

WATER PERMIT NO. 1827-1

Name of Applicant: **Philip Jerde**

Address: **13901 Zeona Rd, Reva SD 57651**

Phone: **605 866-4888**

Amount of Water Claimed: **93 AF**

Total Acres: **NA**

Source of Water Supply: **runoff**

Water to be used for: **fish & wildlife propagation, recreation, livestock**

County: **Harding**

Type of Waste Disposal System:

Location: **35 miles southeast of Buffalo**

PRIORITY Date Received: **9-30-04**

Application/License Fee: **\$ 200**

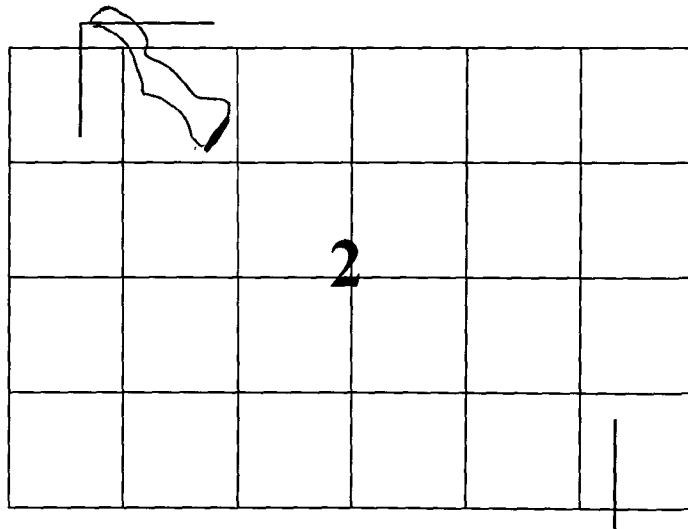
Corrected Application Received: **10-8-04**

Period of Annual Use: **January 1 – December 31**

Remarks:

Diversion Point: **NW ¼ NW ¼ Sec 2-T16N-R9E**

Water Impounded: **NW ¼ NW ¼ Sec 2-T16N-R9E and SW ¼ SE ¼ Sec 34-T17N-R9E**



Depth of Well: **NA**

Well Driller: : **NA**

Remarks:

Type of Map: **topo**

Prepared by: **Tom Verhelst, NRCS**

Reviewed and the Number Assigned on: **10-8-04**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

FORM 2: Application for uses other than irrigation
(type or print)

RECEIVED

SEP 30 2004

WATER RIGHTS
PROGRAM

Mail to: Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. <u>1827-1</u>	(office use only) Hydrologic Unit <u>10130304</u>
	Basin <u>Moreau River</u>	
	Newspaper <u>Nations Center News, Buffalo</u>	

Application For Permit To Appropriate Water Within The State Of South Dakota

Check use(s) of water:

- | | | | |
|---|---|--|--|
| ☐ Municipal | ☐ Suburban Housing | ☒ Recreational | ☐ Institutional |
| ☐ Rural Water System | ☐ Commercial | ☒ Fish & Wildlife | ☐ Geothermal Heat |
| ☐ Domestic (over 18 gpm) | ☐ Industrial | ☒ Other <u>Livestock</u> | |

Type of Application:
(check one)

- ☒ New ☐ Vested Right (Use predates Mar 2, 1955) ☐ Future Use Reservation
☐ Place to Beneficial Use Water Reserved by Future Use Permit No. _____
☐ Amendment/Correction to Permit No. _____

Description of amendment/correction: (i.e. change diversion point(s), add diversion point(s), change use, etc.)

1. Name of Applicant Philip Jerde Phone 605-866-4888
(check one) ☒ Owner ☐ Tenant/lessee
Mailing Address 13901 Zeona Rd. Reva, SD State 57651
(Street, RR, or Box and City) (Zip Code)
2. Amount of water claimed _____ *CFS or _____ **GPM 93.0 ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)
3. Source of water supply Runoff
4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Harding
NW1/4, NW1/4 Sec 2, T16N-R9E Water Impounded: NW1/4 NW1/4
Sec 2-T16N-R9E and SW1/4 SE1/4 Sec 34-T17N-R9E
5. County or counties where water will be used Harding
6. Annual period during which water is to be used Jan. - Dec. 31
7. Give a description of the project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)

Construction of an earthen dam.

STATE OF SOUTH DAKOTA)

County of LAWRENCE

SS

Attachments: Attach Form 2A if diversion is from a well or dugout, or if storage of water is proposed. Attach map and any other technical information. (see instructions)

I, Philip S. Jerde, the applicant, certify that I have read this application, have examined the attached map and that the matters stated are true and that I intend, and am able to complete the necessary construction.

Applicant's signature Philip S. Jerde

Subscribed and sworn to before me this 29th day of September 2004

Julie Bertsch, Notary Public
My Commission Expires
November 14, 2007

Notary Public Signature Julie Bertsch

**SOUTH DAKOTA
WATER PERMIT NO. 1827-1**

Date of first receipt of application September 30, 2004.

Date of return to applicant for corrections, amendments or changes October 4, 2004.

Date of receipt of corrected application October 8, 2004.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 1827-1 to Philip Jerde, 13901 Zeona Rd, Reva SD 57651 authorizing the construction of the dam and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 1827-1 authorizes impoundment of 93 acre-feet of water from runoff by constructing a dam located in the NW ¼ NW ¼ Section 2 with water impounded in the NW ¼ NW ¼ Section 2; in T16N-R9E and SW ¼ SE ¼ Section 34-T17N-R9E.
2. The water appropriated shall be used for the purpose of fish and wildlife propagation, recreation and livestock water purposes and may not exceed the amount of water needed for beneficial use.
3. The water is to be used during the following described annual period: January 1 – December 31.
4. The date of approval of Permit No. 1827-1 is December 20, 2004.
5. The date from which applicant may claim right is September 30, 2004.
6. One-fifth of the construction is to be completed on or before June 20, 2007.
7. All construction is to be completed on or before December 20, 2009.
8. Water is to be put to beneficial use on or before December 20, 2013.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. Water Permit No. 1827-1 authorizes a dam with a storage capacity of 93 acre feet of water and sufficient water annually to maintain the water level to an outlet elevation.
2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

WATER MANAGEMENT BOARD

By: Garland Erbele

Garland Erbele, Chief Engineer

Water Rights Program

Department of Environment and Natural Resources

APR 15 2005

date



(type or print in ink)

1. Well Information - Proposed Construction

- a) Drill Hole Diameter _____ Depth _____
- b) Casing Type _____ Diameter _____ Thickness _____
- c) Screen Type _____ Diameter _____ Thickness _____
- d) Gravel Pack _____ Length of Gravel Pack _____
- e) Depth to Top of Water Bearing Material _____
- f) Depth to Water (ground surface to water level) _____
- g) Distance to nearest existing domestic well:
On applicants property _____ On property owned by others _____

2. Wastewater Disposal System Information

- a) Type of System (i.e. septic tank, drain field) _____
- b) System Capacity (gallons) _____ Year Constructed _____
- c) Connected to the City of _____ Sanitary System

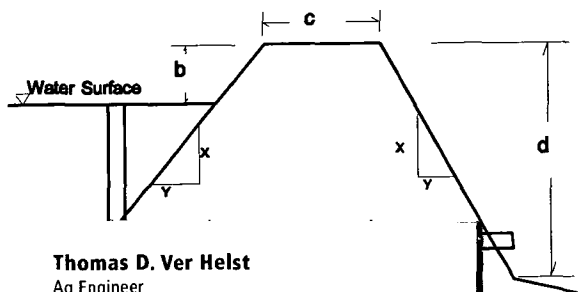
3. Dugout Information

- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

4. Water Storage Dams

If the proposed water use system contains one or more storage dams, please furnish the information requested below for each dam. The locations of the dams need to be shown on the map submitted with the application.

- a) If a private engineering firm or government agency was involved in the design of this dam, please give their name and address:



Thomas D. Ver Helst
Ag Engineer



Natural Resources Conservation Service
United States Department of Agriculture
1837 5th Avenue South
Belle Fourche, SD 57717
Phone 605/892-3368 Fax 605/892-6189
Voice 800/872-7502, Ext. 7310
thomas.verhelst@sd.usda.gov

- b) Freeboard 3'
- c) Crest Width 14'
Crest Length 687'
- d) Height 19.5'
- e) Primary Outlet Capacity 54.1 cfs
If pipe, diameter 24"
- f) Secondary Spillway Capacity 501 cfs
Spillway Width 100'
- g) X & Y Slope
Upstream 4:1
Downstream 3:1
- h) Surface Area of Impoundment 18.0
- i) Storage 93.0 Acre Feet
- j) Drainage Area Above Dam 2130 Acres

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date October 8, 20 04

RECEIVED OF Philip Jerde, Peggy Creek Ranch, 13901 Zeon Rd, Reva SD 57651

The following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. <u>1827-1</u> to Appropriate Water, to construct and to put water to beneficial use	150	00
Fee for Application for Permit No. _____ to Appropriate Water for Future use		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No. <u>1827-1</u>	50	00
Fee for Filing Transfer Form _____		
Fee for _____		
Fee for Issuing New Well Driller's License No. _____ for C.Y. _____		
Fee for Renewal of Well Driller's License No. _____ for C.Y. _____		
Fee for Issuing Well Pump Installer's License No. _____ for C.Y. _____		
Fee for Renewal of Well Pump Installer's License No. _____ for C.Y. _____		
(Any Other Work Provided by Law)	TOTAL	200.00

No. 000001

By Darlene Erbe
Chief Engineer gm



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

October 4, 2004

Philip Jerde
13901 Zeona Rd
Reva SD 57651

Dear Mr. Jerde:

Thank you for submitting the *Application for a Permit to Appropriate Water* for a 93 acre-feet storage dam. In order to complete the application, the following is required:

- The application/license filing fee is \$200.00.

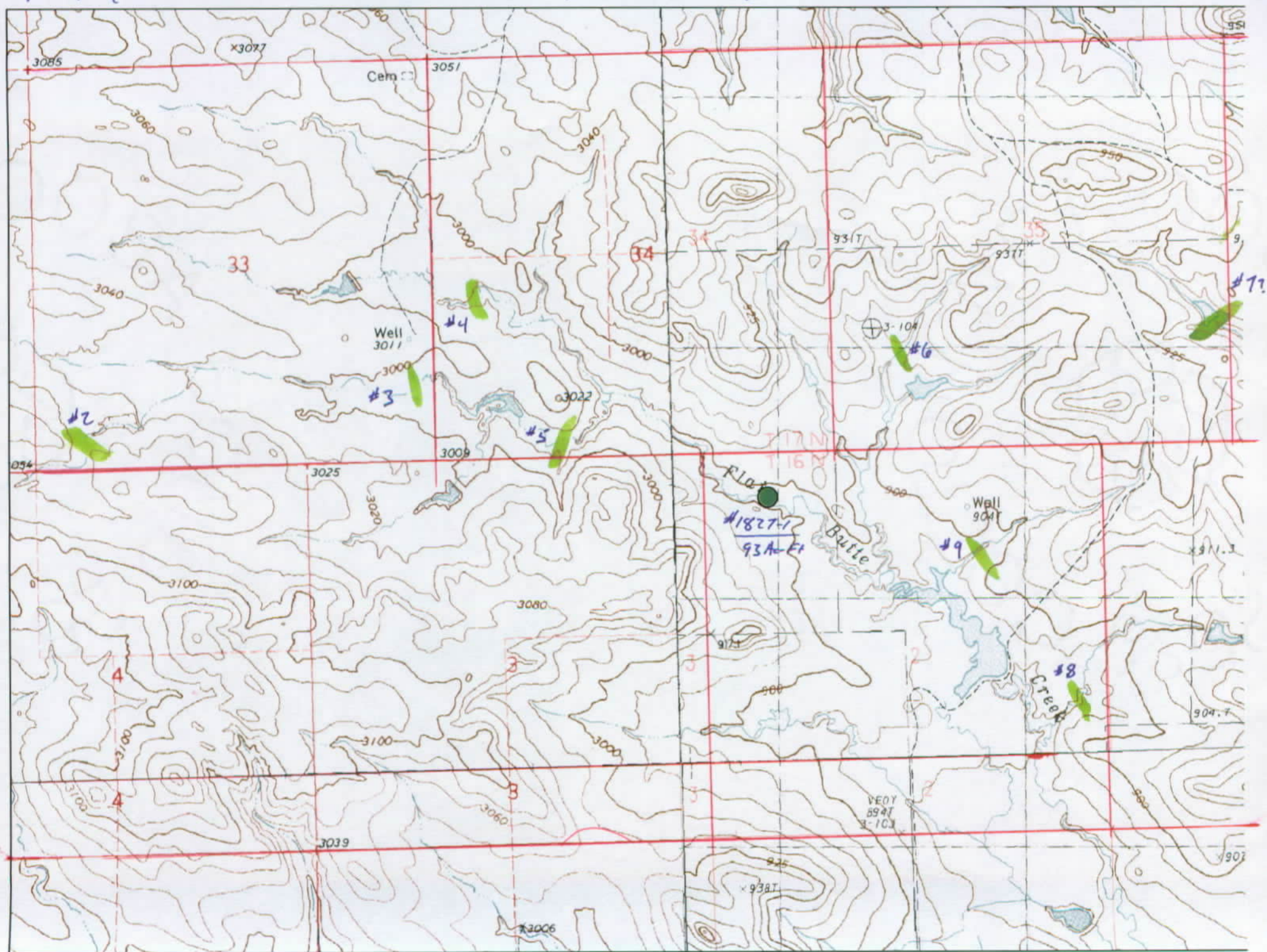
Upon receipt of the above, further processing of the application will proceed. If you have any questions, please contact me.

