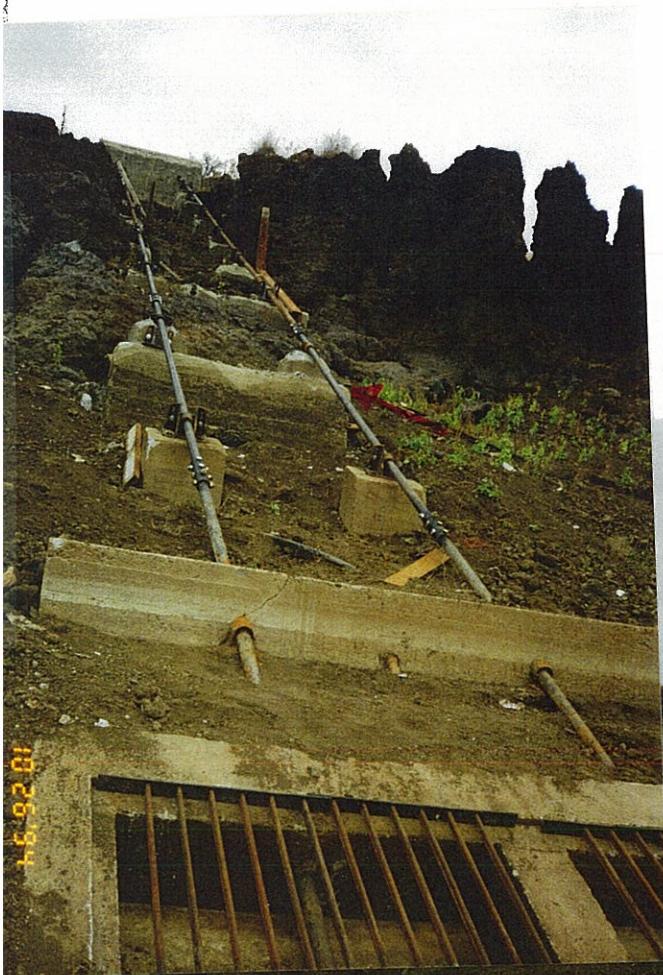


DAM NAME: C BEN ROSS
67-2385

DATE: 10/26/94

BY: J. WESTRA
WESTERN RE

1. Outlet gate structure, new trash racks recently installed.

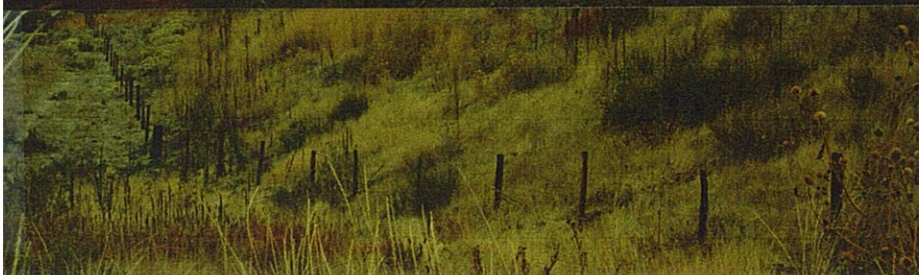


2. Gate control stems to the crest. Several new sections on both gates. Guides not secured at the arrow, repairs pending on the pedestal.



3. Upstream slope from the outlet, good cover of riprap.

4. Left downstream slope area.



5. Dead storage in the reservoir.

IDAHO DEPARTMENT OF WATER RESOURCES

DAM SAFETY PHOTOGRAPHS



DAM NAME: C BEN ROSS
67-2385

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WESTERN RE



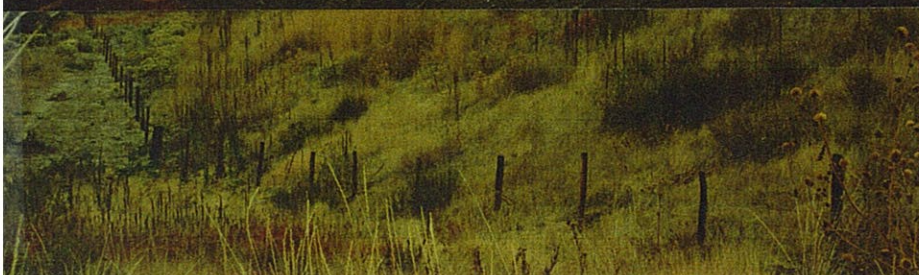
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4. Left downstream slope area.

5. Dead storage in the reservoir.



7'x5' outlet
tunnel
on right
abutment



concrete
ditch off
of outlet
tunnel to
dirt
ditches,
to PDU

01/29/2009

01/29/2009

2. Left upper downstream slope. Several rose/willow bush clumps.

3. Upstream slope of the embankment, good.



4. Outlet tunnel on the right abutment



controls, well maintained.

slope overview.

slope and toe.

IDWR
picture from Inspection of Dam
J. Westra



7'x5'
Outlet tunnel
~~on~~ through
the right
abutment +



dirt ditch that
merges with
dirt ditch from
the spillway
(follows the
treed area)



C. Ben Ross
Reservoir



Left Abutment

67-7878



POD
A0016664

diversion
to storage
ditch

67-7878



Moderat
flow at
3.5' x 14
ditch

04/24/2009



POT

Ditch
to
Storage
Ditch
2 miles
Long to
reservo

04/24/2009



Head
Gate
w/
Submerge
Orifice
Weir



Flood
Control
Device



Diversion
to
storage

corner of
Indian
Valley Rd.
and
Little
Weiser
2' x 14'
20' long
orange
peel
calculat
w/coeffs
0.68 =
95.2 cfs

04/24/2009



C. Ben
Ross
Reservoir

reserve
depth
gauge

Spillu

04/24/2009

67-7878



reserve
depth
gauge

53' and
still
filling

04/24/2009



depth
of
reservoir
at the
bottom
of the
spillway
is 55'

04/24/2009

67-7878



04/24/2009



Storage

C. Ben
Ross
Reservoir

04/24/2009

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POU -
individual
ditches
winding
through
POU
service
area

67-7878