Sincerely,

Karen Schlaak

Karen Schlaak
Water Rights Program
605 773-3352

Philip Jerde's Location Notice Filed 4/11/05 Total = 94.8A-Ft



Location Notice Summary Report

10/22/2004

Ln No.	Owner	Business	Legal Description	Af Total
64518	LOREN JERDE		SWSE 10-T16N-R10E	2.3
63318	ROY JERDE		NWNE 13-T125N-R59W	1.1
9082	MINA JERDE		SESE 31-T17N-R10E	7.2
9083	MINA JERDE		SWSW 31-T17N-R10E	9.2
4358	MYRON JERDE		NESE 8-T17N-R10E	0.0
833	C.M. JERDE		NENW 22-T17N-R10E	11.3
18575	BENNETT JERDE		NESE 32-T17N-R10E	12.8
21743	LOREN JERDE		SWNE 8-T16N-R10E	1.5
2178-1	O. M. JERDE		NWNE 29-T17N-R10E	6.0
2179-1	O. M. JERDE		NENE 20-T17N-R10E	6.0
2180-1	O. M. JERDE		NENE 29-T17N-R10E	20.0
2181-1	O. M. JERDE		SESE 20-T17N-R10E	24.0
2327-1	B.K JERDE		SESW 29-T17N-R10E	5.5
3855-1	O.M. JERDE		SWNE 27-T17N-R10E	2.2
5431-1	O.M. JERDE		NENE 22-T17N-R10E	1.5
4831-1	O. M. JERDE		SENW 21-T17N-R10E	4.0
76050	PHILIP JERDE		NWSE 11-T16N-R10E	2.4
76051	PHILIP JERDE		NWSE 10-T16N-R10E	14.8
76052	PHILIP JERDE		NWSW 3-T16N-R10E ?	6.5

Water Permit Application No. 1827-1
Philip Jerde

Top of Dam Elev. - 103.5
2nd Spillway Elev. - 100.5
P. Spillway Elev. - 98.5
D/S Emb. Toe Elev. - 84

Cat 3 - low Hazard Dam

Ht = 19.5 ft

Normal Storage Capacity = 93 Ac.-Ft
Int Storage Capacity = 136
Max. Storage Capacity = 240

Int Capacity x Est Ht. = $136 \times 16.5 = 2244 < 3000$ i. 25 yr
Minimum Spillway Design

From USGS WRI 98-4055 "Tech for Est Peak-Flows ... in SD"
DA = 2130 Ac = 3.33 mi² Ryer C

$$Q_{25} = 207 CA^{.573}$$

$$= 207(3.33)^{.573}$$

$$= \underline{412 \text{ cfs}}$$

$$Q_{100} = 379 CA^{.566}$$

$$= 379(3.33)^{.566}$$

$$= \underline{749 \text{ cfs}}$$

Secondary Spillway Flow

$$Q = CLH^{3/2}$$

$$C = 2.6$$

$$L = 100$$

$$H = 3$$

$$= 2.6(100)^{1.5} (3)$$

$$= \underline{1350 \text{ cfs}}$$

NRCS Annual Yield

$$DA = 2130 \text{ Ac } ISO = 1 \text{ CN} = 73$$

$$10\% \text{ chance} = 0.84$$

$$0.84 \times 2130^{1/2} = \underline{149 \text{ Ac.-Ft}}$$

$$50\% \text{ chance} = 0.13$$

$$0.13 \times 2130^{1/2} = \underline{23 \text{ Ac.-Ft}}$$

$$80\% \text{ chance} = 0.04$$

$$0.04 \times 2130^{1/2} = \underline{7 \text{ Ac.-Ft}}$$

Section 74:02:08:09

1. Topo Map - OK
2. Dam Axis Profile - OK
3. Dam Max X-sec. - OK
4. Area - Capacity - OK
5. Outlet Details - OK
6. Spillway Rating - OK
7. Spillway Details - OK
8. Specs - Std. NRCS - OK
9. EPP - N/A Cat. 3 - OK

RECEIVED

OCT - 6 2004

WATER RIGHTS
PROGRAM

CONSTRUCTION SPECIFICATIONS

for

Phil Jerde

Earth Dam # 1

CIN # 23

Prepared by:

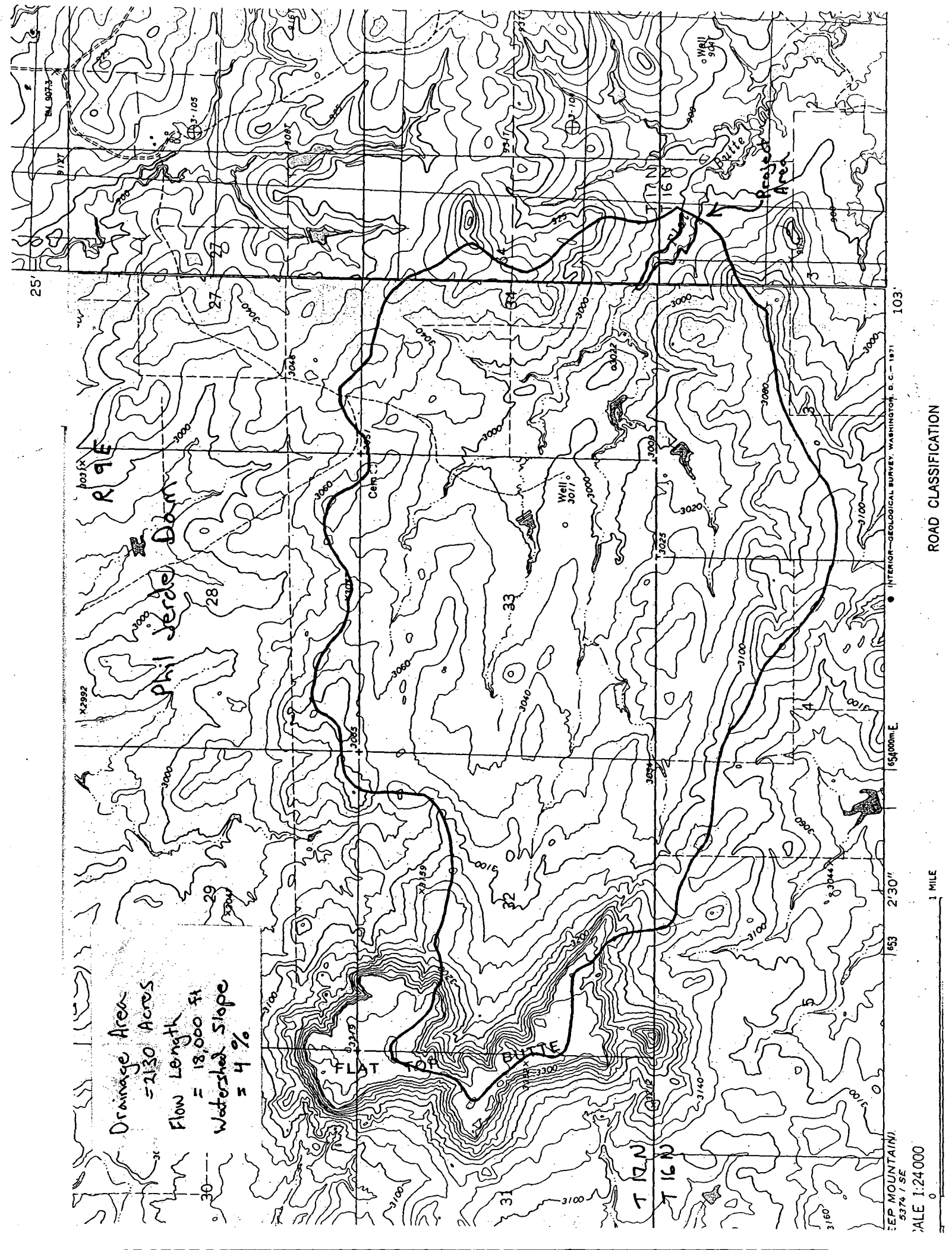
USDA-NATURAL RESOURCES CONSERVATION SERVICE

Assisting:

Perkins

Conservation District

Drainage Area
= 2130 Acres
Flow Length
= 13,000 ft
Watershed Slope
= 4 %



Curve number Computation

Client: Phil Jerde
County: HARDING
Practice: Dam # 1
Calculated By:
Checked By: _____

State: SD

Date: 8/9/2004

Date: _____

COVER DESCRIPTION	Percent (CN)			
	Hydrologic Soil Group			
	A	B	C	D
OTHER AGRICULTURAL LANDS Pasture, grassland or range good	-	52(61)	3(74)	45(80)
Total Area (by Hydrologic soil Group)		52	3	45
TOTAL DRAINAGE AREA: 100 Percent		WEIGHTED CURVE NUMBER: 70		



Soil			%
B	1105	Ac →	52 %
C	60	Ac →	3 %
D	965	Ac →	45 %

STATE <u>SD</u>		PROJECT <u>PHIL JERDE DAM #1</u>	
BY <u>J. SCHMIDT</u>	DATE <u>7/27/04</u>	CHECKED BY	DATE
SUBJECT		SHEET <u> </u> OF <u> </u>	

SEDIMENT YIELD

AREA = 2130 AC

GROSS RATE = 0.0016 $\frac{\text{AC-ft}}{\text{AC-yr}}$

DESIGN PERIOD = 25 YR

DELIVERY RATE = 0.12

$$V = (2130 \text{ AC}) (0.0016 \frac{\text{AC-ft}}{\text{AC-yr}}) (25 \text{ Yr}) (0.12) = \underline{10.2 \text{ AC-ft}}$$

ANNUAL YIELD

Isogram #1 CN=73 50% Chance

$(0.13 \text{ ft}) (2130 \text{ AC}) = 276.9 \text{ AC-ft}$

Annual Yield = 277 AC-ft

USGS REGRESSION EQUATIONS

Subregion C $CA = \frac{2130}{640} = 3.33 \text{ mi}^2$

2 yr $Q = 18.6 CA^{0.425} = 18.6 (3.33)^{0.425} = 31.0 \text{ cfs}$

5 yr $Q = 72.5 CA^{0.578} = 72.5 (3.33)^{0.578} = 145 \text{ cfs}$

10 yr $Q = 125 CA^{0.579} = 125 (3.33)^{0.579} = 251 \text{ cfs}$

25 yr $Q = 207 CA^{0.573} = 207 (3.33)^{0.573} = 412 \text{ cfs}$

$P_{10} = 2.60 \text{ in}$

$P_{25} = 3.10 \text{ in}$

1*****
 SITES XEQ 08/03/2004 WATER RESOURCE SITE ANALYSIS COMPUTER PROGRAM
 VER 2000 (USER MANUAL - DATED MAY 2001)
 TIME 13:13:36

***** 80-80 LIST OF INPUT DATA *****

SITES 05/01/20001 Phil Jerde Dam # 1 3.328125 H5
 SAVMOV 0 101
 SAVMOV 101 1 1
 * The top of the dam is at 103.5
 * The ES is at 100.5
 * The PS is at 98.5
 STRUCTURE A Phil Jerde Dam # 1
 83.9 0.00
 86 0.59
 88 2.81
 90 7.26
 92 16.74
 94 31.68
 96 53.51
 98 83.45 93
 100 121.53 136
 102 180 240
 104 260
 ENDTABLE
 WSDATA 5A1A AC 70 2130 18000 4
 PDIRECT 2.6 .00 3.10
 POOLDATA ELEV 98.5 98.5 83.9 83.9 83.9 SC
 PSINLET 0.8 24
 PSDATA 1 100 24 0.015 86.4
 ASDATA 41 400 100 3 .03 2
 ASINSURF 41 0.035
 ASINLET 41 0.0 249 0.0 3
 349 10
 ENDTABLE
 ASEXSURF 41 0.035
 0.65 0
 3
 2 0
 0.02
 ENDTABLE
 ASEXIT 41 N 100
 BTMWIDTH FEET 100
 GRAPHICS I
 GO,DESIGN HL TYPE2 24 TYPE2378 24
 SAVMOV 2 101 1 A
 ENDJOB

1SITES XEQ 08/03/2004 ----- COMMENT PAGE -----
 VER 2000 Phil Jerde Dam # 1 WSID = 1

The top of the dam is at 103.5

The ES is at 100.5

The PS is at 98.5

***** MESSAGE - DRAINAGE AREA FROM WSDATA CONTROL BEING CONVERTED FROM
 ACRES TO SQUARE MILES FOR COMPUTATION PURPOSES.

1SITES

XEQ 08/03/2004
VER 2000
TIME 13:13:36

Phil Jerde Dam # 1
Phil Jerde Dam # 1
SITE = A

WSID= 1
SUBW= A
PART= 1
PASS= 1

***** BASIC DATA *****
CLIMATE AREA - NOT DEFINED DESIGN CLASS A1 = LT 3000.

STORM DISTRIBUTION-PSH 24 HOUR TYPE II RAINFALL DISTRIBUTION

STORM DISTRIBUTION AUX. -24 HOUR TYPE II RAINFALL DISTRIBUTION

PRECIP. - P-PS,1-DAY	P-PS,10-DAY	P-SD	P-FB	
2.60	0.00	0.00	3.10	
WSDATA - CN	DA-SM	TC/L	-/H	QRF
70.00	3.33	18000.00	4.00	0.00
SITEDATA- PERM POOL	CREST PS	FP SED	VALLEY FL	378?
98.50	98.50	83.90	83.90	YES
BASEFLOW	INITIAL EL	EXTRA VOL	SITE TYPE	
0.00	0.00	0.00	DESIGN	
PSDATA - NO. COND	COND L	DIA/W	-/H	
1.00	100.00	24.00	0.00	
PS N	KE	WEIR L	TW EL	
0.015	0.80	24.00	86.40	
2ND STG	ORF H	ORF L	START AUX.	
0.00	0.00	0.00	0.00	
ASCRESTS - AUX.1	AUX.2	AUX.3	AUX.4	AUX.5
0.00	0.00	0.00	0.00	0.00
AUX.DATA - REF.NO.	RETARD. Ci	TIE STATION	INLET LENGTH	
41	0.00	400.00	100	
AUX.DATA - INLET N	SIDE SLOPE	EXIT N	EXIT SLOPE	ACTUAL AUX?
0.035	3.00	0.035	0.030	NO
BTM WIDTH - BW1	BW2	BW3	BW4	BW5
ft 100.00	0.00	0.00	0.00	0.00

AUXILIARY SPILLWAY RATING DEVELOPED USING WSPVRT.

1SITES

XEQ 08/03/2004
VER 2000
TIME 13:13:36

Phil Jerde Dam # 1
Phil Jerde Dam # 1
SITE = A

WSID= 1
SUBW= A
PART= 2
PASS= 1

PERM POOL	98.50 FT	93.0 ACFT	0.00 AC	0.0 CFS
CREST PS	98.50 FT	93.0 ACFT	0.00 AC	0.0 CFS
SED ACCUM	98.50 FT	93.0 ACFT	0.00 AC	0.0 CFS

START ELEV 98.50 FT 93.0 ACFT 0.00 AC 0.0 CFS
 NRCS-PSH D= 24.00 HR P= 2.60 IN Q= 0.50 IN DA= 3.33 SM
 TC= 3.57 HR CN= 70.00 VOL= 89.4 ACFT

PEAK = 185.2 CFS, AT 14.6 HRS.

ROUTED RESULT - HYD TYPE EMAX VOL-MAX AMAX QMAX
 NRCS-PSH 100.46 FT 134.9 ACFT 0.00 AC 50.8 CFS

PS STORAGE 41.9 ACFT, BETWEEN AUX. CREST AND SED. ACCUM ELEVATIONS.

DRAWDOWN (DDT) TEST 98.50 FT 93.0 ACFT 0.00 CFS
 CONTROL IS 0.000 DETENTION STORAGE

TIME = 2.25 DAYS, TO 0.0 CFS (LIMIT = 10.00 DAYS)

 RATING TABLE DEVELOPED, SITE = A :
 BY PROGRAM FOR PS AND AUX. SPILLWAYS
 AUX. RATING USED WSPVRT METHOD.

RATING TABLE NUMBER 1

	ELEV. FEET	Q-TOTAL CFS	Q-PS CFS	Q-AUX. CFS	VOLUME AC-FT	AREA ACRE
1	98.50	0.00	0.00	0.00	92.97	0.00
2	98.69	6.08	6.08	0.00	96.55	0.00
3	98.88	17.19	17.19	0.00	100.14	0.00
4	99.06	31.58	31.58	0.00	103.72	0.00
FULL CONDUIT FLOW, ELEV = 99.25 FT						
5	99.25	48.61	48.61	0.00	107.31	0.00
6	99.85	49.73	49.73	0.00	118.60	0.00
7	100.44	50.82	50.82	0.00	134.39	0.00
8	101.03	51.88	51.88	0.00	151.73	0.00
9	101.63	52.92	52.92	0.00	169.08	0.00
10	102.22	53.94	53.94	0.00	188.79	0.00
11	102.81	54.94	54.94	0.00	212.53	0.00
12	103.41	55.93	55.93	0.00	236.26	0.00
13	104.00	56.89	56.89	0.00	260.00	0.00

1SITES

XEQ 08/03/2004 Phil Jerde Dam # 1 WSID= 1
 VER 2000 Phil Jerde Dam # 1 SUBW= A
 TIME 13:13:36 SITE = A PASS= 1 PART= 3

AUX. CREST 100.46 FT 134.9 ACFT 0.00 AC 50.8 CFS

PS STORAGE 41.9 ACFT, BETWEEN AUX. CREST AND SED. ACCUM ELEVATIONS.

START ELEV 98.50 FT 93.0 ACFT 0.00 AC 0.0 CFS

EFFECTIVE HEIGHT(H) = 16.6 FEET, PRODUCT= 2233. (H * STORAGE AT CREST AUX.).

INPUT DESIGN CLASS = A1 = LT 3000. PRODUCT.

NRCS-FBH D= 24.00 HR P= 3.10 IN Q= 0.77 IN DA= 3.33 SM
 TC= 3.57 HR CN= 70.00 VOL= 136.8 ACFT

PEAK = 303.5 CFS, AT 14.3 HRS.

***** WARNING - UPSTREAM END OF CREST 151. IS UPSTREAM OF THE
FIRST GROUND POINT 300. STATION.

RATING TABLE DEVELOPED, SITE = A :
BY PROGRAM FOR PS AND AUX. SPILLWAYS
AUX. RATING USED WSPVRT METHOD.

RATING TABLE NUMBER 2

	ELEV. FEET	Q-TOTAL CFS	Q-PS CFS	Q-AUX. CFS	VOLUME AC-FT	AREA ACRE
1	98.50	0.00	0.00	0.00	92.97	0.00
2	98.69	6.08	6.08	0.00	96.55	0.00
3	98.88	17.19	17.19	0.00	100.14	0.00
4	99.06	31.58	31.58	0.00	103.72	0.00
FULL CONDUIT FLOW, ELEV = 99.25 FT						
5	99.25	48.61	48.61	0.00	107.31	0.00
6	99.40	48.90	48.90	0.00	110.17	0.00
7	99.55	49.19	49.19	0.00	113.03	0.00
8	99.70	49.47	49.47	0.00	115.90	0.00
9	99.85	49.75	49.75	0.00	118.76	0.00
10	100.01	50.02	50.02	0.00	121.68	0.00
11	100.16	50.30	50.30	0.00	126.08	0.00
12	100.31	50.57	50.57	0.00	130.47	0.00
13	100.46	50.85	50.85	0.00	134.87	0.00
14	100.63	59.48	51.16	8.32	140.05	0.00
15	100.81	68.12	51.48	16.63	145.23	0.00
16	101.13	103.58	52.05	51.54	154.56	0.00
17	101.52	186.37	52.73	133.64	165.95	0.00
18	102.23	440.00	53.95	386.05	189.13	0.00
19	103.11	887.68	55.44	832.24	224.56	0.00
20	104.00	1476.30	56.89	1419.41	260.00	0.00

SUMMARY OF AUXILIARY SPILLWAY SURFACE CONDITIONS USED IN COMPUTATIONS BY REACH

REACH	FROM STA (ft)	TO STA (ft)	SLOPE (%)	RETARDANCE CURVE INDEX@	VEGETAL COVER FACTOR	MAINT. CODE	ROOTING DEPTH (ft)	REACH LOCATION *
1	151.	400.	0.0	0.035	**	**	**	CREST
2	400.	500.	3.0	0.035	0.65	3	2.0	EXIT !

@ The program interprets retardance curve index entries of less than 1 as Manning's n values.

* Upper case indicates a reach of constructed spillway channel.

** The program does not use vegetal cover factor, maintenance code, and rooting depth for inlet and crest reaches in computations.

! Reach 2 used in computing exit channel velocities.

DRAWDOWN USING FREEBOARD STORM FOLLOWS, STARTING AT ELEVATION 100.46 FT.

DRAWDOWN (DDT) TEST 98.50 FT 93.0 ACFT 0.00 CFS
CONTROL IS 0.000 DETENTION STORAGE

TIME = 2.40 DAYS, TO 0.0 CFS (LIMIT = 10.00 DAYS)

ROUTED BTM WIDTH MAX ELEV VOL-MAX AREA-MAX AUX.-HP VOL-AUX.

RESULTS	FT	FT	ACFT	AC	FT	ACFT
NRCS-FBH	100.0	101.18	155.9	0.0	0.72	21.1

PEAK - CFS	Q-PS	Q-AUX.	Q-TOT.
DISCHARGE =	52.1	61.5	113.6

	CRITICAL	CRITICAL	CRITICAL	25% OF Q
	DEPTH	VELOCITY	SLOPE-Sc	Sc
AUXILIARY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY ---	0.23	2.69	0.029	0.040

EFFECTIVE STRESS FOR STABILITY ANALYSIS OF AUX. EXIT CHANNEL
(Refer to Ag. Handbook 667, Chapt. 3, for allowable stresses.)
Aux. Discharge = 61. cfs; Bottom Width = 100. ft

REACH	FROM	TO	SLOPE	MANNING'S	VELOCITY	STRESS
NO.	STA	STA	%	n	ft/s	lb/ft^2
2	400.	500.	3.00	0.035	2.71	0.257

AUXILIARY SPILLWAY DURATION FLOW =	13.2 HOURS
ATTACK, OE/B =	0.3 ACFT/FT

***** MESSAGE - NHCP378 CRITERIA USED BUT AUXILIARY SPILLWAY RATING NOT
BASED ON ASFILE RATINGS.

EXIT CHANNEL FLOW SUPERCRITICAL: MAX VELOCITY= 2.7 FT/SEC
EXIT SLOPE = 0.030 FT/FT
FLOW DEPTH = 0.2 FT

>>>> NHCP378 RUN - MINIMUM FLOW IN AUX. SPILLWAY FROM TR60
USING FORMULA WITHOUT 200 CFS MINIMUM LIMIT (429. CFS).

ROUTED	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	AUX.-HP	VOL-AUX.
RESULTS	FT	FT	ACFT	AC	FT	ACFT
MIN. AUX.	100.0	102.31	192.5	0.0	1.86	57.6

PEAK - CFS	Q-PS	Q-AUX.	Q-TOT.
DISCHARGE =	54.1	428.7	482.8

	CRITICAL	CRITICAL	CRITICAL	25% OF Q
	DEPTH	VELOCITY	SLOPE-Sc	Sc
AUXILIARY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY ---	0.82	5.09	0.019	0.026

>>>> NHCP378 RUN - MINIMUM DEPTH, CREST AUX. TO TOP OF DAM IS 2.00 FT.
NEW TOP OF DAM ELEVATION = 102.46.

ROUTED	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	AUX.HP	VOL-AUX.
RESULTS	FT	FT	ACFT	AC	FT	ACFT
MINIMUM AUX.	100.0	102.46	198.3	0.0	2.00	63.4

PEAK - CFS	Q-PS	Q-AUX.	Q-TOT.
DISCHARGES =	54.3	501.0	555.3

	CRITICAL	CRITICAL	CRITICAL	25% OF Q
	DEPTH	VELOCITY	SLOPE-Sc	Sc
AUXILIARY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY ---	0.91	5.35	0.019	0.025

GRAPHICS FILES GENERATED

OPTION "L" = H:\SITES_Data\Jerdel\Dam_1.DRG DATED 08/03/2004 13:13:36

OPTION "P" = H:\SITES_Data\Jerdel\Dam_1.DHY DATED 08/03/2004 13:13:36

OPTION "E" = H:\SITES_Data\Jerdel\Dam_1.DEM DATED 08/03/2004 13:13:36

PROJECT NAME: Phil Jerde Dam - Fill

TYPE OF WORK: Fill

RUN DATE: 07-27-2004

RUN BY: John Schmidt

STATION	AREA	ECCENT.	DISTANCE	VOLUME	CUM. VOLS.
0+00	0.00	0.00			0.00
1+00	96.52	0.94	100.00	178.74	178.74
2+00	220.56	2.58	100.00	587.18	765.92
3+00	448.28	4.83	100.00	1238.59	2004.51
4+00	689.29	6.93	100.00	2106.61	4111.12
5+00	935.74	5.95	100.00	3009.31	7120.43
5+35	1411.51	12.39	35.00	1521.37	8641.80
5+48	1635.28	4.73	13.00	733.49	9375.28
5+66	1507.46	6.34	18.00	1047.58	10422.86
5+81	1441.83	11.18	15.00	819.25	11242.11
6+13	1015.62	2.65	32.00	1456.27	12698.38
6+61	318.51	-4.68	48.00	1185.89	13884.27
6+87	0.00	0.00	26.00	153.35	14037.62

TOTAL VOLUME IS 14037.62 CUBIC YARDS

with 5% Settlement = 14740 CY

Topsoil

Top of Dam Face

$$\frac{(14' + 15')(687)(0.5)}{27} = 369 \text{ CY}$$

Emergency Spillway

$$\frac{(100')(249')(0.5)}{27} = 461 \text{ CY}$$

PROJECT NAME: Phil Jerde Dam - Fill

TYPE OF WORK: Fill

RUN DATE: 07-27-2004

RUN BY: John Schmidt

STATION 0+00 ✓

AREA= 0.00 SQ.FT. ECCENTRICITY= 0.00 FT.

STATION 1+00 ✓

ENTRY #	ELEVATION	DISTANCE
1	100.10	-17.20
2	103.50	-7.00
3	103.50	0.00
4	103.50	7.00
5	99.30	19.60
6	99.70	0.00
7	100.10	-17.20

AREA= 96.52 SQ.FT. ECCENTRICITY= 0.94 FT.

STATION 2+00 ✓

ENTRY #	ELEVATION	DISTANCE
1	97.40	-25.30
2	103.50	-7.00
3	103.50	7.00
4	98.50	22.00
5	98.50	32.00
6	96.90	38.40
7	97.10	21.00
8	97.30	0.00
9	97.40	-25.30

AREA= 220.56 SQ.FT. ECCENTRICITY= 2.58 FT.

STATION 3+00 ✓

ENTRY #	ELEVATION	DISTANCE
1	94.50	-34.00
2	103.50	-7.00
3	103.50	7.00
4	98.50	22.00
5	98.50	32.00
6	94.10	49.60
7	93.90	21.00
8	94.10	0.00
9	94.50	-34.00

AREA= 448.28 SQ.FT. ECCENTRICITY= 4.83 FT.

PROJECT NAME: Phil Jerde Dam - Fill

TYPE OF WORK: Fill

RUN DATE: 07-27-2004

RUN BY: John Schmidt

STATION 4+00 ✓

ENTRY #	ELEVATION	DISTANCE
1	91.90	-41.80
2	103.50	-7.00
3	103.50	7.00
4	98.50	22.00
5	98.50	32.00
6	91.00	62.00
7	91.30	21.00
8	91.90	0.00
9	91.90	-41.80

AREA= 689.29 SQ.FT. ECCENTRICITY= 6.93 FT.

STATION 5+00 ✓

ENTRY #	ELEVATION	DISTANCE
1	89.90	-47.80
2	103.50	-7.00
3	103.50	7.00
4	98.50	22.00
5	98.50	32.00
6	89.50	68.00
7	89.70	21.00
8	88.40	0.00
9	89.90	-47.80

AREA= 935.74 SQ.FT. ECCENTRICITY= 5.95 FT.

STATION 5+35 ✓

ENTRY #	ELEVATION	DISTANCE
1	89.30	-49.60
2	103.50	-7.00
3	103.50	7.00
4	98.50	22.00
5	98.50	32.00
6	86.70	79.20
7	82.30	21.00
8	85.50	0.00

9

89.30

-49.60

AREA= 1411.51 SQ.FT.

ECCENTRICITY=

12.39 FT.

PROJECT NAME: Phil Jerde Dam - Fill

TYPE OF WORK: Fill

RUN DATE: 07-27-2004

RUN BY: John Schmidt

STATION 5+48 ✓

ENTRY #	ELEVATION	DISTANCE
1	86.10	-59.20
2	103.50	-7.00
3	103.50	7.00
4	98.50	22.00
5	98.50	32.00
6	86.30	80.80
7	84.30	42.00
8	85.30	21.00
9	83.90	0.00
10	81.00	-38.00
11	86.10	-59.20

AREA= 1635.28 SQ.FT.

ECCENTRICITY=

4.73 FT.

STATION 5+66 ✓

ENTRY #	ELEVATION	DISTANCE
1	84.10	-65.20
2	103.50	-7.00
3	103.50	7.00
4	98.50	22.00
5	98.50	32.00
6	86.30	80.80
7	85.10	39.00
8	81.90	29.00
9	82.50	21.00
10	86.00	16.00
11	86.40	0.00
12	84.80	-40.00
13	82.90	-58.00
14	84.10	-65.20

AREA= 1507.46 SQ.FT.

ECCENTRICITY=

6.34 FT.

STATION 5+81 ✓

ENTRY #	ELEVATION	DISTANCE
1	83.30	-67.60
2	103.50	-7.00
3	103.50	7.00
4	98.50	22.00
5	98.50	32.00
6	84.40	88.40
7	83.60	47.00
8	86.30	21.00
9	87.10	0.00
10	86.30	-45.00
11	83.30	-67.60

AREA= 1441.83 SQ.FT. ECCENTRICITY= 11.18 FT.

PROJECT NAME: Phil Jerde Dam - Fill

TYPE OF WORK: Fill

RUN DATE: 07-27-2004

RUN BY: John Schmidt

STATION 6+13 ✓

ENTRY #	ELEVATION	DISTANCE
1	86.50	-58.00
2	103.50	-7.00
3	103.50	7.00
4	98.50	22.00
5	98.50	32.00
6	88.80	70.80
7	90.30	21.00
8	88.50	0.00
9	86.50	-58.00

AREA= 1015.62 SQ.FT. ECCENTRICITY= 2.65 FT.

STATION 6+61 ✓

ENTRY #	ELEVATION	DISTANCE
1	90.60	-45.70
2	103.50	-7.00
3	103.50	7.00
4	98.50	22.00
5	98.50	32.00
6	96.30	40.80
7	97.30	21.00
8	97.00	0.00
9	90.60	-45.70

AREA= 318.51 SQ.FT. ECCENTRICITY= -4.68 FT.

STATION 6+87

AREA= 0.00 SQ.FT. ECCENTRICITY= 0.00 FT.

PROJECT NAME: Phil Jerde Dam - Emergency Spillway
TYPE OF WORK: excavation
RUN DATE: 07-27-2004 RUN BY: John Schmidt

STATION	AREA	ECCENT.	DISTANCE	VOLUME	CUM. VOLS.
0+00	0.00	0.00			0.00
			82.00	383.68	
0+82	252.66	8.06			383.68
			91.00	660.03	
1+73	139.00	13.91			1043.70
			76.00	195.63	
2+49	0.00	0.00			1239.33

TOTAL VOLUME IS 1239.33 CUBIC YARDS

PROJECT NAME: Phil Jerde Dam - Emergency Spillway
TYPE OF WORK: excavation
RUN DATE: 07-27-2004 RUN BY: John Schmidt

STATION 0+00

AREA= 0.00 SQ.FT. ECCENTRICITY= 0.00 FT.

STATION 0+82

ENTRY #	ELEVATION	DISTANCE
1	102.40	-55.70
2	102.20	-50.00
3	102.60	0.00
4	103.80	50.00
5	104.10	60.80
6	100.50	50.00
7	100.50	-50.00
8	102.40	-55.70

AREA= 252.67 SQ.FT. ECCENTRICITY= 8.06 FT.

STATION 1+73

ENTRY #	ELEVATION	DISTANCE
1	101.00	-51.50
2	101.00	-50.00
3	101.70	0.00
4	102.80	50.00
5	103.00	57.50
6	100.50	50.00
7	100.50	-50.00
8	101.00	-51.50

AREA= 139.00 SQ.FT. ECCENTRICITY= 13.91 FT.

STATION 2+49

AREA= 0.00 SQ.FT. ECCENTRICITY= 0.00 FT.

PROJECT NAME: Phil Jerde Dam # 1 - Stripping

TYPE OF WORK: Excavation

RUN DATE: 07-27-2004

RUN BY: John Schmidt

STATION	AREA	ECCENT.	DISTANCE	VOLUME	CUM. VOLS.
0+00	7.00	0.00			0.00
			100.00	47.04	
1+00	18.40	0.00			47.04
			100.00	93.06	
2+00	31.85	0.00			140.09
			100.00	136.39	
3+00	41.80	0.00			276.48
			100.00	173.52	
4+00	51.90	0.00			450.00
			100.00	203.33	
5+00	57.90	0.00			653.33
			35.00	79.27	
5+35	64.40	0.00			732.60
			13.00	32.36	
5+48	70.00	0.00			764.96
			18.00	47.67	
5+66	73.00	0.00			812.62
			15.00	41.94	
5+81	78.00	0.00			854.57
			32.00	84.39	
6+13	64.40	0.00			938.95
			48.00	95.69	
6+61	43.25	0.00			1034.64
			26.00	24.19	
6+87	7.00	0.00			1058.84

TOTAL VOLUME IS 1058.84 CUBIC YARDS

with 5% Settlement = 1112 CY

PROJECT NAME: Phil Jerde Dam # 1 - Core Trench

TYPE OF WORK: Excavation

RUN DATE: 07-27-2004

RUN BY: John Schmidt

STATION	AREA	ECCENT.	DISTANCE	VOLUME	CUM. VOLS.
0+00	0.00	0.00			0.00
			100.00	44.44	
1+00	24.00	0.00			44.44
			100.00	88.89	
2+00	24.00	0.00			133.33
			100.00	88.89	
3+00	24.00	0.00			222.22
			100.00	88.89	
4+00	24.00	0.00			311.11
			100.00	88.89	
5+00	24.00	0.00			400.00
			35.00	31.11	
5+35	24.00	0.00			431.11
			13.00	11.56	
5+48	24.00	0.00			442.67
			18.00	16.00	
5+66	24.00	0.00			458.67
			15.00	13.33	
5+81	24.00	0.00			472.00
			32.00	28.44	
6+13	24.00	0.00			500.44
			48.00	42.67	
6+61	24.00	0.00			543.11
			26.00	11.56	
6+87	0.00	0.00			554.67

TOTAL VOLUME IS 554.67 CUBIC YARDS

with 5% Settlement = 582 CY

The map displays the Phil Jerde Dam #1, a concrete structure with a spillway, situated on a hillside. The dam's crest is at an elevation of 104 feet. The spillway is 144 feet wide. The map includes contour lines at 2-foot intervals, with labels such as 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1000, 1002, 1004, 1006, 1008, 1010, 1012, 1014, 1016, 1018, 1020, 1022, 1024, 1026, 1028, 1030, 1032, 1034, 1036, 1038, 1040, 1042, 1044, 1046, 1048, 1050, 1052, 1054, 1056, 1058, 1060, 1062, 1064, 1066, 1068, 1070, 1072, 1074, 1076, 1078, 1080, 1082, 1084, 1086, 1088, 1090, 1092, 1094, 1096, 1098, 1100, 1102, 1104, 1106, 1108, 1110, 1112, 1114, 1116, 1118, 1120, 1122, 1124, 1126, 1128, 1130, 1132, 1134, 1136, 1138, 1140, 1142, 1144, 1146, 1148, 1150, 1152, 1154, 1156, 1158, 1160, 1162, 1164, 1166, 1168, 1170, 1172, 1174, 1176, 1178, 1180, 1182, 1184, 1186, 1188, 1190, 1192, 1194, 1196, 1198, 1200, 1202, 1204, 1206, 1208, 1210, 1212, 1214, 1216, 1218, 1220, 1222, 1224, 1226, 1228, 1230, 1232, 1234, 1236, 1238, 1240, 1242, 1244, 1246, 1248, 1250, 1252, 1254, 1256, 1258, 1260, 1262, 1264, 1266, 1268, 1270, 1272, 1274, 1276, 1278, 1280, 1282, 1284, 1286, 1288, 1290, 1292, 1294, 1296, 1298, 1300, 1302, 1304, 1306, 1308, 1310, 1312, 1314, 1316, 1318, 1320, 1322, 1324, 1326, 1328, 1330, 1332, 1334, 1336, 1338, 1340, 1342, 1344, 1346, 1348, 1350, 1352, 1354, 1356, 1358, 1360, 1362, 1364, 1366, 1368, 1370, 1372, 1374, 1376, 1378, 1380, 1382, 1384, 1386, 1388, 1390, 1392, 1394, 1396, 1398, 1400, 1402, 1404, 1406, 1408, 1410, 1412, 1414, 1416, 1418, 1420, 1422, 1424, 1426, 1428, 1430, 1432, 1434, 1436, 1438, 1440, 1442, 1444, 1446, 1448, 1450, 1452, 1454, 1456, 1458, 1460, 1462, 1464, 1466, 1468, 1470, 1472, 1474, 1476, 1478, 1480, 1482, 1484, 1486, 1488, 1490, 1492, 1494, 1496, 1498, 1500, 1502, 1504, 1506, 1508, 1510, 1512, 1514, 1516, 1518, 1520, 1522, 1524, 1526, 1528, 1530, 1532, 1534, 1536, 1538, 1540, 1542, 1544, 1546, 1548, 1550, 1552, 1554, 1556, 1558, 1560, 1562, 1564, 1566, 1568, 1570, 1572, 1574, 1576, 1578,



POOL AREA OF NEW DAM

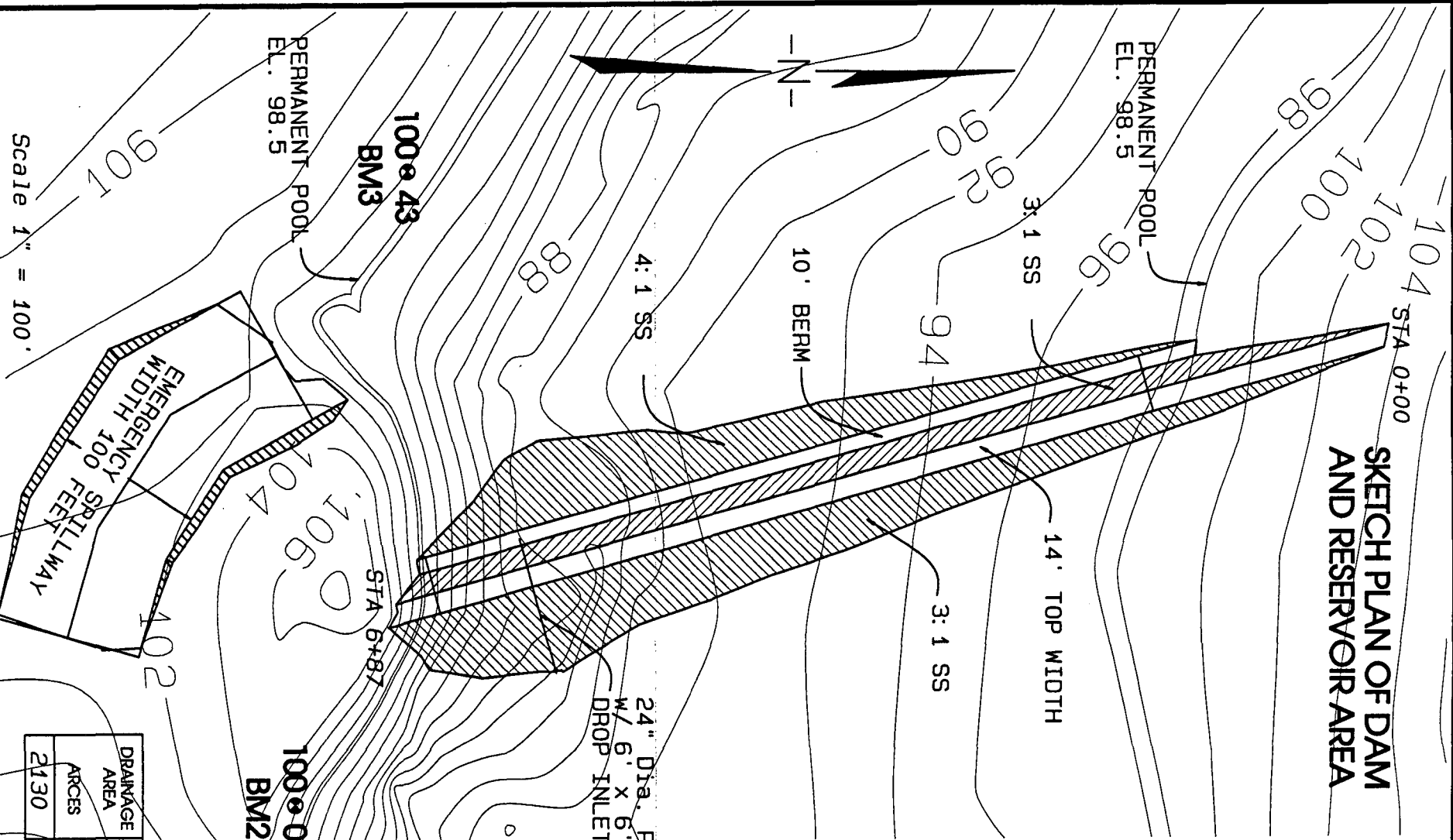


USDA - NRCS
1837 5th Ave South
Belle Fourche
South Dakota 57717

NW1/4 Section 2 T. 16 N. R. 9 E.
Harding County, South Dakota

	Date
Designed <u>John Schmidt</u>	<u>7/30/2004</u>
Drawn <u>John Schmidt</u>	<u>7/30/2004</u>
Checked <u>T. Ver Helst</u>	<u>9/13/04</u>
Approved <u>Thomas D. Ver Helst</u>	<u>9/13/04</u>

SKETCH PLAN OF DAM
AND RESERVOIR AREA



LOCATION MAP

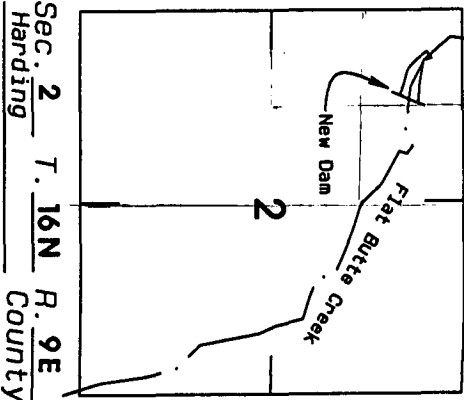
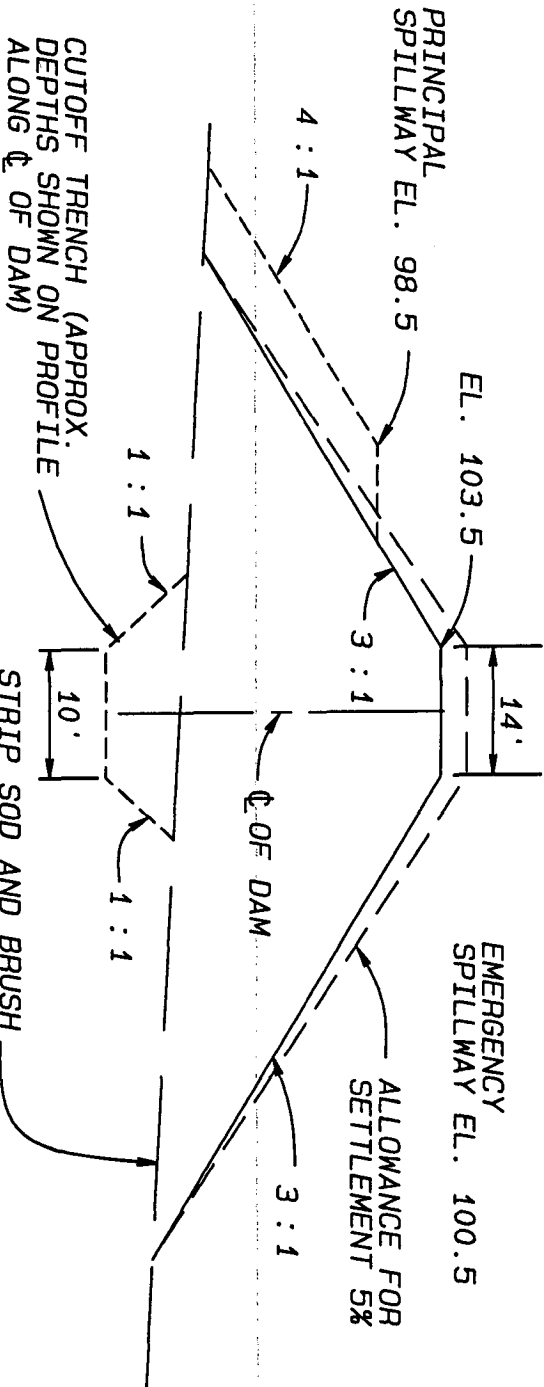


TABLE OF QUANTITIES

ITEM	UNIT	QUANTITY	AS-BUILT
EARTH FILL - CLASS S	CY	14740	
EARTH FILL - CLASS A	CY	50	
STRIPPING	CY	1112	
CORE TRENCH	CY	582	
TOPSOIL	CY	830	
SEEDING	AC	1.5	
CONCRETE DROP INLET - (Per Detail)	EA	1	
24" DIA. - SDR 35 PVC PIPE	LF	93	
SAND ANTI-SEEP DRAIN - (Per Detail)	EA	1	
TIMBER PIPE SUPPORT - (Per Detail)	EA	1	

TYPICAL CROSS-SECTION OF DAM



STRUCTURE DATA

DRAINAGE AREA	ANNUAL YIELD	PEAK RUNOFF	EMERGENCY SPILLWAY CAPACITY	WATER DEPTH	SURFACE AREA	SEDIMENT STORAGE	TOTAL STORAGE
ARCES	AC.FT.	25-YR.	CFS	FEET	ACRES	AC.FT.	AC.FT.
2130	185	304	501	14.6	18.0	10.2	93.0

SOUTH DAKOTA CONSTRUCTION
AND MATERIAL SPECIFICATIONS

SD-4	STRIPPING
SD-7A	EARTH FILL - CLASS A
SD-7S	EARTH FILL - CLASS S
SD-9	DRAINFILL AND FILTER
SD-10	SALVAGING AND SPREADING TOPSOIL
SD-12A	CONCRETE (CLASS 3500)
SD-13	STEEL REINFORCEMENT
SD-16	WOOD FABRICATION AND INSTALLATION
SD-28	SEEDING
SD-55	PLASTIC PIPE
SD O&M	378

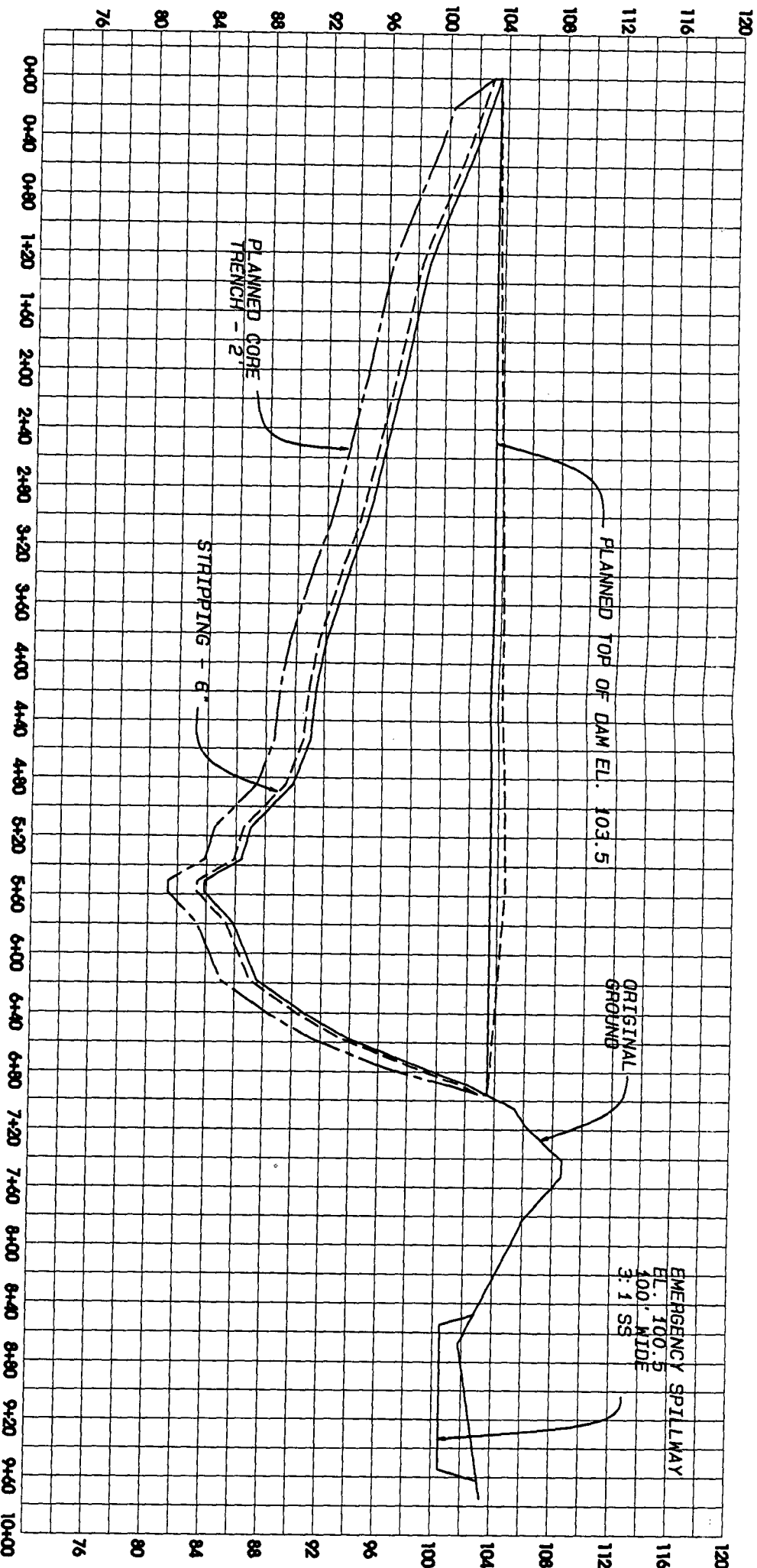


USDA - NRCS
1837 5th Ave South
Belle Fourche
South Dakota 57717

PHIL JERDE DAM #1
NW1/4 Section 2 T. 016 N. R. 009 E.
Harding County, South Dakota

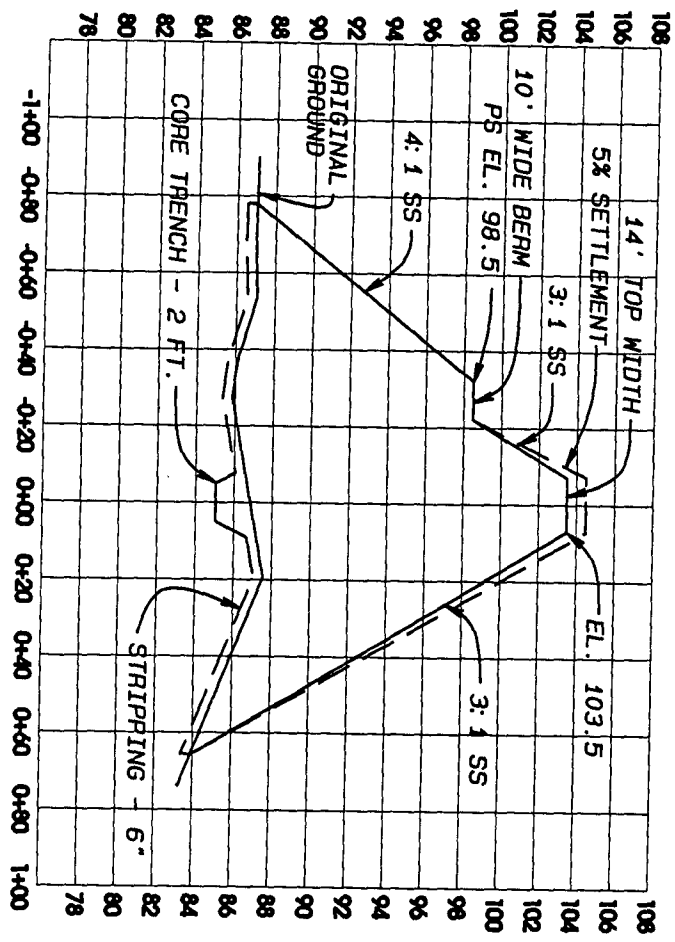
Date 8/9/2004
Designed John Schmidt
Drawn John Schmidt
Checked TVH
Approved

File Name: jerd1.dgn
Drawing No.:
8/9/2004 9:49AM
Sheet 1 of 3



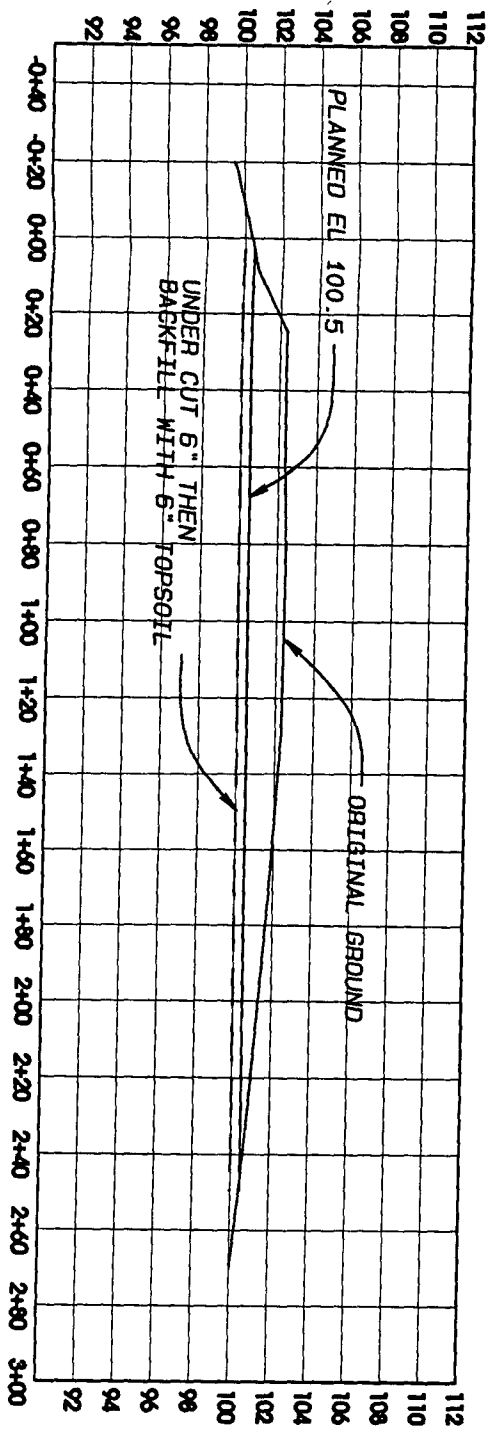
CROSS-SECTION OF EMERGENCY SPILLWAY
AND PROFILE ALONG CENTERLINE OF DAM

Scale: Hor. 1" = 100', Vert. 1" = 10'



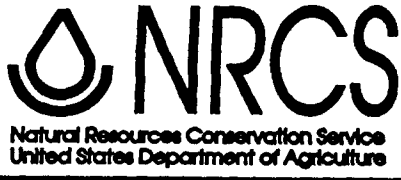
CROSS-SECTION OF DAM

Scale: Hor. 1" = 50', Vert. 1" = 10'



PROFILE OF EMERGENCY SPILLWAY

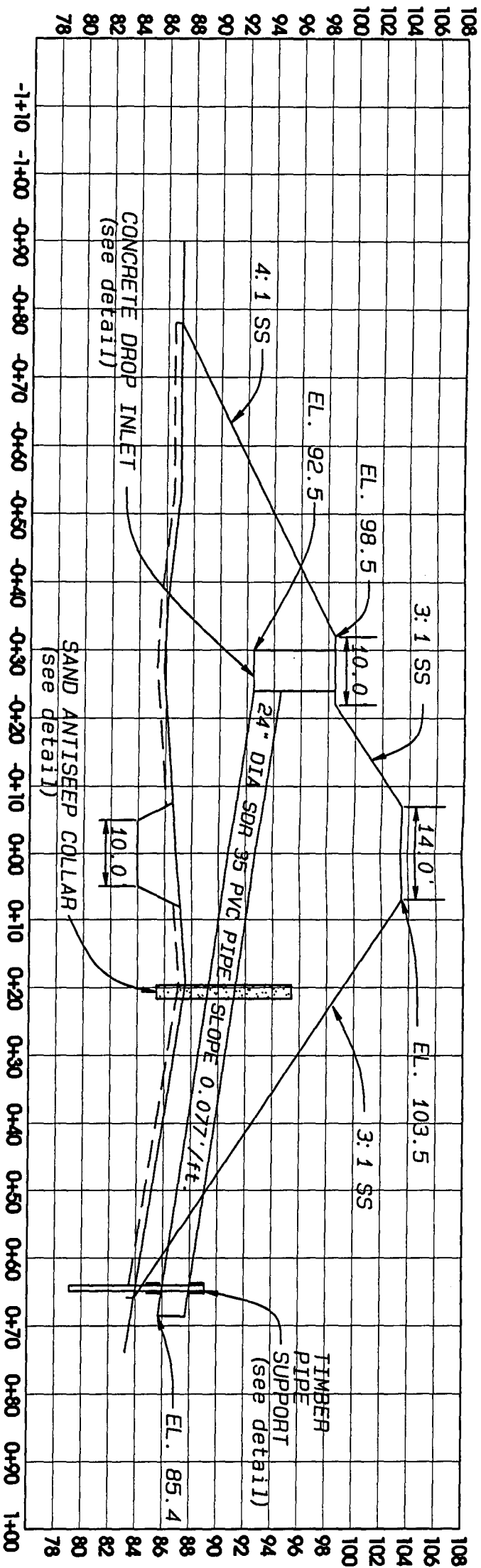
Scale: Hor. 1" = 50', Vert. 1" = 10'



USDA - NRCS
1837 5th Ave South
Belle Fourche
South Dakota 57717

PHIL JERDE DAM #1
NW1/4 Section 2 T.16 N. R. 9 E.
Harding County, South Dakota

Designed	John Schmidt	Date	7/30/2004
Drawn	John Schmidt		7/30/2004
Checked	TVH		9/13/04
Approved			

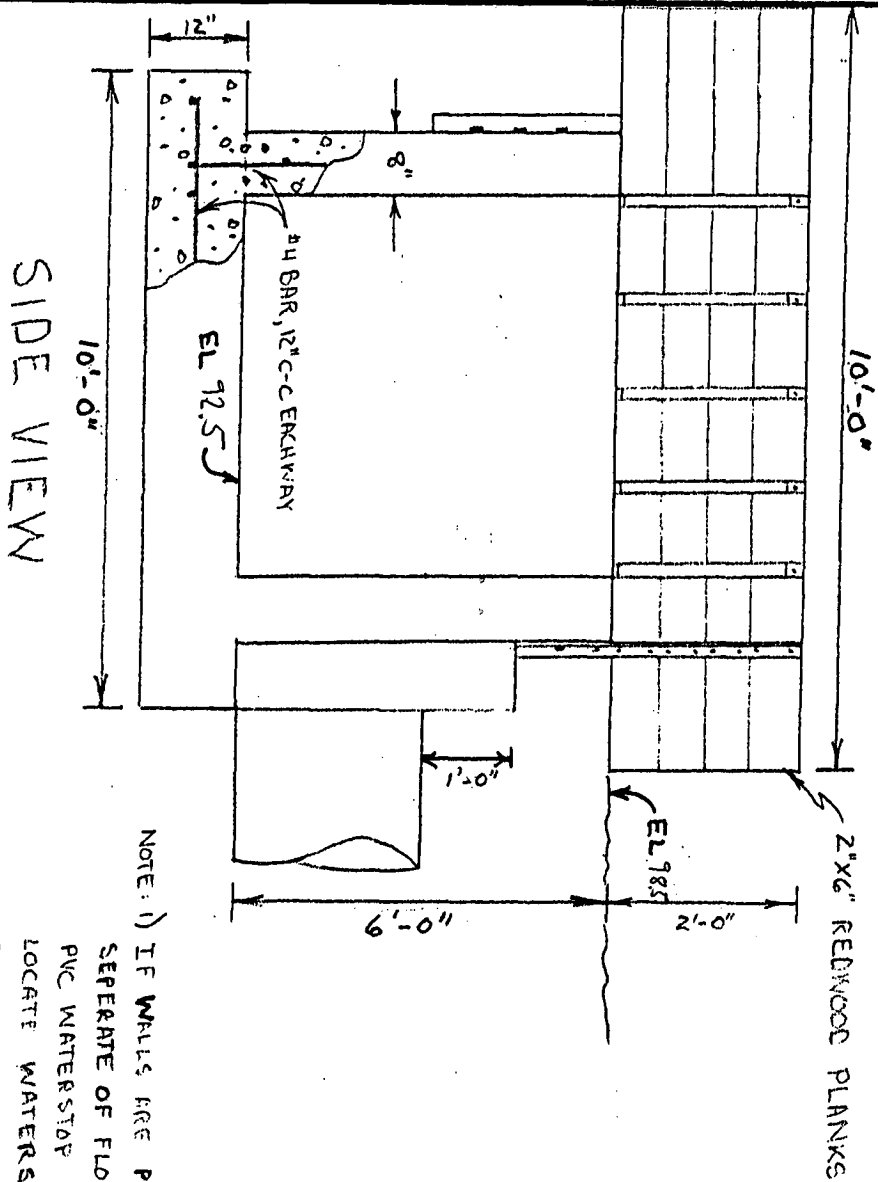
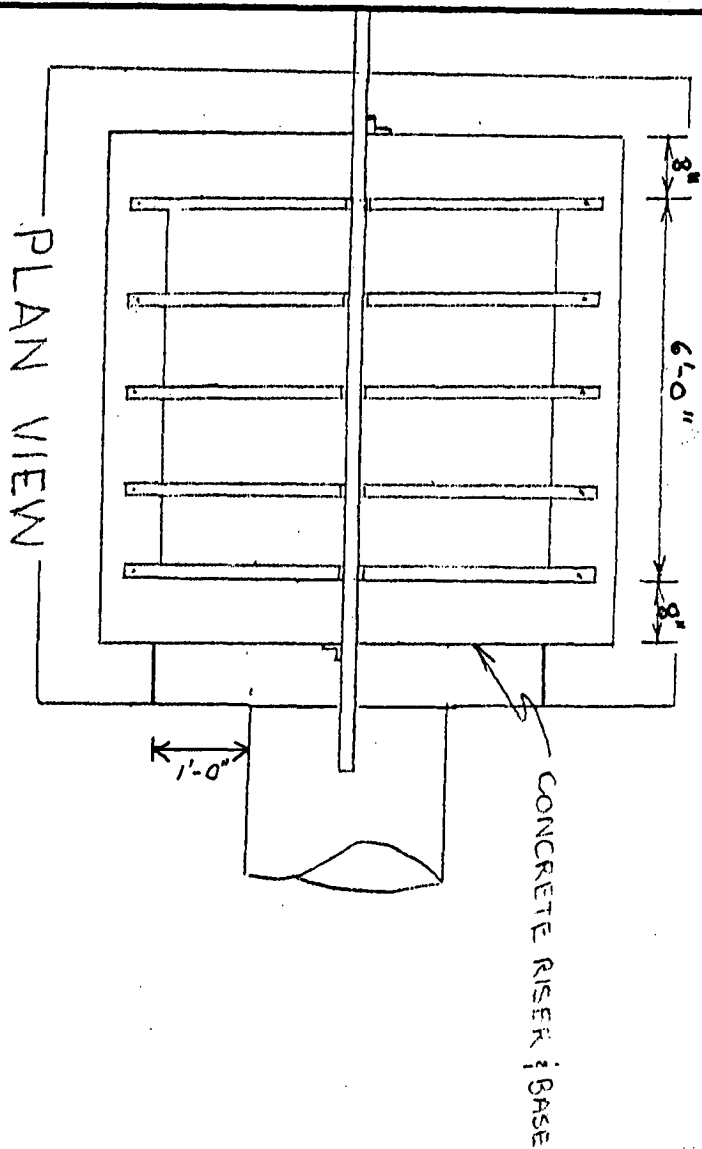


PROFILE OF PRINCIPAL SPILLWAY

Scale: Hor. 1" = 20', Vert. 1" = 10'

NOTES:

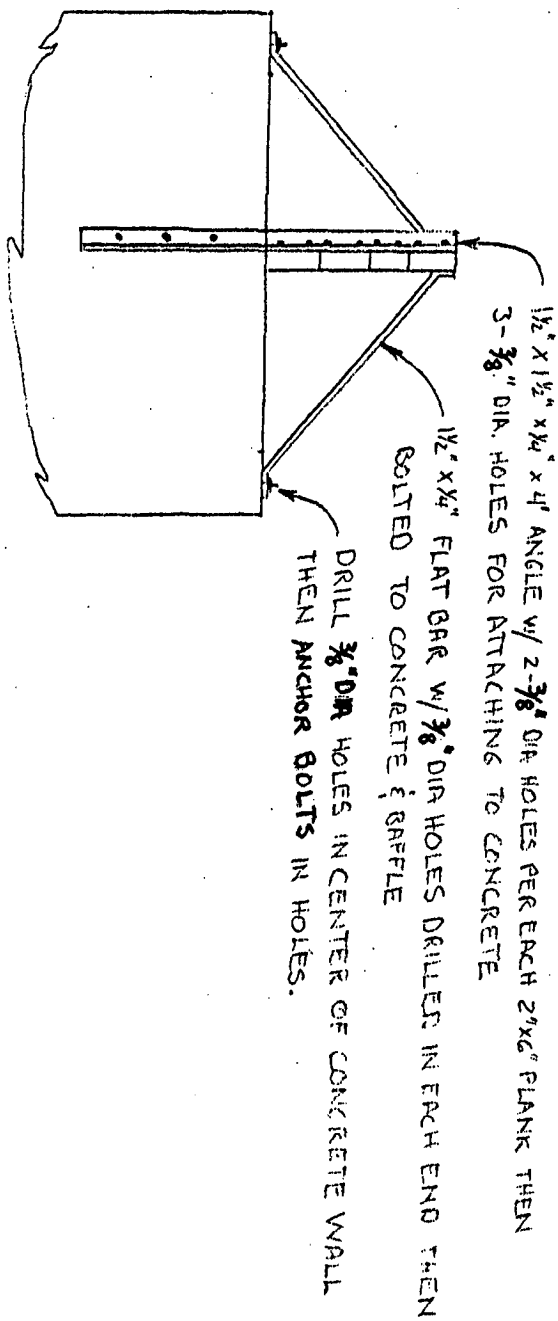
- 1) CONSTRUCT FILL TO 4' ABOVE BOTTOM GRADE OF 24" DIA. PIPE. THEN EXCAVATE DOWN TO THE BOTTOM GRADE OF THE PIPE WITH A 5' WIDE TRENCH.
- 2) PLACE PIPE IN TRENCH THAT HAS BEEN WETTED TO PROPER MOISTURE & SCARIFIED 1 1/2" DEEP.
- 3) BACKFILL AROUND PIPE AND CONCRETE STRUCTURE USING 6" LIFTS FOLLOWING SD-7A EARTH FILL - CLASS A SPECIFICATIONS.



NOTE: 1) IF WALLS ARE POURED
SEPARATE OF FLOOR, A 6" WIDE
PVC WATERSTOP IS REQUIRED.
LOCATE WATERSTOP IN THE
CENTER OF WALL AT JOINT
BETWEEN WALL & FLOOR.

TABLE OF QUANTITIES

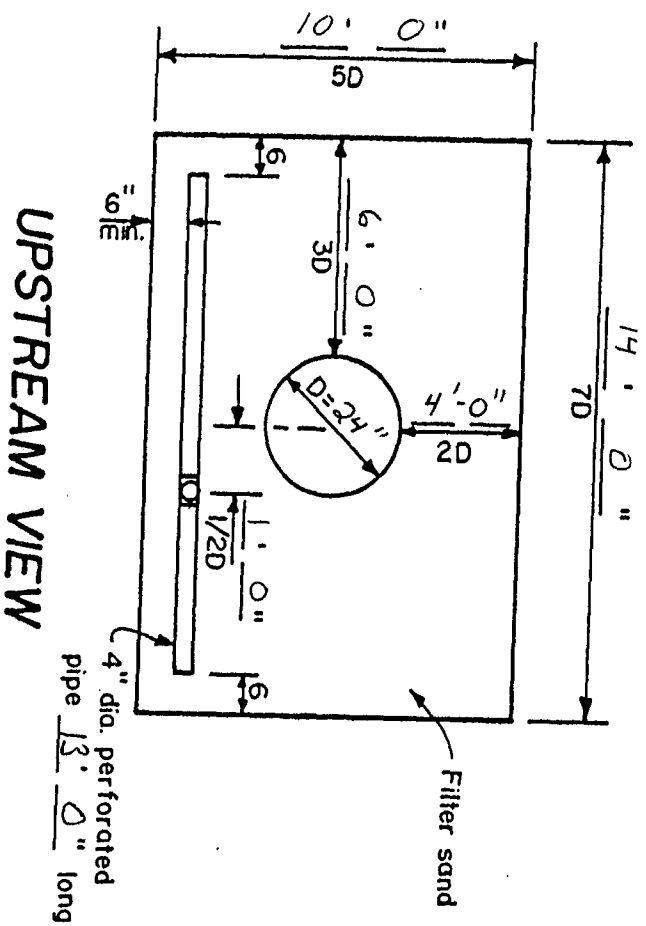
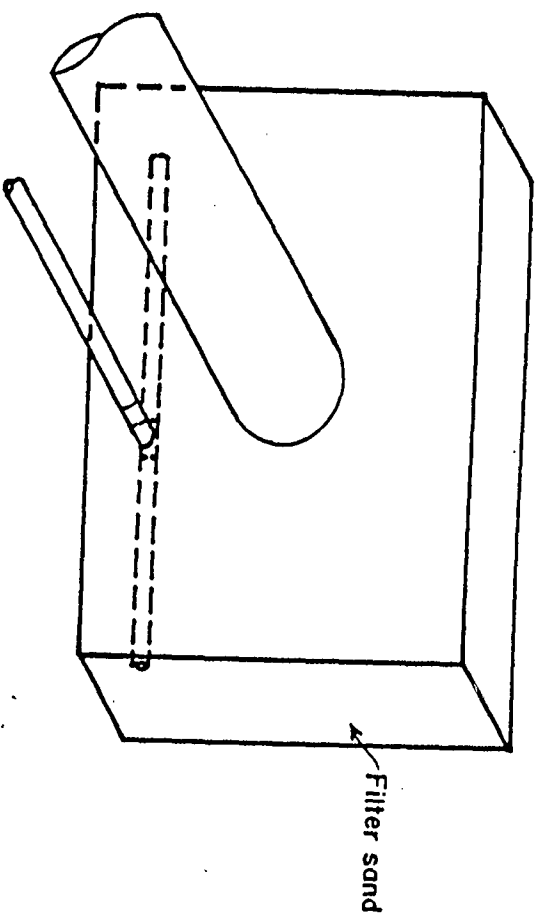
ITEM NO	ITEM	UNIT	QUAN- TITY
1	CONCRETE-REINFORCED	CY	7.1
2	2"X6" REDWOOD PLANKS	LF	40
3	1/2"X1/2"X4" ANGLE - 7' LENGTHS	LF	8
4	1/2"X1/2" FLAT BAR	LF	60
5	3/8"X3" BOLT	EA	23
6	"X3" BOLT	EA	
7	3/8"X2 1/2" BOLT & CONCRETE ANCHOR	EA	20



SOUTH DAKOTA CONSTRUCTION
& MATERIAL SPECIFICATIONS
SD-128 CONCRETE FOR MINOR STRUCTURE
SD-13 STEEL REINFORCEMENT

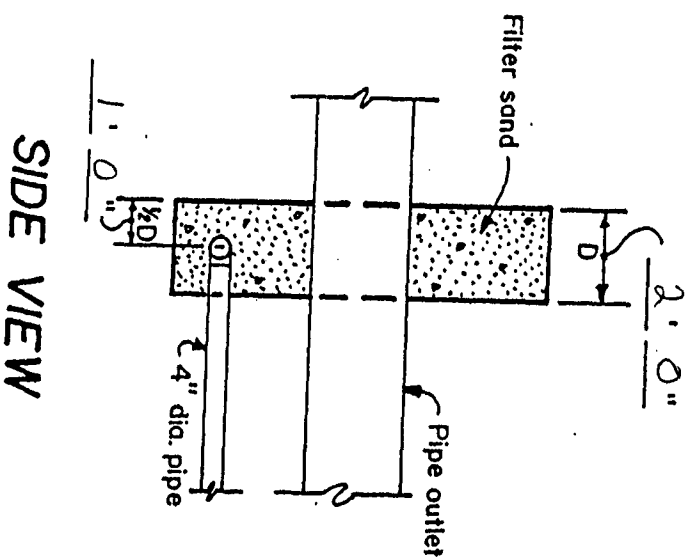
CONCRETE DROP INLET
PHIL JERDE
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed by: T. VER HELST 4/84
Drawn: T. VER HELST 4/84
Title: _____
Sheet: _____
Drawing No.: _____
Checked: _____

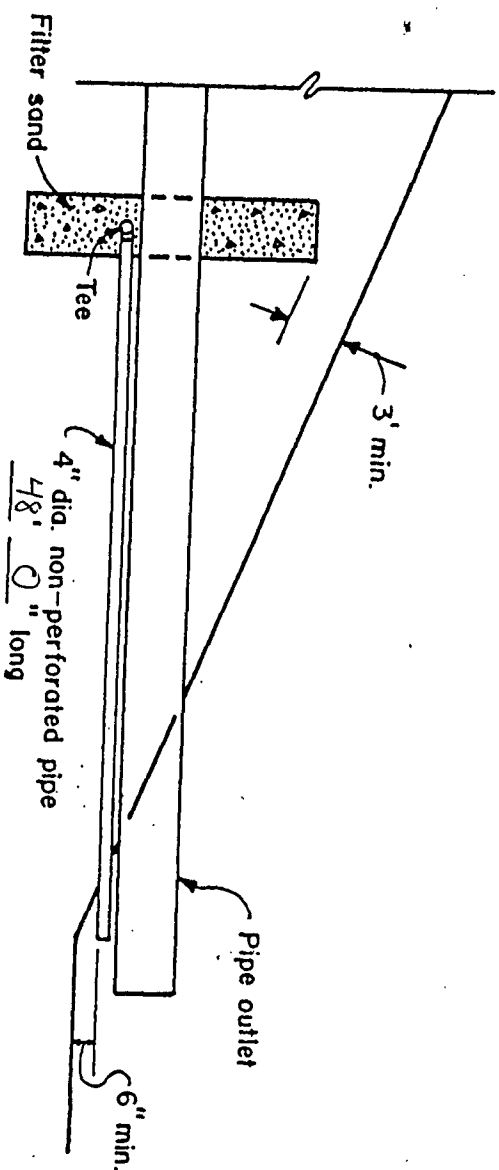


NOTE:

1. THE 4" DIA. PIPE SHALL BE ASTM D1785, SCHEDULE 40, PVC.
2. PROVIDE AN ANIMAL GUARD ON DRAIN OUTLET PIPE. DRILL 2, 1/2" DIA. HOLES, ON $\frac{1}{2}$ 6" FROM END OF PIPE AND PLACE A 3/8" DIA. 5 1/2" LONG GALVANIZED STEEL BOLT THRU THEM AND SECURE WITH A NUT (PLACE BOLT HORIZONTAL).



FILLER GRADATION	
SIEVE SIZE	PERCENT PASSING
3/8"	100
4	95-100
8	80-100
16	50-85
30	25-60
50	10-30
100	2-10



JOB PLAN NO. 38

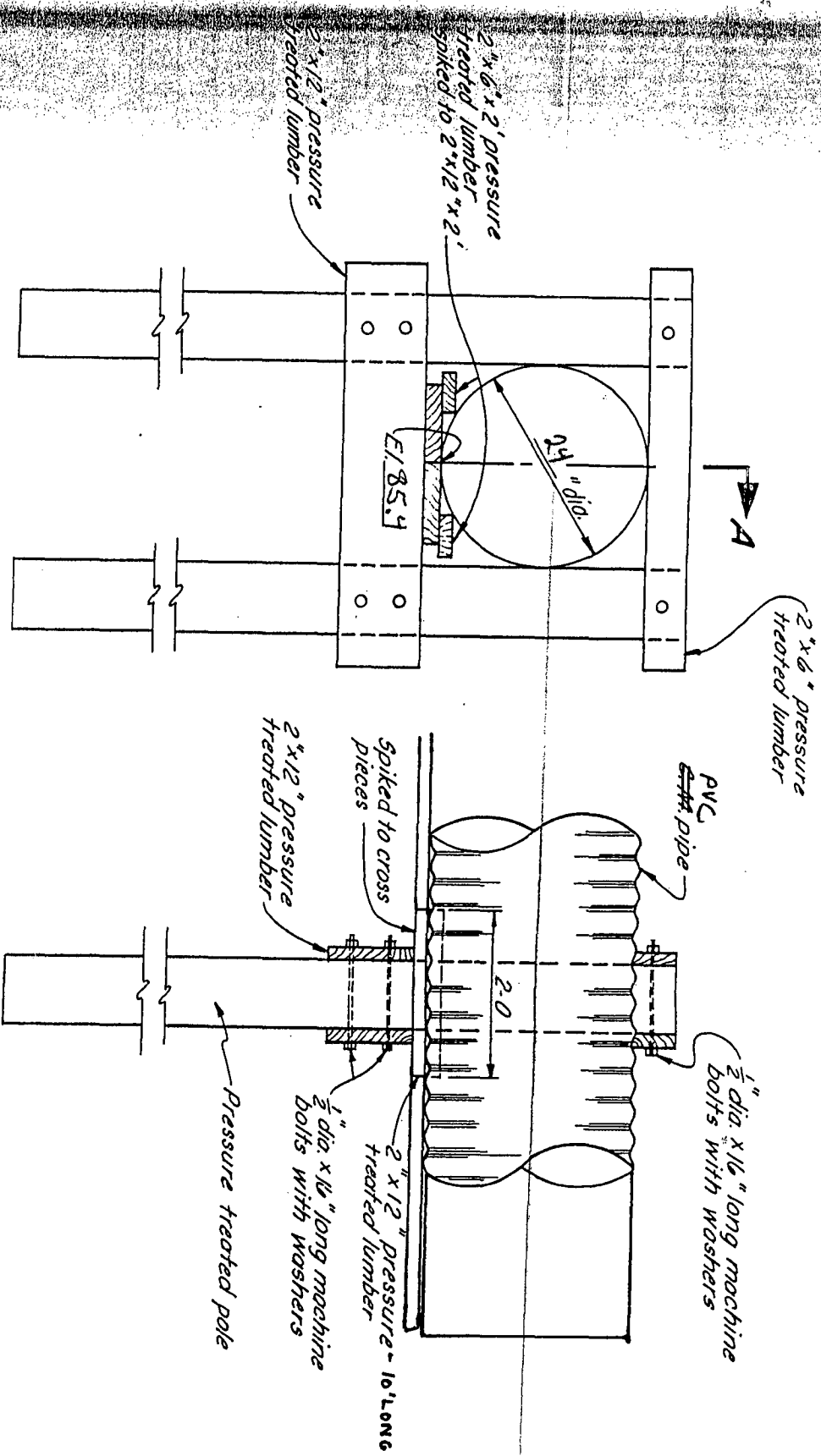
SAND ANTISEEP COLLAR

OPERATOR PHIL JERDE

CONSERVATION DISTRICT PERKINS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed		Date
Drawn	Approved By	
Traced	Title	
Checked	Title	
	Sheet	
	Drawing No.	
	Me	



ELEVATION SECTIONAL ELEVATION A-A

TABLE OF QUANTITIES

ITEM	LENGTH FOR 24" DIA. PVC PIPE	UNIT	QUANTITY
PRESSURE TREATED POLE 10" DIA.	10'-0"	EACH	2
2" X 12" PRESSURE TREATED LUMBER	10'-0"	EACH	2
2" X 6" PRESSURE TREATED LUMBER	4'-0"	EACH	2
2" X 12" PRESSURE TREATED LUMBER	4'-0"	EACH	2
2" X 6" PRESSURE TREATED LUMBER	2'-0"	EACH	2
1/2" DIA. MACHINE BOLTS WITH NUTS	1-4	EACH	10
1/2" DIA. WASHERS		EACH	20

NOTES:
1. HAND OR MACHINE TAMP BACKFILL THOROUGHLY AROUND FOOTINGS AND COLUMNS.

TIMBER PIPE SUPPORT

OPERATOR: PHIL JERDE
CONSERVATION DISTRICT: PERKINS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed by _____	Approved by _____
Drawn by _____	Title _____
Traced by _____	Sheet _____
Checked by _____	Drawing No. _____

REFERENCE: GUIDE PLAN NO. 4.0

JOB PLAN NO. 4.0

5, N-29, 073.4a



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

November 22 2004

Philip Jerde
13901 Zeona Rd.
Reva, SD 57651

Dear Mr. Jerde:

We have reviewed the plans and specifications for your dam project located in the NW ¼ NW 1/4 of Section 2-T16N-R9E, in Harding County. The plans and specifications as submitted are approved. Approval of the plans and specifications does not authorize construction of the dam. The construction of the dam may not begin until Water Permit No. 1827-1 is approved.

Our review was to determine compliance with the requirements of the Water Management Board Safety of Dams Rules, Chapter 74:02:08. Approval of these plans and specifications does not release you, as owner of the dam, from the responsibility for operating and maintaining the dam in good repair to ensure the safety of the dam.

The Jerde Dam will be classified as a small size Category 3, Low Hazard dam with a dam height of 20 feet and a normal storage capacity of 93 acre-feet and a maximum storage capacity of 240 acre-feet.

If you have any questions, please feel free to contact us.

Sincerely,

Gale N. Selken, P.E.
Natural Resources Engineer Director
for Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

c: Tom VerHelst, NRCS, Belle Fourche



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

November 22, 2004

John Watkins
15591 Vernal Rd
Prairie City SD 57649

Dear Mr. Watkins:

Please find enclosed a copy of the report, recommendation and public notice for Water Permit Application No. 1827-1 filed by Philip Jerde.

The public notice is to be published on December 2 and 9, 2004 in the Nation's Center News. Petitions to intervene need to be filed by December 20, 2004 if you wish to have a hearing scheduled before the Water Management Board on this application.

It is our understanding that you now own the land once held by Derrel Brown authorized for irrigation by Water Right No. 456-1. I am unsure whether this ground is still irrigated. If it is still irrigated you should contact us to have the water right transferred to your name. A copy of the water right is also enclosed.

This information is being sent to keep you apprised of water permit application located above Water Right No. 456-1. Contact Tim Schaal or me if you have any questions.

Sincerely,

Eric Gronlund
Water Rights Program, DENR
(605) 773-3352
eric.gronlund@state.sd.us

enclosure

**SF RANCH
JOHN AND IONE WATKINS**

15591 Vernal Road
Prairie City, SD
57649
phone/fax (605)866-4845

RECEIVED
DEC 17 2004
WATER RIGHTS
PROGRAM

December 15, 2004

Department of Environment
And Natural Resources
Water Rights Program
Foss Building
523 E Capitol
Pierre SD 57501
(605) 773-3352

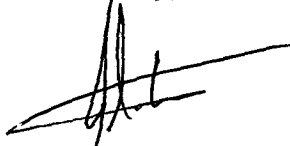
Dear Mr. Erbele, Chief Engineer:

This letter is in response to Water Permit Application No. 1827-1 filed by Philip Jerde.

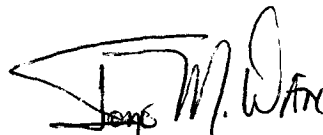
At this time we are not contesting this permit application because the dam is already in place, and we are unsure of the impact of this dam on our irrigation system (Water Right No. 456-1). Our concern is about the amount of run off on Flat Butte Creek. The old dam that is in place is of diminished capacity and does not give an adequate indication of the impact of the proposed dam.

Therefore we submit this letter, with the request, that if it is determined the proposed dam has negatively impacted the Water Right No. 456-1 that we be scheduled a hearing before the Water Management Board.

Sincerely,



John A. Watkins



Ione M. Watkins



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

January 5, 2005

Philip Jerde
13901 Zeona Road
Reva SD 57651

John and Ione Watkins
15591 Vernal Road
Prairie City SD 57649

Dear Mr. Jerde and Mr. & Mrs. Watkins:

Water Permit Application No. 1827-1 filed by Mr. Jerde seeks authorization to impound 93 acre feet of water in a dam in Harding County for fish and wildlife propagation, recreation and livestock watering.

John and Ione Watkins filed a letter in response to the Notice of Application published in the Nation's Center News. The letter states that they are not contesting the permit application at this time. However, the letter does express concern on potential impacts to their downstream irrigation water right.

This letter is not viewed by the Water Rights Program as a petition opposing the application. Pursuant to South Dakota Codified Law 46-2A-23, the water permit may be issued as recommended without a hearing before the Water Management Board. However, if either party of record desires the application to be scheduled for consideration before the Board, please contact the Water Rights Program in writing by January 17, 2005. The application will then be scheduled for a March 2 -3, 2005 hearing before the Water Management Board. If no request is filed by January 17th, the water permit will be issued.

The issuance of this water permit does not preclude an individual from filing a complaint claiming flows are not being bypassed to satisfy their downstream water right. The Water Rights Program will investigate claims of impairment and the matter may be scheduled for hearing before the Water Management Board.

If anyone has questions on the water permitting process, please contact Eric Gronlund at (605) 773-3352.

Sincerely,

Garland Erbele, Chief Engineer
Water Rights Program

Gronlund, Eric

From: Schaal, Tim
Sent: Thursday, February 17, 2005 2:38 PM
To: Gronlund, Eric
Subject: FW: Regarding Water Permit

-----Original Message-----

From: peggycreekranch [mailto:peggycreekranch@sdplains.com]
Sent: Thursday, February 17, 2005 1:22 PM
To: tim.schaal@state.sd.us
Subject: Regarding Water Permit

Department of Environment and Natural Resources
PMB 2020
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3182

Dear DENR,

Thanks for your consideration and timely action on our permit application. I have discussed the project at length with both Tim Schaal and Eric Gronlund of your office.

On December 27th, 2004, I received a letter from the Watkins' concerning the newly constructed dam. In the letter, they contend that they are "unsure of the impact of this dam on our irrigation system". In an inspection of the early dam construction in late November 2004, however, John Watkins assured me that the dam would not negatively impact his irrigation downstream.

Watkins' also contend in the letter that: "The old dam that is in place is of diminished capacity and does not give an adequate indication of the impact of the proposed dam." That "old dam" backs up water for about one-half mile and is about 12 to 15 foot deep when full. It clearly is not of "diminished capacity" as it is the largest dam for miles in any direction.

Also, the "old dam" was in place long before the downstream irrigation was ever permitted. I would reason that the dam has raised the water table in the area which has aided the downstream water users as well.

Please include a copy of this letter in the file. Thank you again for your consideration.

Sincerely,

Philip S. Jerde
Reva, SD

REPORT ON
WATER PERMIT APPLICATION No. 1827-1
Philip Jerde
November 4, 2004

Water Permit Application No. 1827-1 has been filed by Philip Jerde to impound 93 acre-feet of water from runoff by constructing a dam located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 2-T16N-R9E, in Harding County. The application also requests impoundment of sufficient water to maintain water at the outlet elevation. The water will be used for fish and wildlife production, recreation and livestock water purposes.

Discussion:

The dam will be classified as a small size, Category 3, Low Hazard dam. The Natural Resources Conservation Service (NRCS) has designed the dam. The plans and specifications have been reviewed and will be approved; however, construction of the dam can not begin until Water Permit Application No. 1827-1 is approved.

The Jerde Dam will be 20 feet high with a normal storage capacity of 93 acre-feet with a reservoir level at the primary spillway elevation, and a maximum storage capacity of 240 acre-feet with a reservoir level at the top of dam elevation. A dam of this size and hazard classification is required to have a minimum spillway design capable of passing a 25-year frequency event.

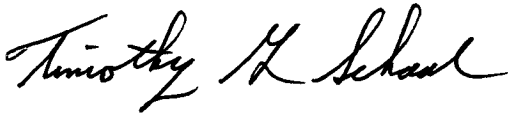
The dam has a drainage area of 2130 acres or 3.33 square miles. The dam is designed to have a 6 foot square concrete riser and a 24 inch diameter PVC barrel with 5 feet of available freeboard as the primary spillway, and a 100 foot wide earthcut secondary spillway with 3 feet of available freeboard. A 25-year frequency event for this drainage produces a peak runoff of approximately 412 cfs and a 100-year frequency event produces a peak runoff of approximately 749 cfs. The 100 foot wide secondary spillway has a capacity of approximately 1350 cfs.

The annual yield for this drainage area with an 80 percent chance of occurrence, or 8 out of 10 years, is expected to be 7 acre-feet. The annual yield with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be 23 acre-feet and the annual yield with a 10 percent chance, or 1 out of 10 years, is expected to be 149 acre-feet.

The Jerde Dam will be located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 2-T16N-R9E on Flat Butte Creek about six miles upstream of the confluence of Flat Butte Creek and Antelope Creek. Mr. Jerde owns another dam located on Flat Butte Creek approximately one-half mile below the proposed dam. According to Mr. Jerde this dam has been in place for about 40 or 50 years. It has approximately 675 additional acres of drainage area, and Mr. Jerde does not have any interference concerns with the proposed dam. Water Permit No. 456-1 is located on Flat Butte Creek about one-half mile downstream of the Jerde dams. It is in the name of Derrell Brown, but currently owned by John Watkins. Water Permit No. 456-1 has a priority date of March 4, 1960, and appropriates 6.66 cfs to irrigate 466 acres located in Sections 7,8,17 and 18 of T16N-R10E and Sections 11 and 12-T16N-R9E. This is a flood irrigation system using dikes and ditches starting about one mile downstream of the proposed dam and continuing along Flat Butte Creek for about three miles. The irrigation system has additional drainage, other than that above the upstream dams, starting with approximately 900 acres for the upper end and 3000 acres for the lower end. The existing Jerde dam was probably in place either before or about the same time as Water Permit No. 456-1 was developed, and there does not appear to be any interference problems with the upstream dams.

Conclusions:

1. Water Permit Application No. 1827-1 should be approved since unappropriated water is available and approval should not have any adverse effect on existing Water Permits/Rights. However, based on annual yield estimates, the reservoir may not be filled annually.
2. If approved, the low flow bypass requirement for downstream domestic use should be a qualification on Water Permit Application No. 1827-1.



Timothy G. Schaal, P.E.
Natural Resources Engineer Specialist

Approved by:



Gale N. Selken, P.E.
Natural Resources Engineer Director



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 1827-1, Philip Jerde**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning Water Permit Application No. 1827-1, Philip Jerde, 13901 Zeona Rd, Reva SD 57651.

The Chief Engineer is recommending APPROVAL of Application No. 1827-1 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest with the following qualifications:

1. Water Permit No. 1827-1 authorizes a dam with a storage capacity of 93 acre feet of water and sufficient water annually to maintain the water level to an outlet elevation.
2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

See report on application for additional information.

Garland Erbele, Chief Engineer
November 19, 2004

Affidavit of Publication

STATE OF SOUTH DAKOTA:
COUNTY OF HARDING:

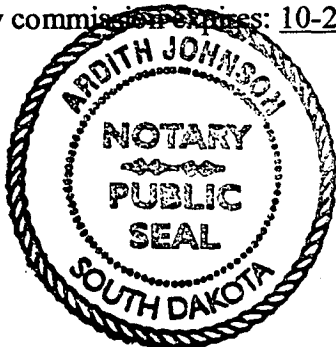
Stewart Huntington of said County and State being first duly sworn, on his oath says: That the NATION'S CENTER NEWS is a legal weekly newspaper of general circulation, printed and published in the City of Buffalo, in said County and State by Stewart Huntington, and has been such a newspaper during the times hereinafter mentioned; and that said newspaper has a bonafide circulation of at least 200 copies weekly, and has been published within said County in the English language for at least one year prior to the first publication of the notice herein mentioned, and is printed in whole or in part in an office maintained at the place of publication; and that I, Stewart Huntington, the undersigned, am the Publisher of said newspaper and have personal knowledge of all the facts stated in this affidavit; and that the advertisement headed:

Notice of Application
No. 1827-1

a printed copy of which is hereto attached, was printed and published in said newspaper for 2 successive and consecutive weeks, the first publication being made on the 2nd day of Dec, 2004, and the last publication on the 9th day of Dec, 2004, that the full amount of fees charged for publishing same, to-wit: The sum of \$ 36.88, insures solely to the benefit of the publisher of the NATION'S CENTER NEWS, that no agreement or understanding for a division thereof has been made with any person and that no part thereof has been agreed to be paid to any other person whomsoever.

[Signature]
Subscribed and sworn to before me this 9th day of Dec, 2004

[Signature]
Notary Public, Lawrence County, South Dakota
My commission expires: 10-24-2010



NOTICE OF APPLICATION NO. 1827-1 to Appropriate Water

Notice is given that Philip Jerde, 13901 Zeona Rd, Reva SD 57651 has filed an application for a water permit to impound 93 acre-feet of water from runoff by constructing a dam located in the NW 1/4 NW 1/4 Section 2 with water impounded in the NW 1/4 NW 1/4 Section 2; in T16N-R9E and SW 1/4 SE 1/4 Section 34-T17N-R9E. This application request impoundment of sufficient water to maintain water to the outlet elevation. The water is for fish and wildlife propagation, recreation and livestock water purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 1827-1, because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on the application, as recommended, unless a petition if filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by December 20, 2004.

The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application.

Steven M. Pirmer,
Secretary,
Department of Environment and Natural Resources.

#971
Dec. 2, 9

RECEIVED
DEC 10 2004
WATER RIGHTS
PROGRAM

Instruction to Newspaper - Publish first Notice on December 2, 2004 with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 1827-1 to Appropriate Water

Notice is given that Philip Jerde, 13901 Zeona Rd, Reva SD 57651 has filed an application for a water permit to impound 93 acre-feet of water from runoff by constructing a dam located in the NW ¼ NW ¼ Section 2 with water impounded in the NW ¼ NW ¼ Section 2; in T16N-R9E and SW ¼ SE ¼ Section 34-T17N-R9E. This application request impoundment of sufficient water to maintain water to the outlet elevation. The water is for fish and wildlife propagation, recreation and livestock water purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 1827-1 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

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The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

NOTE: TO BE SURE OF PUBLICATION ON
THE CORRECT DATES, CONTACT
THE NEWSPAPER RIGHT AWAY.

November 22, 2004

Philip Jerde
13901 Zeona Rd
Reva SD 57651

Dear Mr. Jerde:

Water Permit Application No. 1827-1 for fish & wildlife propagation, recreation, livestock use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Publisher of the Nation's Center News printed at Buffalo, SD (Ph # 605-375-3228). You will need to contact the newspaper and authorize publication of this notice. For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspaper to authorize publication of your Notice and to arrange for payment. Early contact with the paper can eliminate delays. Upon receiving authorization, the publisher has been instructed to publish your notice once each week for two consecutive weeks. The newspaper has also been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the application.

Sincerely,


Eric Gronlund
Natural Resources Engineer
(605) 773-3352

enclosures

NOTE: If you plan to contest any part of the Chief Engineer's recommendation, you must file a petition pursuant to the procedures outlined in the attached notice of hearing. The Water Management Board will then consider your concerns during a hearing on the application.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

November 22, 2004

Nation's Center News
PO Box 7
Buffalo SD 57720-0107

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application No. 1827-1 to Appropriate Water to be published twice. Please publish the first notice on December 2, 2004 with the second publication 7 days later. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352.

The applicant must verify to you that the notice is to be published, before you make the first publication. **Please BILL the APPLICANT for the cost of publication.** The APPLICANT is Philip Jerde, 13901 Zeona Rd, Reva SD 57651 (Ph # 605-866-4888).

Please send the Water Rights Program the first publication immediately. The publication is checked for accuracy so any corrections can be made in the second publication. You may use the form below or fax a copy of the first publication. Any fax should be sent to the attention of Karen Schlaak at (605) 773-4068. Publication errors can invalidate the public notice.

After the second publication, **please send us an affidavit or use the enclosed Proof of Publication form.** The applicant pays the cost of publication, but the Water Rights Program records require an affidavit or Proof of Publication. Delays in receiving the affidavit can be costly to the applicant.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

-----CUT HERE-----

No. 1827-1

TO: Eric Gronlund
Water Rights Program
Joe Foss Building
Pierre SD 57501-3181

Date _____

We are in receipt of your letter of November 22, 2004 enclosing Notice to Appropriate Water by Application No. 1827-1 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name

Newspaper



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

APR 15 2005

Philip Jerde
13901 Zeona Rd
Reva SD 57651

Dear Mr. Jerde:

Enclosed is Water Permit No. 1827-1 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

Form 10, *Notice of Completion of Works and Application of Water to Beneficial Use*, is enclosed. Please return this completed form after you have finished the system and have put the water to beneficial use. An investigation can then be scheduled so the water license may be issued, thus completing the acquisition of a water right.

An informational sheet *Common Water Right Questions?* is also enclosed. This sheet is intended to answer some of the questions associated with obtaining and keeping a water right.

Sincerely,

Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

**NOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USE**

Date APRIL 20, 2005

TO: Water Rights Program, DENR
523 E. Capitol
Pierre, SD 57501-3181

RECEIVED

APR 25 2005

FROM: PHILIP S. JERDE
(name)

WATER RIGHTS
PROGRAM

13901 ZEONA RD.
(address)

REVA, SD 57651
(city, state, zip)

605-866-4888
(phone)

I have completed the construction of the water use system and I have put the water to beneficial use to the maximum extent it is going to be used.

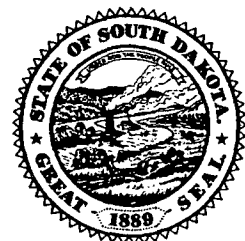
Water Permit No. 1827-1 states that the water use system is to be constructed by
DEC 20, 2009 , and water is to be put to beneficial use by DEC 20, 2013
(date) (date)

The water use system was completed on DECEMBER 2005
(date)

Applying the water to beneficial use was completed on DECEMBER 2005
(date)

You may schedule an investigation so that the water license may be issued.

RP. S. Jerde
(signature)



Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 1827-1

I have this day, November 9, 2016, made a thorough examination of the water use system constructed by Philip Jerde, 13901 Zeona Rd, Reva, SD 57651 of Permit No. 1827-1, bearing the priority of 9/30/2004 authorizing the diversion and storage of 93 acre-feet of water of Flat Butte Creek for fish, wildlife, recreation and livestock watering purposes, in Harding County.

Inspection contact & relationship to permit holder, if applicable:

Philip Jerde, owner
605-866-4888

A. Dam Information:

- 1) Height to crest 20.0 feet from downstream toe
- 2) Height to primary spillway 15.0 feet from downstream toe
- 3) Height to secondary spillway 17.0 feet from downstream toe
- 4) Crest width 14 feet
- 5) Crest length 695 feet
- 6) Primary Spillway diameter 24 inches
- 7) Secondary Spillway width 100 feet
- 8) Approx. storage to primary spillway 93 ac-ft
- 9) Approx. storage to crest 237 ac-ft

Date constructed: December 2005

B. Works used to put water to beneficial use:

This is an earth fill embankment utilizing a PVC pipe principal spillway and a vegetated earth emergency spillway. The water impounded in the reservoir is put to beneficial use in-place.

C. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by: Yes

Low flows as needed for downstream domestic use including livestock and prior water rights must be by-passed. A permanent by-pass structure was not installed. Any by-pass of flows if needed will use temporary means.

Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period. N/A

List any extended period of nonuse: **none**

- 2) Exceptions to compliance are: none

D. Condition and Location:

1. The system is in **good** condition with the point of diversion located as follows:
612' E and 589' S of the NW corner Section 2 T16N R9E (45.384409, -102.996420)

The works are capable of diverting to the place of use and storing **93.0** acre-feet of water which is to be used for **fish & wildlife propagation, recreation and livestock watering purposes**. Water has been put to beneficial use to the maximum extent and the license should be issued for **93.0 acre-feet** storage.

2. All structures, wells and lands on map **Yes**

E. Comments or other permit(s) associated with the project: none



Steven Quissell
Water Rights Inspector
DENR, Water Rights Program

Date report completed: **11/14/2016**



embankment, pool and outlet

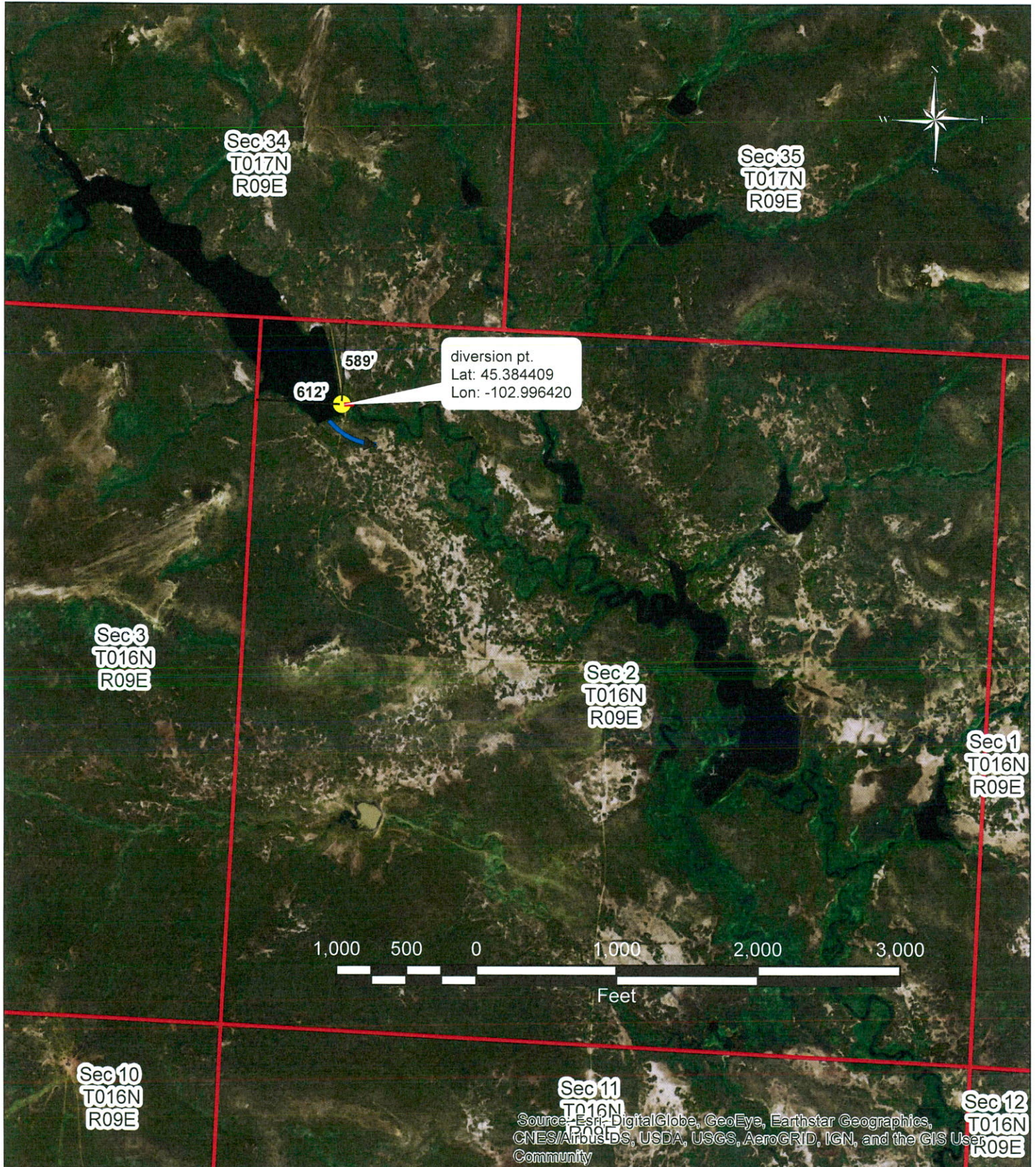


riser and trash rack



PVC principal spillway outlet

Water Right #1827-1
Philip Jerde
11/9/2016



Steven Quissell

Steven Quissell
Water Rights Inspector
DENR Water Rights Program



STATE OF SOUTH DAKOTA
WATER LICENSE NO. 1827-1

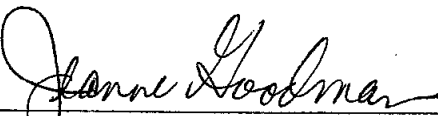
(1) Philip Jerde, 13901 Zeona Rd, Reva SD 57651 made Application No. 1827-1, September 30, 2004 for a water permit to impound 93 acre feet of water from runoff, Harding County, South Dakota for fish and wildlife propagation, recreation and livestock watering purposes. Permit No. 1827-1, with a priority date of September 30, 2004 was approved December 20, 2004 and issued to the applicant for impoundment of water with construction of the described water supply system to be completed on or before December 20, 2009 and for the application to beneficial use of water on or before December 20, 2013.

(2) The water supply system has been completed and water applied to beneficial use in accordance with South Dakota State Law. Pursuant to South Dakota Codified Law 46-5-30.1, the holder and/or owner of Water Right No. 1827-1 is issued a license, bearing a priority date of September 30, 2004, to impound 93 acre feet of water from runoff on a tributary of Flat Butte Creek for fish and wildlife propagation, recreation and livestock watering purposes.

The location of the storage dam (spillway) is 612 feet E and 589 feet S of the NW corner of Section 2-T16N-R9E (NW 1/4 NW 1/4).

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 1827-1, including the following qualifications:

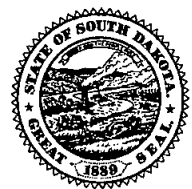
- Water Permit No. 1827-1 authorizes a dam with a storage capacity of 93 acre feet of water and sufficient water annually to maintain the water level to an outlet elevation.
- Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.



Jeanne Goodman, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

JAN 30 2017

date





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

1827-1

JAN 30 2017

Philip Jerde
13901 Zeona Rd
Reva SD 57651

Dear Mr. Jerde:

Enclosed is Water License No. 1827-1. This is the final water right document completing your process of obtaining a Water Right. Also, included with your license is a map prepared by the staff engineer who conducted the investigation.

As long as you use the water beneficially, as stated in the Water License, the State Water Laws provide that you have a continuing right to use the water. If you have any questions, please contact our office.

Sincerely,

Jeanne Goodman, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures