

WATER PERMIT NO. 6522-3

Name of Applicant: **Marvin Stern**

Address: **41607 152nd St, Conde SD 57343**

Phone: **605 382-5993**

Amount of Water Claimed: **48.4 AF**

Total Acres: **NA**

Source of Water Supply: **runoff**

Water to be used for: **fish & wildlife propagation and recreational**

County: **Clark**

Type of Waste Disposal System:

Location: **20 miles northwest of Clark**

PRIORITY

Date Received: **7-7-04**

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

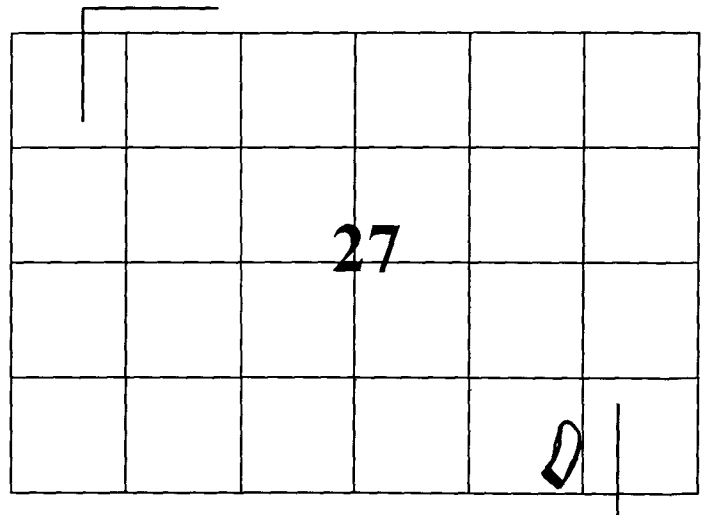
Corrected Application Received:

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

Remarks:

Diversion Point: **SE ¼ SE ¼ Sec 27-T119N-R59W**

Land to be Irrigated:



Depth of Well: **NA**

Well Driller:

Remarks:

Type of Map: **plat**

Prepared by: **Pete Anderson, NRCS**

Reviewed and the Number Assigned on: **7-7-04**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

(type or print)

Mail to: Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	(office use only)	
	No. <u>6522-3</u>	Hydrologic Unit <u>10160006</u>
	Basin <u>James River</u>	
	Newspaper <u>Clark Co. Courier, Clark</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 _____ | |

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 MARVIN STERN Phone (605) 382-5993
 (check one) ☒ Owner ☐ Tenant/lessee
 Mailing Address 41607 152ND ST., CONDE State SD 57343
 (Street, RR, or Box and City) (Zip Code)
2. Amount of water claimed _____ *CFS or _____ **GPM 48.40 ***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 GROUND AND RUNOFF
4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Clark
SE1/4SE1/4 Section 27-T119N-R59W Water Impounded: SE 1/4 SE 1/4 Sec 27 - T119N-R59W
5. County or counties where water will be used CLARK **RECEIVED**
JUL - 7 2004
6. Annual period during which water is to be used YEARLY Jan 1-Dec 31 **WATER RIGHTS PROGRAM**
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)

Construct an embankment dam in above described location.

STATE OF SOUTH DAKOTA)

County of Day 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, Marcia Stern, 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 Marcia SternSubscribed and sworn to before me this 28th day of June 2004
Margaret Kwasniewski
 Notary Public signature

 MARGARET KWASNIEWSKI, Notary Public
 My Commission Expires January 15, 2007

**SOUTH DAKOTA
WATER PERMIT NO. 6522-3**

Date of first receipt of application July 7, 2004.

The Water Management Board approved Water Permit No. 6522-3 on October 6, 2004 for Marvin Stern, 41607 152nd St, Conde SD 57343 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 6522-3 authorizes impoundment 48.40 acre-feet of water from runoff by constructing a dam located in the SE ¼ SE ¼ Section 27 with water impounded in the SE ¼ SE ¼ Section 27; all in T119N-R59W.
2. The water appropriated shall be used for the purpose of fish & wildlife propagation and recreational use 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 from which applicant may claim right is July 7, 2004.
5. One-fifth of the construction is to be completed on or before April 7, 2007.
6. All construction is to be completed on or before October 7, 2009.
7. Water is to be put to beneficial use on or before October 7, 2011.
8. 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. 6522-3 authorizes a dam with a storage capacity of 48.4 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation.
2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

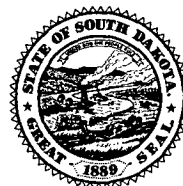
WATER MANAGEMENT BOARD

By: _____

Garland Erbele
Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

NOV 01 2004

date



Supplemental Information

(Complete applicable portions only)

(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

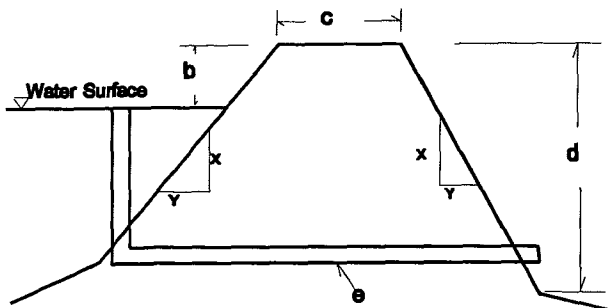
- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

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:

PETE ANDERSON
NRCS
520 3RD AVE
BROOKINGS, SD 57006



- b) Freeboard _____ 3 FT.
- c) Crest Width _____ 14 FT.
Crest Length _____ 265 FT.
- d) Height _____ 30 FT.
- e) Primary Outlet Capacity _____ 26.5 cfs
If pipe, diameter _____ 15 IN.
- f) Secondary Spillway Capacity _____ 95.1 cfs
Spillway Width _____ 80 FT.
- g) X & Y Slope _____
Upstream _____ 3:1
Downstream _____ 2.5:1
- h) Surface Area of Impoundment _____ 6.1 AC.
- i) Storage _____ 48.4 Acre Feet
- j) Drainage Area Above Dam _____ 622.0 Acres

RECEIPT

WATER RIGHTS PROGRAM

South Dakota Department of Environment and Natural Resources

Date July 7, 20 04

RECEIVED OF Marvin Stern, 41607 152nd St, Conde SD 57434

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

Fee for Application for Permit No. <u>4622-B</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>4622-B</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. 001119

By

Garland Eskelley
Chief Engineer KS

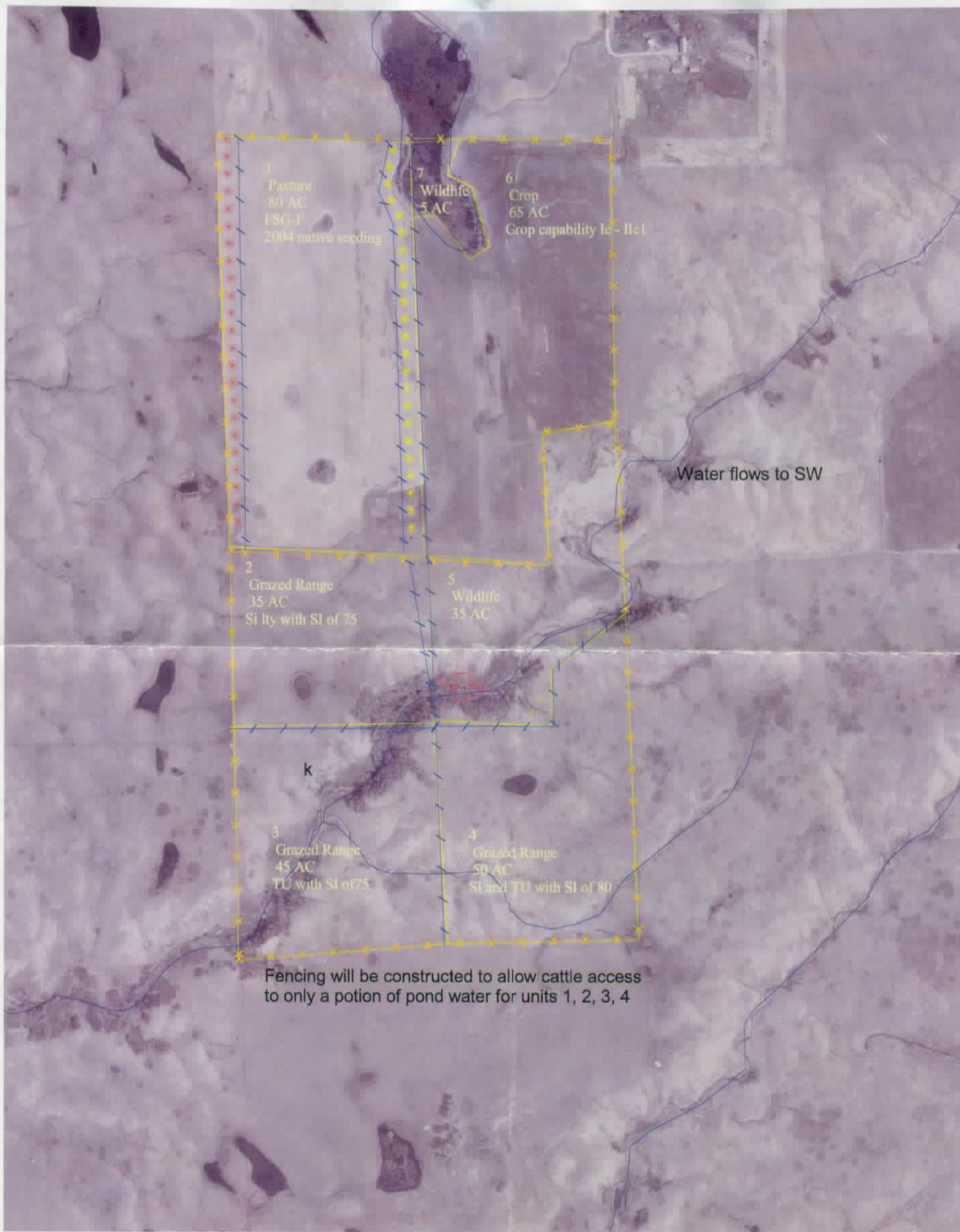
PLAN MAP

MARVIN STERN

WEBSTER USDA-NRCS ASSISTING DAY COUNTY
CONSERVATION DISTRICT
assistance provided by DARREL DUVALL

Date: 04/21/2004

Darrel DuVall



WaterHydro_I_sd025.shp
Practices (points)

27.34 of 119 N - 59 W

- Embankment pond
- k - Key Site
- Shrub planting
- Planned Land Units Labels
- Planned fence Practices (lines)
- Resource Inventory (lines)
- Existing trees
- Fence
- Planned Land Units

Legend

1000 0 1000 2000 Feet



4423-32.L
B-3
119-59

T 3173

T 2938

WINHEL

NC

CLP 2000 2009

CLP 2000 2009
26.5 W/HEL

T 10777

T 34259

In-transit
from
Clark
2007

27

T 2928

NC

① 141.8 W/HEL

T 10778

4423-132L

B-3

119-59

127
Civil
WHEL

MARVIN STERN DAM
SE4SE4 27-119-57
Charles Uss, ACT
NRC8. Webster SD

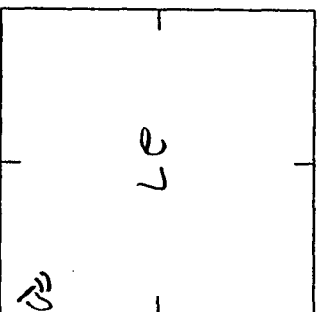
based on hp = 1.0' per 5.0' rise in 1.0' SITE 2000

STRUCTURE DATA

DRAINAGE AREA ACRES	ANNUAL YIELD @ 80% AC. FT.	PEAK RUNOFF 25 YR. CFS.	EMERG. SPWY. 25 YR. CFS.	WATER DEPTH @ P.S. FT.	SURFACE AREA @ P.S. ACRES	SEDIMENT STORAGE @ P.S. AC. FT.	STORAGE		
							@ P.S. AC. FT.	@ E.S. AC. FT.	@ TOP OF DAM AC. FT.
622	3.6	130	140	23	6.1	4.6	48.4	65.1	80.8

CONSTRUCTION & DESIGN NOTES

1. S.D. LAW STATES: "NO EXCAVATOR MAY BEGIN ANY EXCAVATION WITHOUT FIRST NOTIFYING THE ONE-CALL NOTIFICATION CENTER AT THE NUMBER 1-800-781-7474." LANDOWNER IS RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE, AND LOCAL LAWS IN MAINTAINING THIS DAM IN ACCORDANCE WITH S.D. OPERATION & MAINTENANCE GUIDELINES. THIS IS A CLASS "S" HAZARD STRUCTURE AS DEFINED BY NRCS. THIS PROJECT IS NOT CLASSIFIED AS A "DAM" BY S.D. LAW. ACCORDING TO S.D. LAW, A DAM IS IT IS > 25 FT HIGH (TOP TO D.S. TOE) AND IMPOUNDS > 15 AC FT OR IF IT IS > 6 FT HIGH AND IMPOUNDS > 50 AC FT.
- 2.
- 3.
- 4.
5. IF CULTURAL RESOURCES ARE DISCOVERED, DISCONTINUE CONSTRUCTION AND NOTIFY THE LOCAL NRCS OFFICE. SEED ABOVE OF DAM. THE TOP AND BACKSLOPE OF DAM, THE E.S. AND ALL DIKES, AND ALL DISTURBED AREAS DESIGNATED BY THE ENGINEER. SEEDING SHALL BE PERFORMED BY THE OWNER. THE CORE TRENCH SHALL BE INSPECTED AND APPROVED BY AUTHORIZED PERSONNEL PRIOR TO BACKFILL. EXCAVATE CORE MATERIAL 1 FT INTO IMPERMEABLE MATERIAL. MINIMUM CORE IS 2 FT. IN UNDISTURBED GROUND. AFTER STRIPPING, CONSTRUCT THE FULL DEPTH OF THE CORE TRENCH TO P.S. ELEVATION (SEE PROFILE OF EMBANKMENT).
- 6.
- 7.



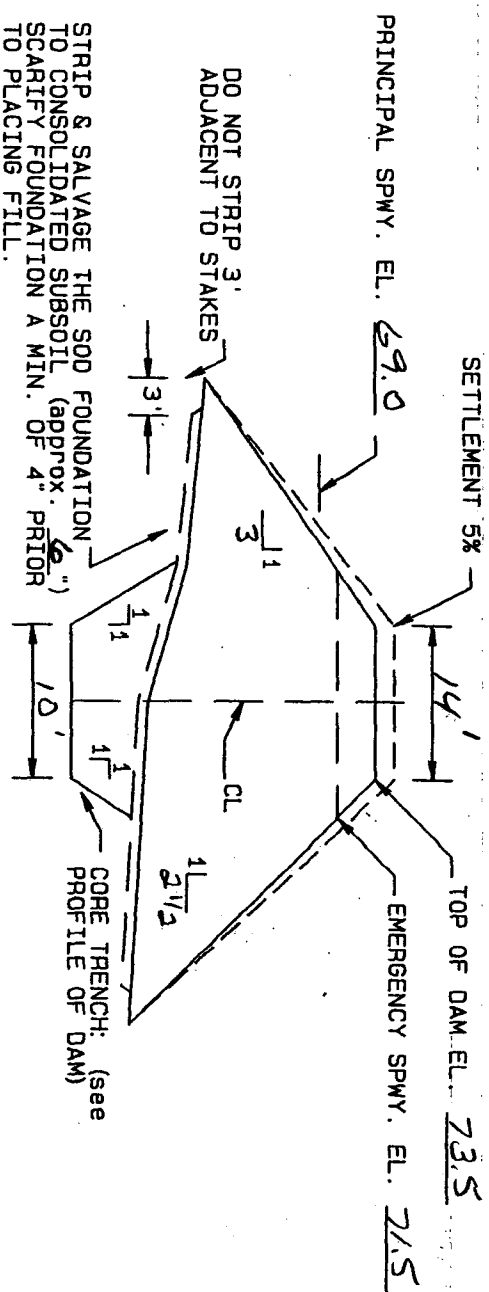
SEE SEC. 211/79R.57
LOCATION MAP

RECEIVED

JUN 17 2004

WATER RIGHTS
PROGRAM

TABLE OF QUANTITIES			
ITEM	UNIT	QUANT.	AS BUILT
EXCAVATION	CU. YD.	1233	
(CORE TRENCH @ 205cy., STRIPPING @ 528cy.)			
EXCAVATION (E.S.)	CU. YD.	2222	
EARTH FILL (EMBANKMENT)	CU. YD.	4355	
SEEDING	ACRES	2.8	
PRINCIPAL SPWY.	EACH	1	
SEE SHEET # 4 FOR DETAILS OF P.S.			
NOTE: ABOVE QUANTITIES MAY BE ESTIMATED			



TYPICAL CROSS SECTION OF DAM

S. D. CONSTR. & MATERIAL SPECS.

- SD - 4 STRIPPING
- SD - 5 EXCAVATION
- SD - 7S EARTH FILL CLASS "S"
- SD - 10 SALVAGING & SPREADING TOPSOIL
- SD - 15 50 C.M.P.
- SD - 16 TIMBER FAB. & INSTALLATION
- SD - 17 METAL FAB. & INSTALLATION
- SD - 20B CPE PIPE
- SD - 28 SEEDING
- SD - 378 O & M GUIDELINES
- PARTICIPANT RESPONSE (OWNER COPY)

EARTH DAM

MARVIN STEEN

CLARK CO. S.D.

SEC. SEC. 217, T119, R57

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Designed by: *Marvin Steen*

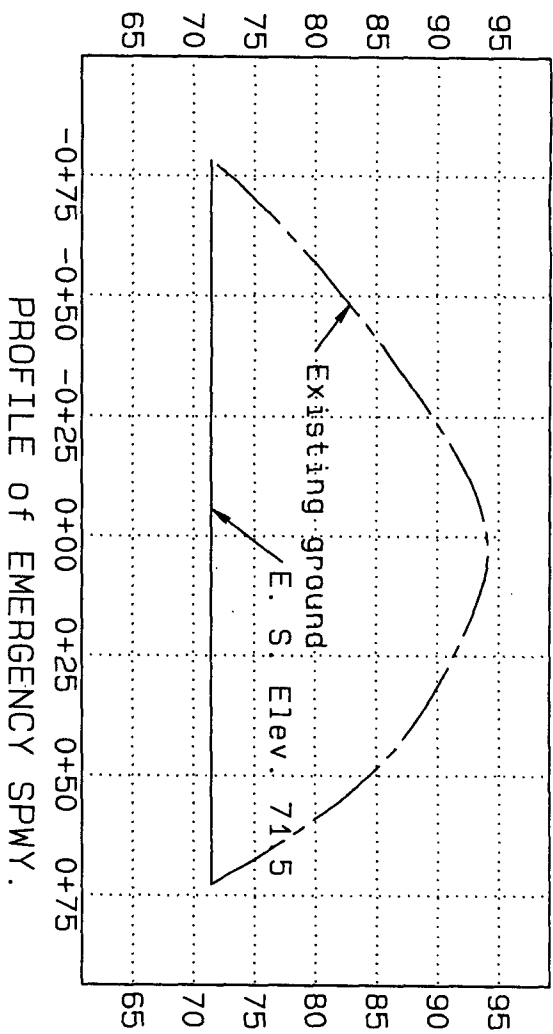
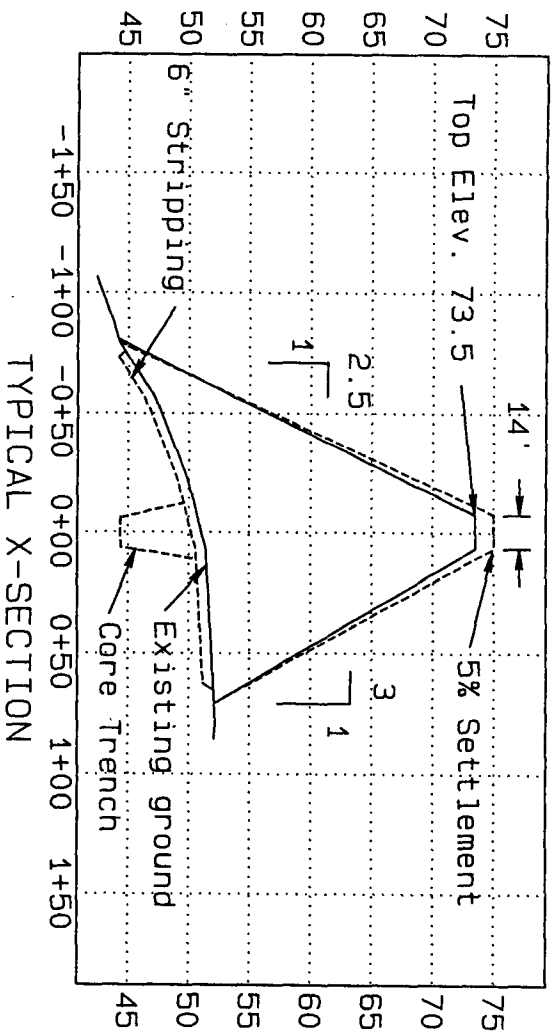
Approved by: *P.C.A.*

Title: *Earth Dam*

Drawn: *Marvin Steen*

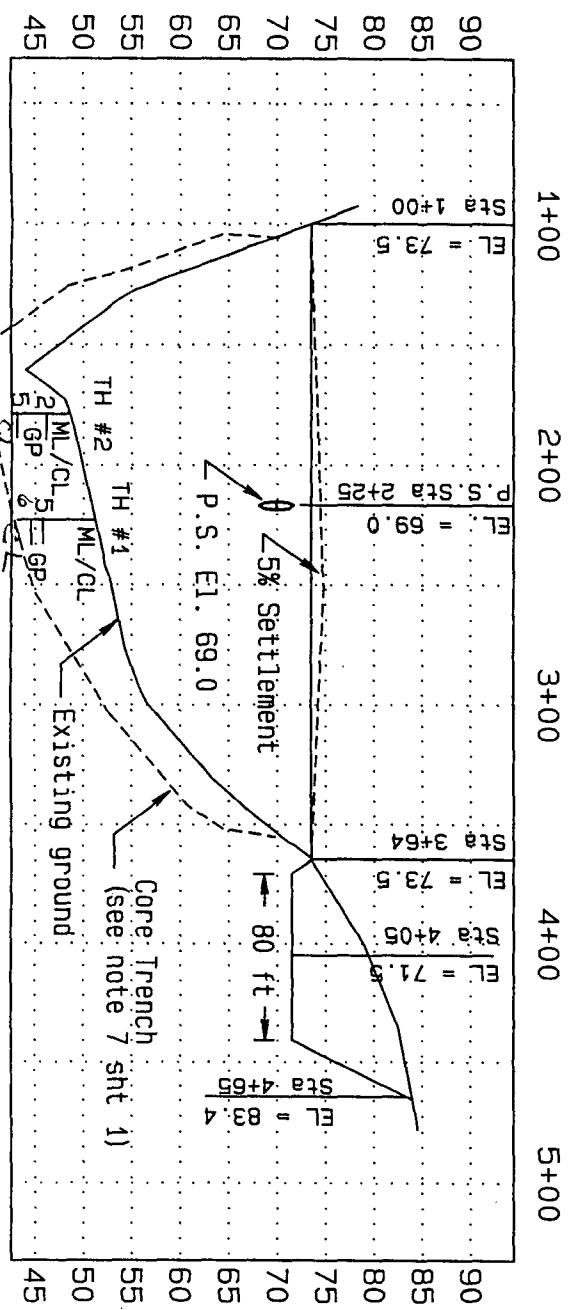
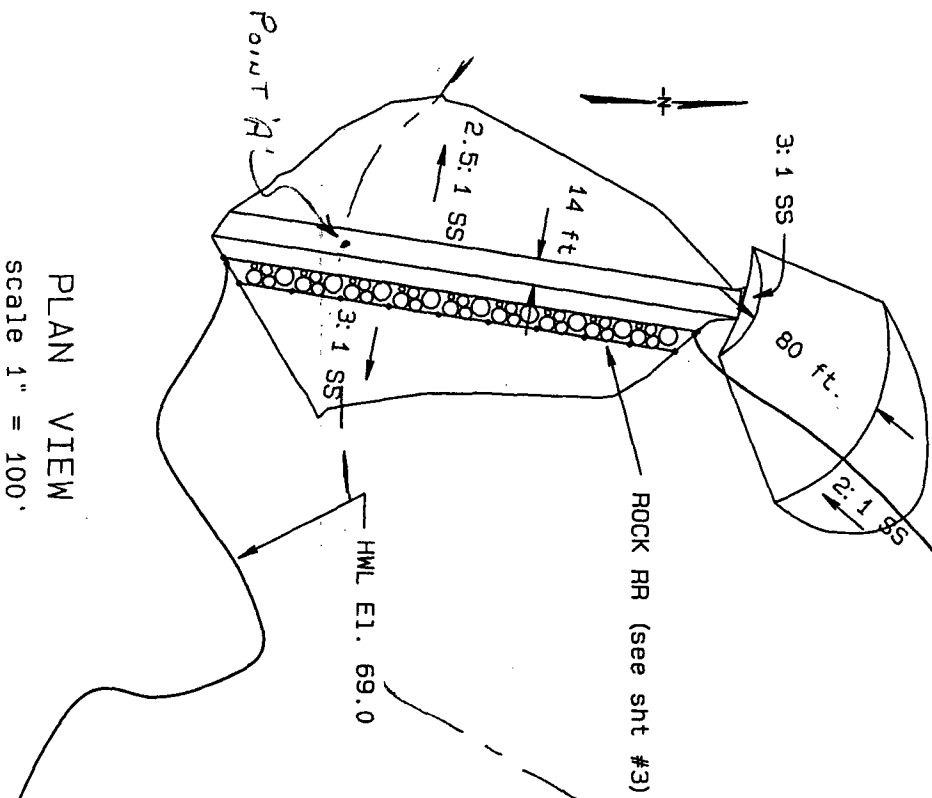
JOB PLAN 1.1B

SEE SHEET #2
PLAN VIEW OF DAM & POOL AREA
approximate scale 1" = _____ ft.



NOTE:
P.B. is 1250 ft.
NE of P.B. is
120 ft. E.
555 ft. N.

DAVE'S SURVEY
BM #1 85.51
BM #2 100.00
P.B. is based 113.68
43.99



NOTE: SITE'S USED 70
E.S. WIDTH. P.B. 4-12-04

Marvin Stern Farm Pond

Se4, Se4, Section 27, T.119, R.59
Clark County, South Dakota



NATURAL RESOURCES
CONSERVATION SERVICE

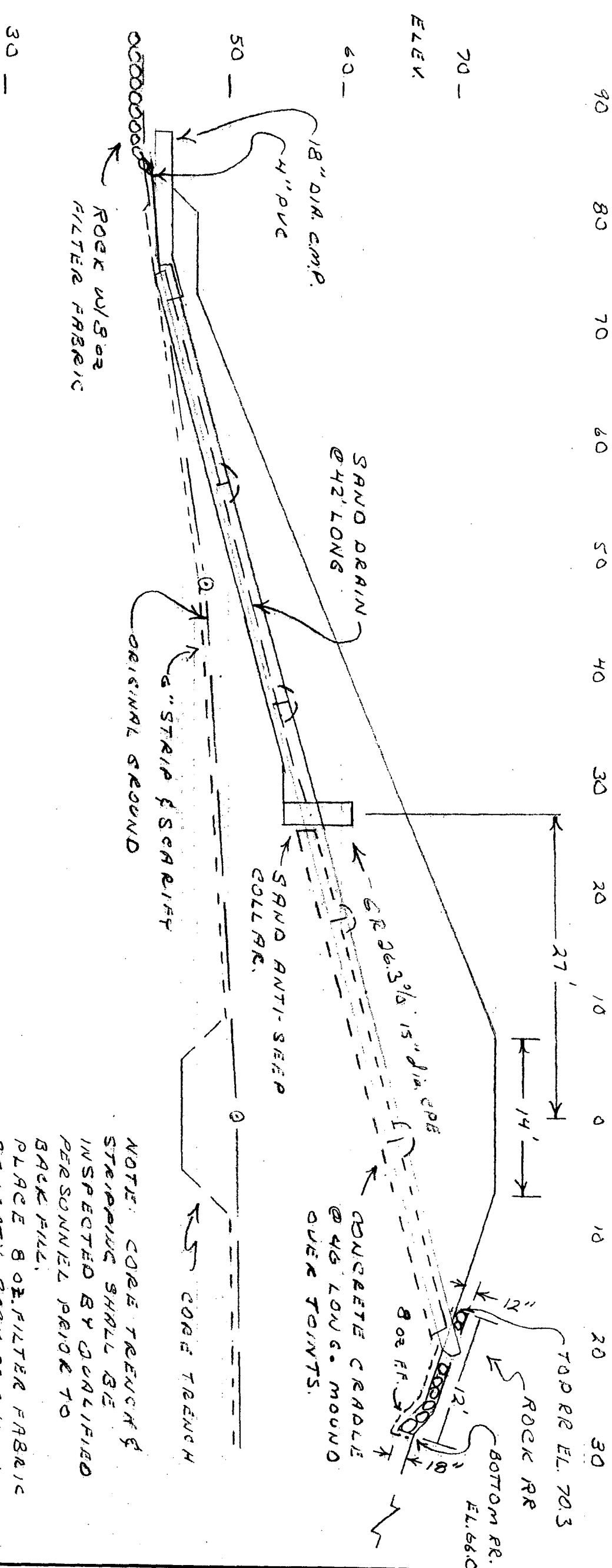
BROOKINGS FIELD SUPPORT OFFICE
520 THIRD AVENUE P.O. BOX 626
BROOKINGS, SOUTH DAKOTA 57006-0626

Designed by: Pete Anderson Date: Mar 04
Drawn by: Pete Anderson Mar. 04
Checked by: _____

Approved by: _____
Title: _____

PROFILE OF PRINCIPAL SPUR

SD-ENG-42
7/61



NOTE: CORE TRENCH & STRIPPING SHALL BE INSPECTED BY QUALIFIED PERSONNEL PRIOR TO BACK FILL.
PLACE 80% FILTER FABRIC BENEATH ROCK AS SHOWN. ROCK APPROX. 230' LONG, 12" WIDE & 1' THICK EXCEPT 18" THICK AT KEYWAY & BLEND TO 12" THICK.

MARVIN STEEN Farm Pond	
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	
Designed: <u>REN</u>	Date: <u>4/64</u>
Drawn: _____	Approved by: _____
Traced: _____	Title: _____
Sheet: <u>3</u>	Drawing No.: _____
Checked: _____	of _____

NOTE: CPE shall be smooth inside and annular corrugations on the outside with N=0.01. CPE joints shall use 'O-ring' gaskets. Position male end DS. Place butyl rubber (good condition truck inner tube) between pipes. Butyl rubber shall be of uniform thickness around the pipe. Cut top of CMP pipe in 2 places spaced 4 inches apart. Cuts are 10" long longitudinally with pipe. File rough edges of CMP prior to tightening the 1/2 dia. rod and lug.

PROFILE OF PRINCIPAL SPILLWAY

no scale

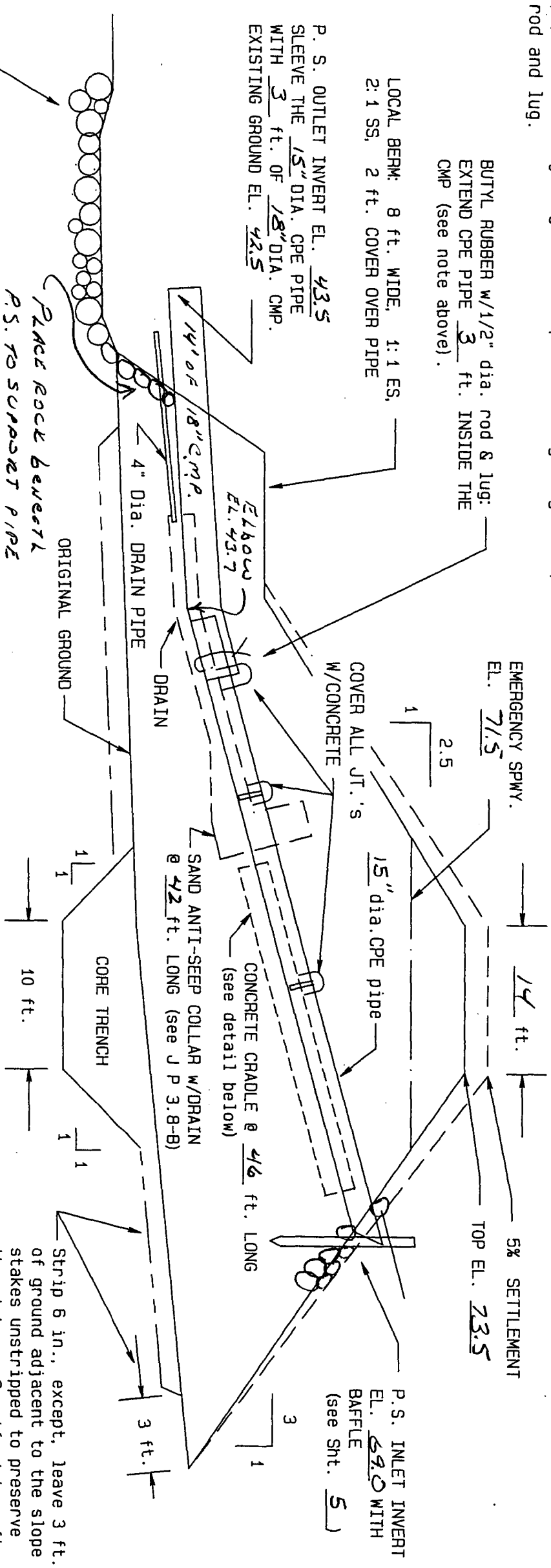
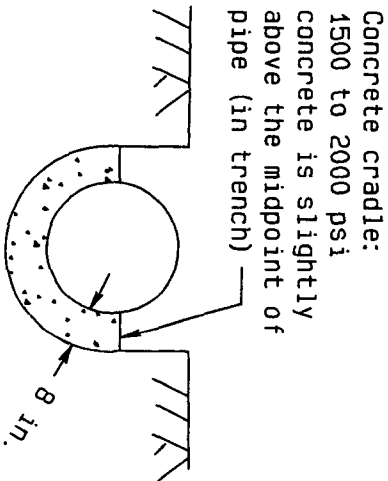


TABLE OF QUANTITIES

ITEM	QUANTITY	UNIT
1.) 1/5" DIA. CPE PIPE	100	lin. ft.
2.) 1/8" DIA. CMP	14	lin. ft.
(watertight pipe, w/24" angle @ 3' from U.S. end & 1/2" dia. rod & lug)		
3.) SAND ANTI-SEEP COLLAR	ONE @ 7 1/2 cu. yd.	(est.)
4.) BAFFLE	1	each
5.) ROCK RIPRAP	116	cu. yd. (est.) 107 @ 1 ft. x 4 in.
6.) CONCRETE CRADLE	3 1/2	cu. yd.

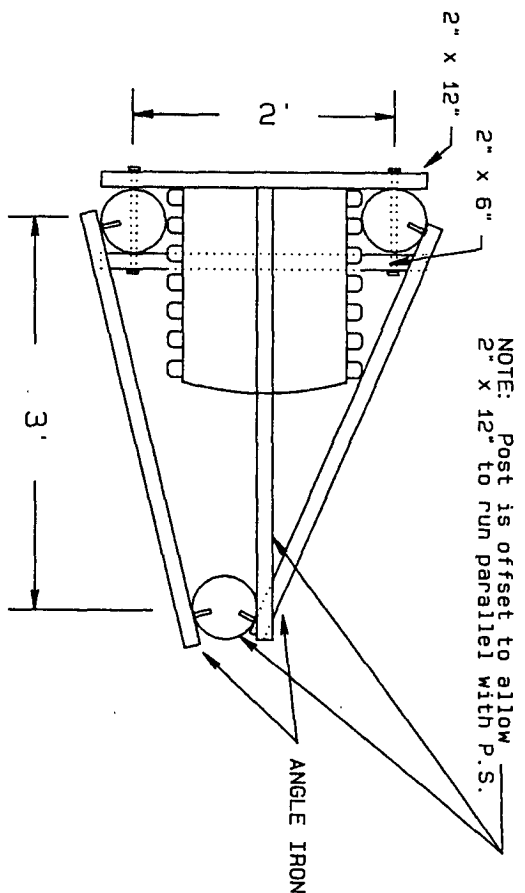
Construct a rock stilling basin at the P.S. outlet to control erosion. The dimensions of the rock stilling basin shall be 16 ft. long 8 ft. wide, and 1/4 ft. thick. The basin will begin 4 ft. upstream of the P.S. invert outlet, and extend downstream. The top of the perimeter of the rock shall be flush with the ground. Place 8 oz/sq. yd. filter fabric beneath the rock. the rock basin shall be bowl shaped (low in the middle - ~~high in the middle~~). Place larger and thicker rock in middle where water will fall. Stilling basin is recommended but not required.



CONCRETE CRADLE DETAIL

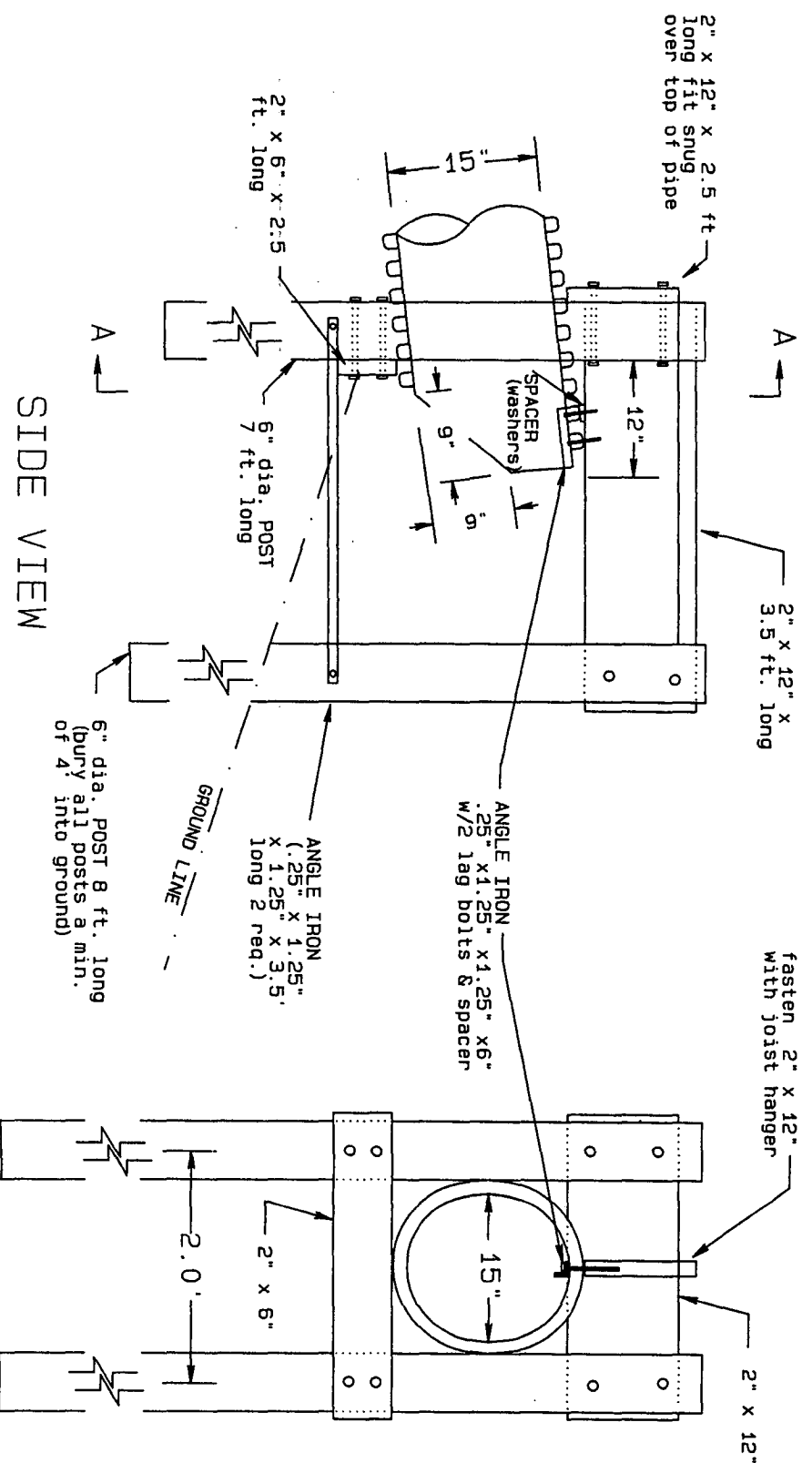
no scale

(Note: Some quantities may be estimated)
7.) 802 FILTER FABRIC 321 Sq. Yd.

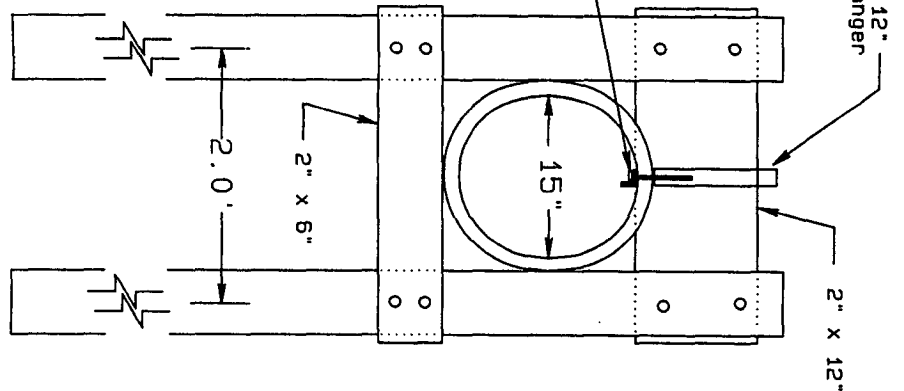


NOTE: 'TABLE OF QUANTITIES' lengths for lumber and angle iron are approximate. Field cut lumber and angle iron to fit. The above two dimensions govern.

PLAN VIEW



SIDE VIEW



SECTION A-A

TABLE OF QUANTITIES

ITEM DESCRIPTION	UNIT	QUANTITY	AS BUILT
POST 6" dia: (2 @ 7', 1 @ 8' long)	EACH	3	
TREATED LUMBER (1 @ 2" x 12" x 2.5' long, 1 @ 2" x 12" x 3.5' long, 1 @ 2" x 6" x 2.5' long)	JOB	1	
ANGLE IRON (1 @ 12", 2 @ 3.5')	LIN. FT.	7.5	
BOLTS 3/8" dia. x 10" long	EACH	10	
JOIST HANGER	EACH	1	
LAG BOLTS w/washers (3/8" dia., 4 @ 2', 2 @ 5" long)	EACH	6	

(NOTE: ALL LUMBER SHALL HAVE A PRESERVATIVE TREATMENT)

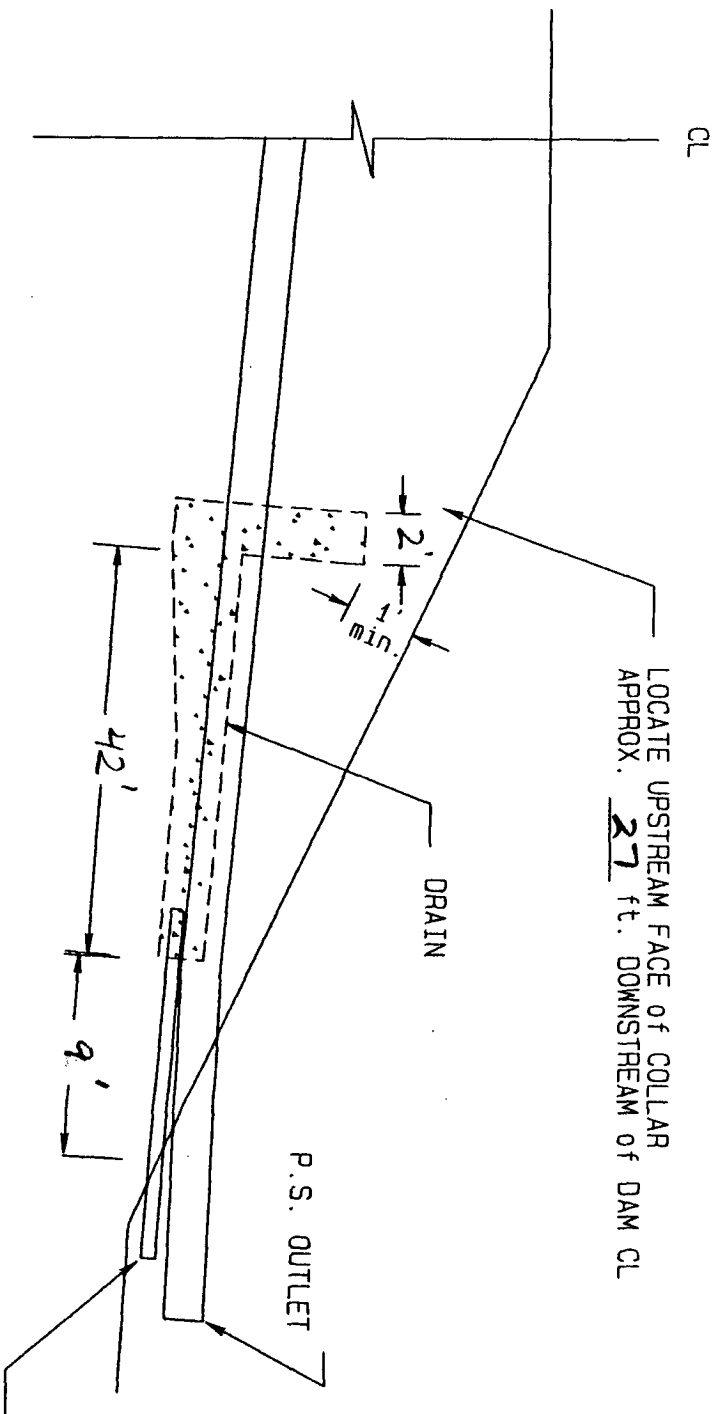
CONSTR. & MATERIAL SPECS.

- SD - 16 WOOD FAB. & INSTALLATION
- SD - 17 METAL FAB. & INSTALLATION

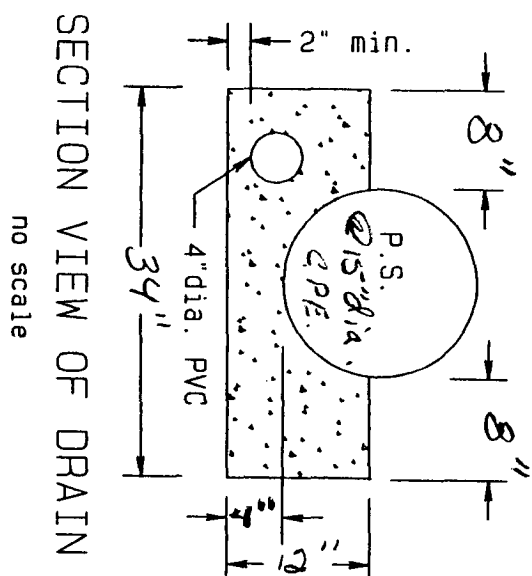
CONSTRUCTION NOTES:

- Bolt 2" x 12" boards to 6" dia. posts using 3/8" x 10" bolts. Do not place bolts closer than 2" from end of board, or 1.5" from edge of board.
- Bolt steel angle to 6" dia. posts using 3/8" x 2" steel lag bolts. Use 3/8" x 5" lag bolts to attach angle iron through CPE & into 2" x 12". Pre-drill 5/16" hole for lag screw.
- Cut the CPE pipe (9" x 9" @ inlet) with care as this material is susceptible to damage.
- All bolts & lag screws shall be stainless steel.
- Fit CPE snugly within the 6" dia. posts and the 2" x 12" and 2" x 6" boards to eliminate vibration by flowing water.

DRAWING SCALE:
1 in = 1.5 ft or 1:18
0 1 2 feet



PROFILE VIEW OF SAND ANTI-SEEP COLLAR AND DRAIN
no scale



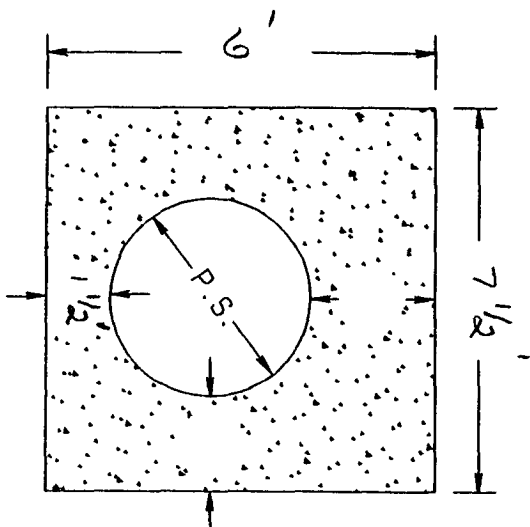
SECTION VIEW OF DRAIN
no scale

OUTLET 4" dia. PVC PIPE 6" MIN. ABOVE GROUND. CAP U.S. END & PERFORATE 18" AT THE 4 & 8 O'CLOCK POSITIONS WITH 3/8" dia. HOLES SPACED 3" APART, OR COVER WITH FILTER SOCK. PLACE 4" dia. PVC 18" IN DRAIN.

- NOTE:
- 1.) The 4" dia. PVC pipe shall be SDR 35 PVC or stronger.
 - 2.) Provide an animal guard on the outlet of the drain pipe: Drill 2 holes (1/2" dia.) at the midpoint of the pipe 6" from the end of pipe. Place a 3/8" dia. x 5 1/2" long galvanized steel bolt thru holes and secure with a nut. Place bolt horizontally.
 - 3.) Filter sand is similiar to fine aggregate (concrete sand) from a concrete redi-mix plant.

TABLE OF QUANTITIES

- 1.) 4 inch dia. PVC PIPE - 12 - 1in.ft.
- 2.) SAND ANTI-SEEP COLLAR - ONE @ 7.5 cu.yd. (est.)
(collar @ 4.2 cu.yd.
& drain @ 3.3 cu.yd.)



SECTION VIEW OF SAND ANTI-SEEP COLLAR
no scale

FILTER GRADATION	
STIEVE SIZE	% PASSING
3/8"	100
4	85 - 100
8	80 - 100
16	50 - 85
30	25 - 60
50	10 - 30
10	2 - 10

Sand Anti-Seep Collar
& Drain for

MARVIN STERN



U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

Sec. ___ T. ___ N. R. ___ W.
County, South Dakota

Date:

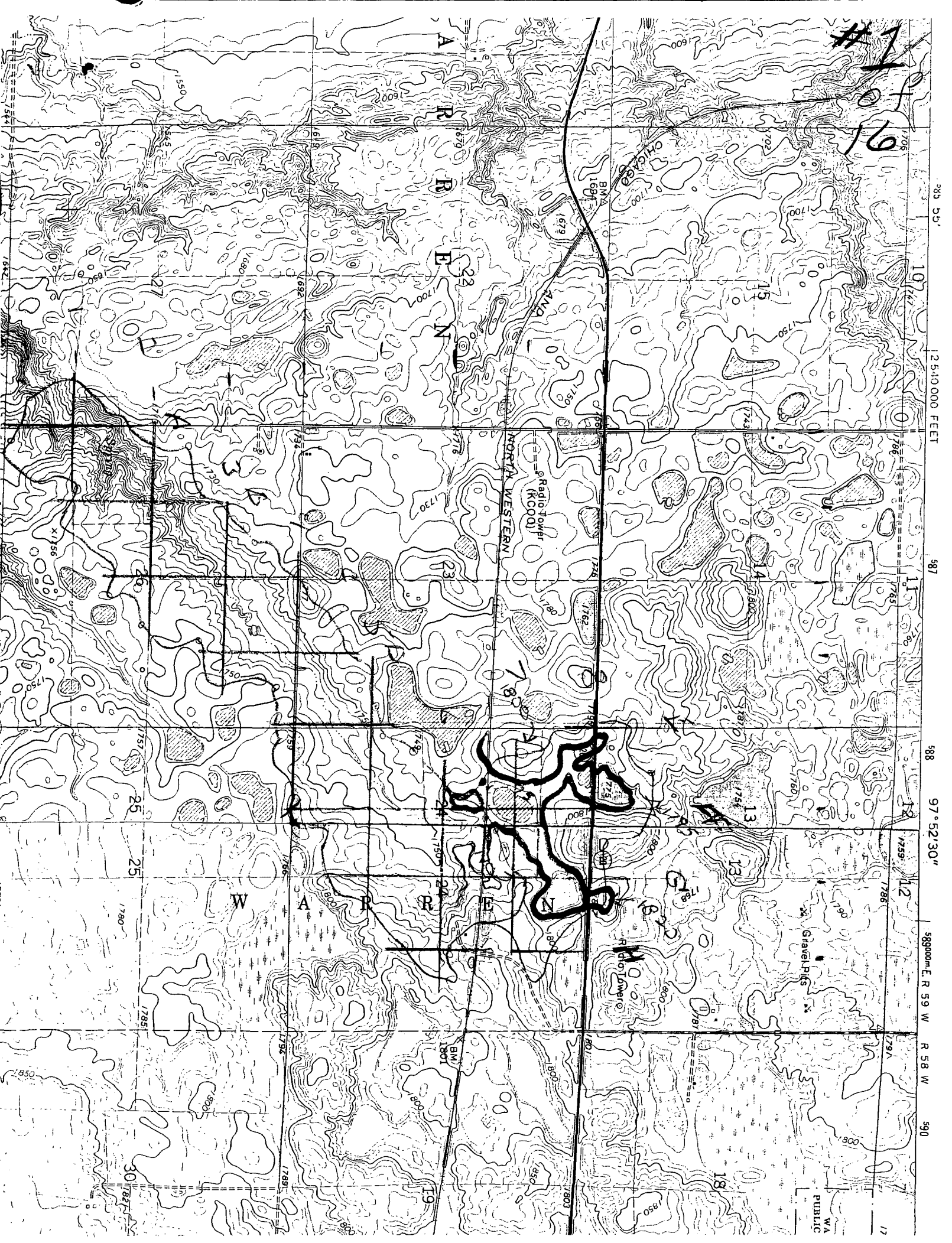
Designed by: _____

Drawn by: Pete Anderson AE 05/03

Checked by: _____

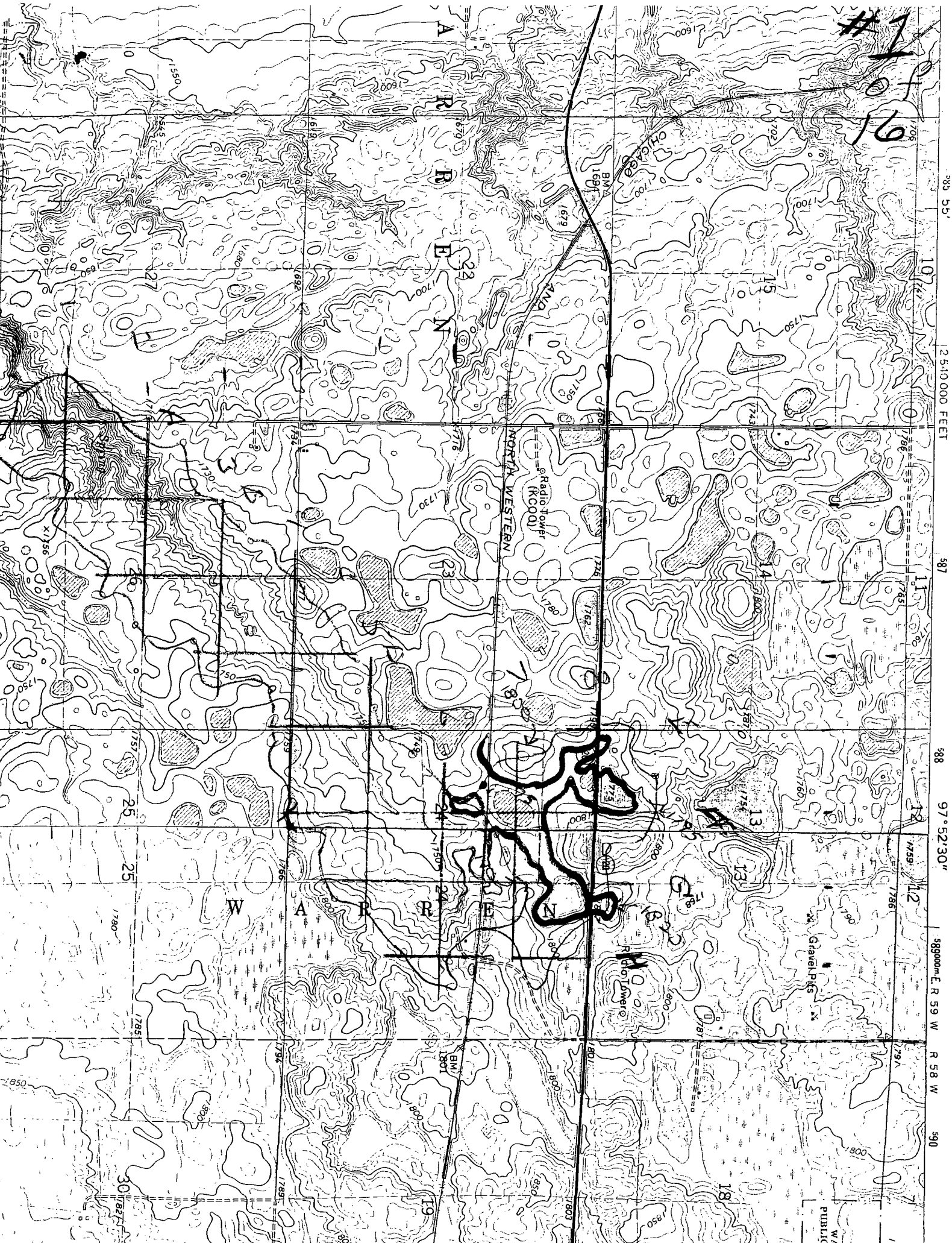
Approved by: _____

Title: _____

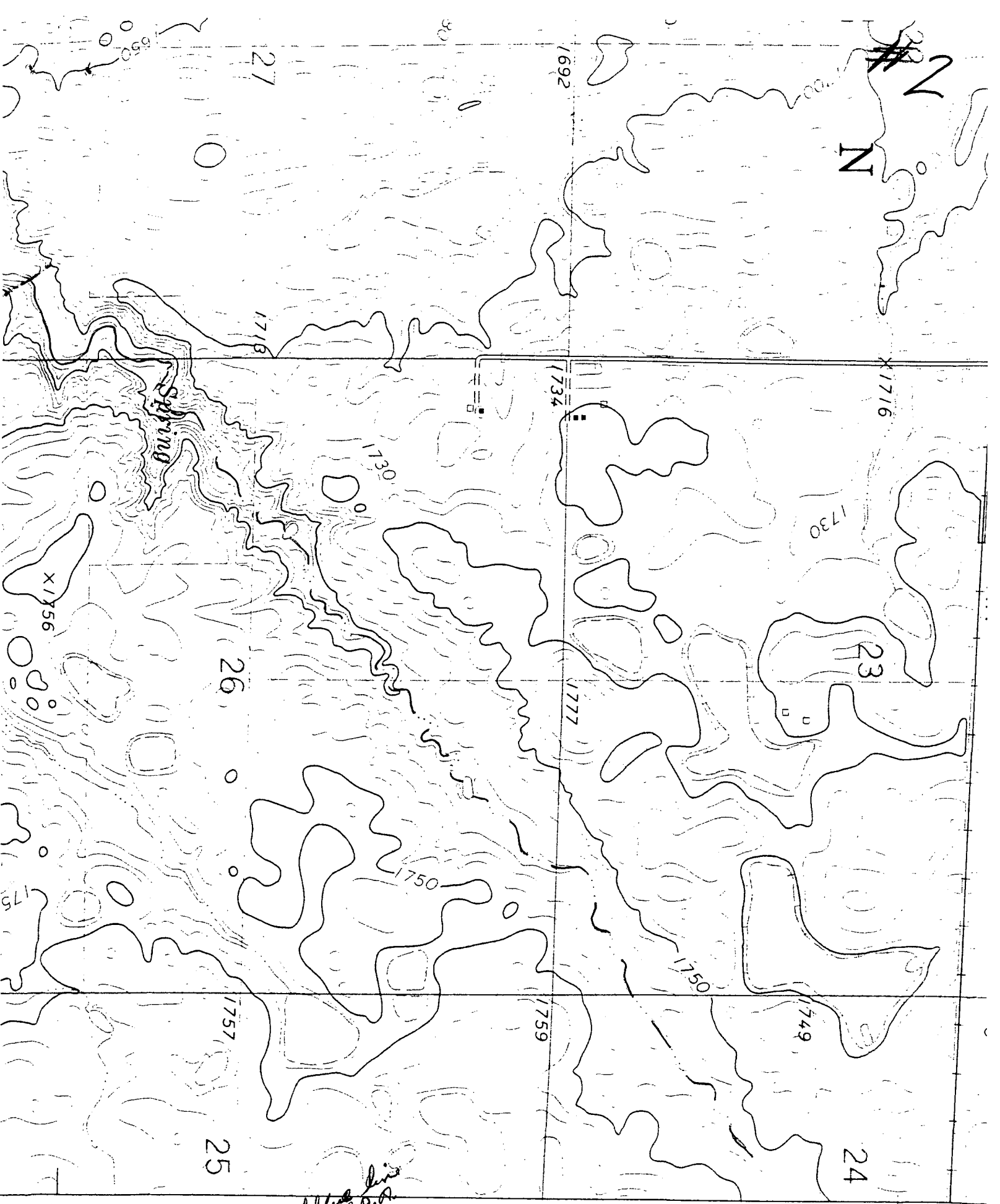


#1
10
16

283 55 107 587 588 97° 52' 30" 5890000 E R 59 W R 58 W 590



PUBLIC
WA



4995
470 00
FEET

Flow path
12,175

New path: end of blue line to top of D.A.
12,175 + 3274

COMPUTATION SHEET

U. S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

NRCS-ENG-523A Rev. 10-97

STATE	SD	PROJECT			STERN
BY	PEA.	DATE	3/16/04	CHECKED BY	Matt Odden
				DATE	3-16-04
SUBJECT	DA SLOPE				SHEET 3 OF

LINE	LENGTH	HITS
1	2400	18
2	3310	19
3	3090	12
4	4090	15
5	4310	14
6	3400	12
7	3450	800
8	3310	7
A	1990	27
B	2700	23
C	3300	16
D	2590	12
E	2700	12
F	6390	3390
G	4900	3470
H	1260	725
	51760	242
	42265	210
	19010	8385
	10625	

$$CN = 75 \times 622 \times 40\% = 18660$$

$$61 \times 622 \times 4.60\% = 22265$$

$$41425 \div 622 = 66.6$$

use 68

$$S = 1.571 h N = 1.57(110) 242$$

$$= 7.3\%$$

$$S(\text{revised}) = 1.57(110)(210) = 7.81\%$$

NOTE: Bruce's Accuview method shows 6.88%.

$$\text{SEEDING: E.S. } (20 \times 4 + 80) + 30 \times \frac{150}{43560} = 0.4$$

$$\text{DAM } \left[\frac{285 \times 5.5}{2} + 14 \right] \times \frac{242}{43560} = 0.55 \text{ use } .6$$

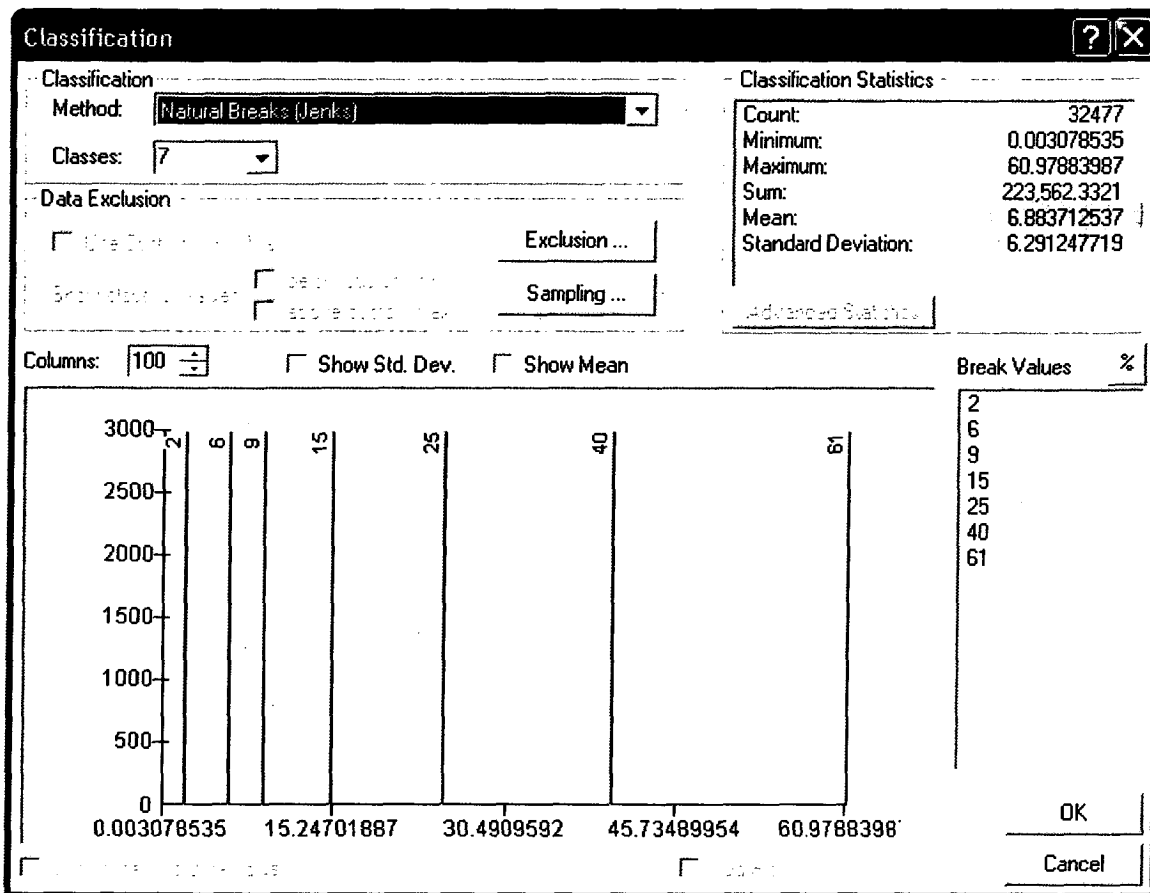
$$\text{TOTAL} = 1 \text{ use } .1$$

ANNUAL YIELD: @ 80% Isogrom 2 1/2

$$\frac{0.069}{12} \times 622 = 3.58 \text{ use } 3.6 \text{ ac./ft.}$$

$$\text{SEDIMENT: } .0021 \times 622 \times 25 \times 14\% = 4.57 \text{ use } 4.6 \text{ ac./ft.}$$

PEA 3/19/04



Bruce's 2A. land slope is 6.88% based on

622 Ac. PED 3/19/04

Bruce flow path 631

691

1072

1333

$$3732 \times 3.2808 = 12,244 \text{ ft} + 3274' = 15,518 \text{ ft}$$

NRCS-ENG-523A Rev. 10-97

STATE <u>S.D.</u>		PROJECT <u>MARVIN STERN</u>		
BY <u>P.E.A.</u>	DATE <u>2-</u>	CHECKED BY	DATE	JOB NO.
SUBJECT <u>DESIGN</u>				SHEET <u>5</u> OF <u> </u>

LAND SLOPE $1/5 @ 21\%$ $1/5 @ 7\frac{1}{2}\%$ $2/5 @ 5\frac{1}{2}\%$ $1/5 @ 5\% = 10.4\%$

USGS: $Q_2 = 30.9 \text{ CA}^{.513} P_{II}^{4.14} = 30.9 (0.972)^{.513} (.9)^{6.14} = 15.9 \text{ cfs.}$

$Q_{25} = 218 \text{ CA}^{.513} P_{II}^{4.8} = 218 (0.972)^{.513} (.9)^{4.8} = 129.6 \text{ cfs.}$

$Q_{50-\text{Freeboard}} = 287 (0.972)^{.517} (.9)^{4.62} = 173.8 \text{ cfs.}$

EXCAVATION E.S.:

Sta. 9+23 0

Sta. 10+00 800 ft.² @ 80' w SS=2:1 d=8' EA=800'

ST. 10+75 0

$\text{Vol.} = \frac{(0+800)}{2} \times \frac{150}{27} = 2222 \text{ cy.}$

ROCK: $\frac{16 \times 8 \times 1}{27} + \frac{4 \times 8 \times 1}{27} = 5.9 \text{ use } 7 \text{ cy. @ P.S. OUTLET}$

ROCK (@ HWL @ P.S.) $\frac{230'}{27} \times 12 \times \left(\frac{12''+18''}{2} \times 3' + 12'' @ 9' \right)$
 $= \frac{230'}{27} \times \left[\left(\frac{1+1.5}{2} \right) \times 3' + 1' @ 9' \right] = 108.6 \text{ use } 109 \text{ cy.}$

FILTER FABRIC:

@ H.W.L. $\frac{230 \times 12}{9} = 306.7 \text{ Sq. Yd.}$

@ P.S. OUTLET $\frac{16 \times 8}{9} = 14.2 \text{ sq. yd.}$

320.9 use 321 Sq. Yd.

Spectra Precision Software, Inc.
 5901 Peachtree-Dunwoody Rd., Suite A-300
 Atlanta, GA 30328-5548
 800-235-4972
 Wednesday, March 03, 2004 2:53:27 PM

PROJECT: C:\Eng Programs\eng data\TERRAM\sternpete.pro

HYDROLOGIC REPORT - POND DEPTH VS STORAGE PROVIDED

POND: basin

ELEV feet	DEPTH feet	AREA sq.ft.	VOLUME cu.ft.	SUMVOL cu.ft.
44.0		0.2		0.0
46.0	2.0	903.4	903.5	903.5
48.0	2.0	3529.9	4433.3	5336.8
50.0	2.0	9536.1	13066.0	18402.8
52.0	2.0	18417.7	27953.8	46356.6
54.0	2.0	35500.3	53918.1	100274.7
56.0	2.0	54147.6	89647.9	189922.6
58.0	2.0	73113.0	127260.6	317183.2
60.0	2.0	100212.2	173325.2	490508.4
62.0	2.0	133586.9	233799.0	724307.4
64.0	2.0	166461.3	300048.1	1024355.5
66.0	2.0	203355.3	369816.6	1394172.1
68.0	2.0	243018.9	446374.2	1840546.3
70.0	2.0	285949.3	528968.2	2369514.5
72.0	2.0	329053.3	615002.6	2984517.1
74.0	2.0	373795.9	702849.1	3687366.2
76.0	2.0	424923.3	798719.2	4486085.4
78.0	2.0	485070.2	909993.6	5396079.0
80.0	2.0	542902.5	1027972.8	6424051.8

42.2 - 48.4 PS @ 69
 54.4 - 65 LIS @ 71.5
 68.5 - 81 Top Dam @ 73.5
 84.65

1*****
 SITES XEQ 03/25/2004 WATER RESOURCE SITE ANALYSIS COMPUTER PROGRAM
 VER 2000 (USER MANUAL - DATED MAY 2001)
 TIME 16:41:23

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

SITES 05/01/2000 Stern Dam 1 0.971875 H7
 SAVMOV 0 101
 SAVMOV 101 1 1
 * USGS Q2(PS) = 16 cfs, Q25(ES) = 130 cfs,
 * Q50(FBH) = 174 cfs

STRUCTURE

44	0
46	.02
48	.08
50	.22
52	.42
54	.81
56	1.24
58	1.68
60	2.3
62	3.07
64	3.82
66	4.67
68	5.58
70	6.56
72	7.55
74	8.58
76	9.75

ENDTABLE

WSDATA	5A1	AC	68	622	15518	6.88		
PDIRECT			2		3.50	3.90		
POOLDATA	ELEV		69	69	2	45	45	HD
PSHOOD	96		12	43.8	43.5	.6	.6	B
PSDATA	1			15		.013	44.7	
ASDATA	41	200	200		2.5		.1	2
ASINSURF	41			.03				
ASINLET	41	0.0	0.0	100	0.0			3
		200	10					

ENDTABLE

ASINLET	41	90	71					
ASEXSURF	41		.035					
			.65	0				
			2					
			2	0				
			.02					

ENDTABLE

ASEXIT	41	N				100		
BTMWIDTH	FEET	70						
GRAPHICS	I							
GO,DESIGN	HL	TYPE2	24	TYPE2378	24			
SAVMOV	2	101	1					
ENDJOB								

1SITES XEQ 03/25/2004 ----- COMMENT PAGE -----
 VER 2000 Stern Dam 1 WSID =

USGS Q2(PS) = 16 cfs, Q25(ES) = 130 cfs,

Q50(FBH) = 174 cfs

***** MESSAGE - ALTERNATE STRUCTURE ID (S 1) BEING USED
SINCE USER DID NOT INPUT AN ID.

***** MESSAGE - ALTERNATE SUBWATERSHED ID (A) BEING USED SINCE
USER DID NOT INPUT AN ID.

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

1SITES -----
XEQ 03/25/2004 Stern Dam 1 WSID=
VER 2000 SUBW= A
TIME 16:41:23 SITE = S 1 PASS= 1 PART= 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	
2.00	0.00	3.50	3.90	
WSDATA - CN	DA-SM	TC/L	-/H	QRF
68.00	0.97	15518.00	6.88	0.00
SITEDATA- PERM POOL	CREST PS	FP SED	VALLEY FL	378?
69.00	69.00	2.00	45.00	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	0.00	15.00	0.00	
PS N	KE	WEIR L	TW EL	
0.013	0.00	0.00	44.70	
2ND STG	ORF H	ORF L	START AUX.	
0.00	0.00	0.00	0.00	
PSHOOD - OUTLET	MITER	LENGTH	LENGTH	
ELEV.	ELEV.	INLET TO	MITER TO	
43.50	43.80	MITER (FT)	OUTLET (FT)	
		96.0	12.0	
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	200.00	200	
AUX.DATA - INLET N	SIDE SLOPE	EXIT N	EXIT SLOPE	ACTUAL AUX?
0.030	2.50	0.035	0.100	NO
BTM WIDTH - BW1	BW2	BW3	BW4	BW5
ft 70.00	0.00	0.00	0.00	0.00

80 ft or
Plan sheets

AUXILIARY SPILLWAY RATING DEVELOPED USING WSPVRT.

1SITES -----
 XEQ 03/25/2004 Stern Dam 1 WSID=
 VER 2000 SUBW= A
 TIME 16:41:23 SITE = S 1 PASS= 1 PART= 2

PERM POOL 69.00 FT 48.1 ACFT 6.07 AC 0.0 CFS
 CREST PS 69.00 FT 48.1 ACFT 6.07 AC 0.0 CFS
 SED ACCUM 69.00 FT 48.1 ACFT 6.07 AC 0.0 CFS
 START ELEV 69.00 FT 48.1 ACFT 6.07 AC 0.0 CFS

NRCS-PSH D= 24.00 HR P= 2.00 IN Q= 0.19 IN DA= 0.97 SM
 TC= 2.55 HR CN= 68.00 VOL= 10.1 ACFT

PEAK = 20.2 CFS, AT 14.0 HRS.

ROUTED RESULT - HYD TYPE EMAX VOL-MAX AMAX QMAX
 NRCS-PSH 70.16 FT 55.4 ACFT 6.64 AC 3.5 CFS

PS STORAGE 7.4 ACFT, BETWEEN AUX. CREST AND SED. ACCUM ELEVATIONS.

DRAWDOWN (DDT) TEST 69.00 FT 48.1 ACFT 0.00 CFS
 CONTROL IS 0.000 DETENTION STORAGE

TIME = 7.77 DAYS, TO 0.0 CFS (LIMIT = 10.00 DAYS)

 RATING TABLE DEVELOPED, SITE = S 1:
 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	69.00	0.00	0.00	0.00	48.06	6.07
2	69.42	0.55	0.55	0.00	50.64	6.27
3	69.83	2.09	2.09	0.00	53.29	6.48
4	70.25	3.97	3.97	0.00	56.04	6.68
5	70.59	4.79	4.79	0.00	58.33	6.85
FULL CONDUIT FLOW, ELEV = 70.94 FT						
6	70.94	24.64	24.64	0.00	60.80	7.03
7	71.67	24.98	24.98	0.00	66.00	7.39
8	72.39	25.31	25.31	0.00	71.47	7.75
9	73.11	25.64	25.64	0.00	77.20	8.12
10	73.83	25.96	25.96	0.00	83.20	8.49
11	74.56	26.28	26.28	0.00	89.48	8.91
12	75.28	26.60	26.60	0.00	96.06	9.33
13	76.00	26.91	26.91	0.00	102.95	9.75

1SITES -----
 XEQ 03/25/2004 Stern Dam 1 WSID=
 VER 2000 SUBW= A
 TIME 16:41:23 SITE = S 1 PASS= 1 PART= 3

AUX. CREST 70.16 FT 55.4 ACFT 6.64 AC 3.5 CFS

PS STORAGE 7.4 ACFT, BETWEEN AUX. CREST AND SED. ACCUM ELEVATIONS.

START ELEV 69.03 FT 48.3 ACFT 6.08 AC 0.0 CFS

EFFECTIVE HEIGHT(H) = 25.2 FEET, PRODUCT= 1394. (H * STORAGE AT CREST AUX.).

INPUT DESIGN CLASS = A1 = LT 3000. PRODUCT.

NRCS-SDH D= 24.00 HR P= 3.50 IN Q= 0.90 IN DA= 0.97 SM

TC= 2.55 HR CN= 68.00 VOL= 46.7 ACFT

PEAK = 134.0 CFS, AT 13.7 HRS.

NRCS-FBH D= 24.00 HR P= 3.90 IN Q= 1.14 IN DA= 0.97 SM

TC= 2.55 HR CN= 68.00 VOL= 59.2 ACFT

PEAK = 175.9 CFS, AT 13.7 HRS.

***** WARNING - FIXED INLET X,Y POINT (90., 71.0) IS ABOVE OR DOWNSTREAM
OF THE U/S EDGE OF THE CREST (100., 70.2).

***** WARNING - MAXIMUM RATING POINT, 70.16, (AS CREST) FOR
HOOD INLET IS BELOW FULL PIPE FLOW, 70.94.
RATING INTERPOLATION/EXTRAPOLATIONS MAY BE IN ERROR

RATING TABLE DEVELOPED, SITE = S 1:
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	69.00	0.00	0.00	0.00	48.06	6.07
2	69.10	0.03	0.03	0.00	48.65	6.12
3	69.19	0.12	0.12	0.00	49.24	6.16
4	69.29	0.27	0.27	0.00	49.84	6.21
5	69.39	0.47	0.47	0.00	50.44	6.26
6	69.48	0.73	0.73	0.00	51.05	6.31
7	69.58	1.05	1.05	0.00	51.66	6.35
8	69.67	1.41	1.41	0.00	52.27	6.40
9	69.77	1.81	1.81	0.00	52.89	6.45
10	69.87	2.25	2.25	0.00	53.52	6.50
11	69.96	2.71	2.71	0.00	54.14	6.54
12	70.06	3.17	3.17	0.00	54.78	6.59
13	70.16	3.61	3.61	0.00	55.42	6.64
14	70.45	18.35	4.45	13.90	57.38	6.78
15	70.74	57.61	13.27	44.34	59.38	6.93
FULL CONDUIT FLOW, ELEV = 70.94 FT						
16	71.27	179.68	24.79	154.89	63.09	7.19
17	71.91	383.74	25.09	358.65	67.81	7.51
18	73.08	942.39	25.62	916.76	76.93	8.11
19	74.54	1870.23	26.28	1843.95	89.33	8.90
20	76.00	3043.85	26.91	3016.94	102.95	9.75

SUMMARY OF AUXILIARY SPILLWAY SURFACE CONDITIONS USED IN COMPUTATIONS BY REACH

@ 72.5 Q_{AUX} =
@ 71.2 Q = 140.3

REACH	FROM STA (ft)	TO STA (ft)	SLOPE (%)	RETARDANCE CURVE INDEX@	VEGETAL COVER FACTOR	MAINT. CODE	ROOTING DEPTH (ft)	REACH LOCATION *
1	0.	100.	-10.0	0.030	**	**	**	INLET
2	100.	200.	0.0	0.030	**	**	**	CREST
3	200.	300.	10.0	0.035	0.65	2	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 3 used in computing exit channel velocities.

ROUTED RESULTS	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	AUX.-HP FT	VOL-AUX. ACFT
NRCS-SDH	70.0	70.95	60.8	7.0	0.79	5.4

PEAK - CFS	Q-PS	Q-AUX.	Q-TOT.
DISCHARGE =	17.7	86.9	104.6

	CRITICAL DEPTH FT	CRITICAL VELOCITY FT/SEC	CRITICAL SLOPE-Sc FT/FT	25% OF Q Sc FT/FT
AUXILIARY SPILLWAY ---	0.36	3.39	0.025	0.034

AUXILIARY SPILLWAY DURATION FLOW = 15.6 HOURS

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

EXIT CHANNEL FLOW SUPERCRITICAL: MAX VELOCITY= 5.1 FT/SEC
EXIT SLOPE = 0.100 FT/FT
FLOW DEPTH = 0.2 FT

EFFECTIVE STRESS FOR STABILITY ANALYSIS OF AUX. EXIT CHANNEL
(Refer to Ag. Handbook 667, Chapt. 3, for allowable stresses.)
Aux. Discharge = 87. cfs; Bottom Width = 70. ft

REACH NO.	FROM STA	TO STA	SLOPE %	MANNING`S n	VELOCITY ft/s	STRESS lb/ft^2
3	200.	300.	10.00	0.035	5.14	0.297

DRAWDOWN USING FREEBOARD STORM FOLLOWS, STARTING AT ELEVATION 70.16 FT.

DRAWDOWN (DDT) TEST 69.00 FT 48.1 ACFT 0.00 CFS
CONTROL IS 0.000 DETENTION STORAGE

TIME = 7.93 DAYS, TO 0.0 CFS (LIMIT = 10.00 DAYS)

ROUTED RESULTS	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	AUX.-HP FT	VOL-AUX. ACFT
NRCS-FBH	70.0	71.14	62.2	7.1	0.99	6.8

PEAK - CFS	Q-PS	Q-AUX.	Q-TOT.
DISCHARGE =	22.1	128.6	150.7

	CRITICAL	CRITICAL	CRITICAL	25% OF Q
	DEPTH	VELOCITY	SLOPE-Sc	Sc
AUXILIARY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY ---	0.47	3.85	0.023	0.031

AUXILIARY SPILLWAY DURATION FLOW = 15.9 HOURS
ATTACK, OE/B = 0.6 ACFT/FT

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

EXIT CHANNEL FLOW SUPERCRITICAL: MAX VELOCITY= 6.0 FT/SEC
EXIT SLOPE = 0.100 FT/FT
FLOW DEPTH = 0.3 FT

>>>> NHCP378 RUN - MINIMUM FLOW IN AUX. SPILLWAY FROM TR60
USING FORMULA WITHOUT 200 CFS MINIMUM LIMIT (234. CFS).

ROUTED	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	AUX.-HP	VOL-AUX.
RESULTS	FT	FT	ACFT	AC	FT	ACFT
MIN. AUX.	70.0	71.52	64.9	7.3	1.36	9.5

PEAK - CFS Q-PS Q-AUX. Q-TOT.
DISCHARGE = 24.9 233.7 258.6

	CRITICAL	CRITICAL	CRITICAL	25% OF Q
	DEPTH	VELOCITY	SLOPE-Sc	Sc
AUXILIARY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY ---	0.70	4.68	0.020	0.028

>>>> NHCP378 RUN - MINIMUM DEPTH, CREST AUX. TO TOP OF DAM IS 2.00 FT.
NEW TOP OF DAM ELEVATION = 72.16.

ROUTED	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	AUX.HP	VOL-AUX.
RESULTS	FT	FT	ACFT	AC	FT	ACFT
MINIMUM AUX.	70.0	72.16	69.7	7.6	2.01	14.3

PEAK - CFS Q-PS Q-AUX. Q-TOT.
DISCHARGES = 25.2 476.6 501.8

	CRITICAL	CRITICAL	CRITICAL	25% OF Q
	DEPTH	VELOCITY	SLOPE-Sc	Sc
AUXILIARY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY ---	1.11	5.88	0.018	0.024

INFLOW HYD 1 PSH-PEAK = 3.54 CFS AT 25.11 HRS, LOCATION POINT
INFLOW HYD 1 SDH-PEAK = 104.57 CFS AT 14.30 HRS, LOCATION POINT
INFLOW HYD 1 FBH-PEAK = 150.66 CFS AT 14.30 HRS, LOCATION POINT
HYDOUT 1

1SITES....JOB NO. 1 COMPLETE.

Stern Dam 1

0 SUBWATERSHED(S) ANALYZED.

1 STRUCTURE(S) ANALYZED.

3 HYDROGRAPHS ROUTED AT LOWEST SITE.

0 TRIALS TO OBTAIN BOTTOM WIDTH FOR SPECIFIED STRESS OR VELOCITY.

SITES.....COMPUTATIONS COMPLETE

>>>	SITE ID	SUBWS ID	SUBWS DA (SQ MI)	CURVE NO.	TC (HRS)	TOTAL DA (SQ MI)	TYPE DESIGN	STRUC CLASS	<<<
	S 1	A	0.97	68.	2.55	0.97	378CR	A1	

PASS NO.	DIA./ WIDTH (IN/FT)	AUX.CREST ELEV (FT)	BTM. WIDTH (FT)	MAX. HP (FT)	MAX. ELEV (FT)	EMB. VOL. (CY)	INTEGR.* DIST. (FT)	EXIT* VEL. (FT/SEC)	TYPE HYD
1	15.0	70.2	70.0	2.0	72.2	0.	0.	6.0	MIN. AUX.

* INTEGRITY DIST. AND EXIT VEL. ARE BASED ON THE ROUTED HYDROGRAPH AND WILL NOT RELATE TO THE MAX. ELEV. (TOP OF DAM), WHICH IS SET BY MINIMUM DESIGN CRITERIA.

SITES.....SUMMARY TABLE 1 COMPLETED.

NRCS SITES VERSION 2000 ,05/01/2000
FILES

INPUT

C:\Program Files\USDA\SITES\Stern\H15.D2C

OUTPUT - DATED 03/25/2004 16:41:23

C:\Program Files\USDA\SITES\Stern\H15.OUT

GRAPHICS FILES GENERATED

OPTION "L" DATED 03/25/2004 16:41:23

C:\Program Files\USDA\SITES\Stern\H15.DRG

OPTION "P" DATED 03/25/2004 16:41:23

C:\Program Files\USDA\SITES\Stern\H15.DHY

OPTION "E" DATED 03/25/2004 16:41:23

C:\Program Files\USDA\SITES\Stern\H15.DEM

NOTE: SITES sets min. ES. Cl. @ 70.2 ft min. ES. → TOP
as 2.0 ft.

Hood Inlet

Project Name: *Stern - Clark Co.*Computed by: *Pete Anderson*Date: *4/16/2003*

Checked by: _____

Date: _____

IaHoodInlet.xls Ver 1.00

		Outflow, CFS				Structure Outflow, CFS	Controlling Factor
		Elev	HW Ft	Weir	Slug Flow	Full Pipe	
Input Data		69.0	0.0	0.00	0.00	23.20	Weir Flow
		69.1	0.1	0.11	0.00	23.25	Weir Flow
		69.2	0.2	0.22	0.00	23.30	Weir Flow
		69.3	0.3	0.38	0.00	23.35	Weir Flow
Principal Spillway Crest Elev (ft)	69	69.4	0.4	0.59	0.00	23.40	Weir Flow
		69.5	0.5	0.80	0.00	23.45	Weir Flow
Inside Wall - Type	Corrugated	69.6	0.6	1.07	0.00	23.50	Weir Flow
Pipe Diameter (in)	15	69.7	0.7	1.38	0.00	23.54	Weir Flow
Pipe Length (ft)	95	69.8	0.8	1.77	0.00	23.59	Weir Flow
Entrance Coefficient 'Ke'	1	69.9	0.9	2.25	0.00	23.64	Weir Flow
Mannings 'n-value'	0.013	70.0	1.0	2.73	0.00	23.69	Weir Flow
Elbow Elev (if None, Leave 'BLANK')		70.1	1.1	3.17	0.00	23.74	Weir Flow
Length of Outlet ('BLANK' if none)		70.2	1.2	3.62	0.00	23.79	Weir Flow
Outlet Type	Cantilever	70.3	1.3	4.05	0.00	23.84	Weir Flow
Outlet Elevation (ft)	44.9	70.4	1.4	4.47	2.27	23.88	Weir Flow
Tailwater Elev (if unknown, leave 'Blank')		70.5	1.5	4.89	4.86	23.93	Weir Flow
Auxiliary Spillway Elev (ft)	70.6	70.6	1.6	5.24	7.45	23.98	Slug Flow
Maximum Headwater Elev (ft)	73	70.7	1.7	5.59	10.04	24.03	Slug Flow
Elev Increment After Full Pipe Flow	0.1	70.8	1.8	5.94	12.63	24.08	Slug Flow
Basic Output		70.9	1.9	6.29	15.22	24.12	Slug Flow
		71.0	2.0	6.64	17.81	24.17	Slug Flow
Full Pipe Flow - Max. Outflow (cfs):	25.11	71.1	2.1	6.99	20.40	24.22	Slug Flow
Full Pipe Flow - Max. Velocity (fps):	20.46	71.2	2.2	7.34	23.00	24.27	Slug Flow
		71.3	2.3			24.31	Full Pipe Flow
		71.4	2.4			24.36	Full Pipe Flow
Barrel Area (Sq Ft):	1.23	71.5	2.5			24.41	Full Pipe Flow
Kp: 0.023239		71.6	2.6			24.46	Full Pipe Flow
Friction Slope (HW at the A.S. Crest):	0.13780	71.7	2.7			24.50	Full Pipe Flow
Pipe Slope: 0.26226		71.8	2.8			24.55	Full Pipe Flow
Outlet Elbow Angle (deg):	0.0	71.9	2.9			24.60	Full Pipe Flow
		72.0	3.0			24.64	Full Pipe Flow
		72.1	3.1			24.69	Full Pipe Flow
Km: 0.00000		72.2	3.2			24.74	Full Pipe Flow
Tailwater Elev Used For Full Pipe Flow:	45.65	72.3	3.3			24.78	Full Pipe Flow
		72.4	3.4			24.83	Full Pipe Flow
Notes & Warnings		72.5	3.5			24.88	Full Pipe Flow
		72.6	3.6			24.92	Full Pipe Flow
		72.7	3.7			24.97	Full Pipe Flow
		72.8	3.8			25.02	Full Pipe Flow
		72.9	3.9			25.06	Full Pipe Flow
		73.0	4.0			25.11	Full Pipe Flow

Note: Verify that the pipe inside wall type is correct.

Spectra Precision Software, Inc.
 5901 Peachtree-Dunwoody Rd., Suite A-300
 Atlanta, GA 30328-5548
 800-235-4972
 Monday, March 08, 2004 2:49:24 PM

PROJECT: C:\Eng Programs\eng data\TERRAM\sternpete.pro

DTM TO DTM VOLUME

Cut and Fill Volumes

Shrinkage/swell factors:		Cut	1.0000	Fill	1.0000
Original DTM Layer Name	# of Points	Final DTM Layer Name	# of Points		
POINTS	105	DAM	49		
Cut Volume (Cu. Yd.)	Cumulative Cut Volume	Fill Volume (Cu. Yd.)	Cumulative Fill Volume		
0.7	0.7	12,380.2	12,380.2		

Net Difference: 12379.6 Cu. Yd. BORROW

fn:\yard\Clstrcor2
USDA
Natural Resources Conservation Svc.

NOVEMBER 1997

EXCAVATION (CORE TRENCH)

Cooperator: Marvin Stern
Address/Ph:
Legal Des.: Se 4, Sec 27, T119, R59
Designer: Pete Anderson

Con. Distr.: Clark
Field Office Webster
Date: 03/05/04

STA.	CL	US SS	DS SS	TW	SQ.FT.	DIST.	CU.YD.
100	0	1	1	10	0		
106	2	1	1	10	24	6	2.7
120	2	1	1	10	24	14	12.4
142	57	1	1	10	75 119	22	40.9 58.3
158	67	1	1	10	96	16	50.7
204	81	1	1	10	75 119	46 62	143.7 273.3
268	5	1	1	10	75	64	177.8
316	2	1	1	10	24	48	88.0
348	2	1	1	10	24	32	28.4
360	0	1	1	10	0		0.0

TOTAL = 548 cu. yd.

add 10%

640.8

use 705 cy.

EARTHWORK QUANTITIESCooperator: Marvin SternCon. Distr.: Clark

Address/Ph: -

Field Office: ClarkLegal Des.: Se 4, Sec 27, T119, R59Computation day: 2/11/04Designer: Pete AndersonDate: 03/05/04

73.5 = Top El. or RR Farm Pond

STA.	CL	US SS	DS SS	TW	SQ.FT.	DIST.	CU.YD.
100	73.5	3	2.5	14	0		
106	70	3	2.5	14	82.7	6	9.2
120	60	3	2.5	14	690.2	14	200.4
142	50	3	2.5	14	1847.7	22	1033.9
158	45	3	2.5	14	2632.7	16	1327.5
204	50	3	2.5	14	1847.7	46	3816.6
268	54	3	2.5	14	1318.7	64	3752.7
316	60	3	2.5	14	690.2	48	1785.7
348	70	3	2.5	14	82.7	32	458.0
360	73.5	3	2.5	14	0.0	12	18.4

TOTAL = **12,402** cu. yd.Add 5% for Settlement = **13,023** cu. yd.

BFSO CONCRETE CRADLE FOR P. S. & ANTI-SEEP & DRAIN

By: Pete Anderson	Checked by:	Natural Resources
Date: 25-Mar-04	Date Ckd:	Conservation Service
Farmer: Marvin Stern	Con. District: Clark	Anderson, DEC. 2001 rev. 6/03

INPUT DATA for CONCRETE CRADLE

1.25 = di, (ft.) barrel diameter
 8 = t, (inches) thickness of cradle
 46 = l, (ft.) length of cradle

RESULTS for CONCRETE CRADLE

2.58 = do, (ft.) outside diameter of concrete cradle
 3.4 = cu.yd. of concrete cradle

INPUT DATA for ANTI-SEEP COLLAR & SAND DRAIN

1.25 = (ft.) barrel diameter
 0.67 = (ft.) outside thickness (width) of SAND DRAIN past P.S. (use .67')
 1 = (ft.) height of sand drain (use 1')
 0.5 = (ft.) depth of P.S. above bottom of sand drain (not utilized yet)
 42 = (ft.) length of sand drain
 no = (yes, or no) Do you wish to input your own width of drain?
 0 = (ft.) width of sand drain
 6 = (ft.) outside thickness (height) of sand ANTI-SEEP COLLA
 7.5 = (ft.) width of sand anti-seep collar
 2 = (ft.) thickness of sand anti-seep collar
 NO ~~yes~~ = (yes, or no) Do you wish to input your own height, width, & thickness of anti-seep collar?
~~5.5~~ = (ft.) height of sand anti-seep collar
~~6~~ = (ft.) width of sand anti-seep collar
 2 = (ft.) thickness of sand anti-seep collar
 0.26 = (ft./ft.) approximate slope of P.S., grade
 no = (yes, or no), Do you wish to add in connection between the anti-seep and the sand drain.

RESULTS for ANTI-SEEP COLLAR & SAND DRAIN

4.4 ~~2.6~~ = (ft.) width of sand drain used for calculations
 4.4 ~~4.9~~ = cu.yd. of sand drain
 3.3 = cu.yd. of sand anti-seep collar
 .2 ~~0.0~~ = conection between anti-seep and drain
 7.3 = cu.yd., Total filter material needed

5.5 = Heigth of sand anti-seep collar used (ft.)
 8 = Width of sandanti-seep collar used (ft.)
 2 = Thickness of sand anti-seep collar used (ft.)

$$3' \times \frac{34''}{12'} \times \frac{16''}{12'} \times \frac{1}{2} \div 27 =$$

= 7.5

7.9

fn: Bilcost2
 USDA
 Natural Resources Conservation Svc.

SD-ENG-12
 July 1993

TABLE OF QUANTITIES & COST ESTIMATE

Cooperator Marvin Stern
 Address/Ph. -
 Legal Des. Se 4, Sec 27, T 119, R 5
 Designer Pete Anderson

Con. Distr. Clark
 Field Office Webster
 Date: 03/26/04

Item No.	Item	Unit	Quantity	Unit Cost	Total Cost
1	Earth fill (embankment 13,023 stripping 528)	cu.yd.	13551.0	\$1.25	\$16,938.75
2	Core trench	cu.yd.	546	1.75	955.50
3	Principal Spillway				xxxx
3.1	18" dia. CPM	lin.ft.	14	15.00	210.00
3.2	15" dia. CPE	lin.ft.	100	7.00	700.00
3.3	Anti-seep collar	each	1	250.00	250.00
3.4	Baffle & posts	each	1	200.00	200.00
3.5	Rock riprap @ outlet w/filter fabric	cu.yd.	7	27.00	189.00
4	Labor to install P.S.	job	1	900.00	900.00

Total Cost = \$20,343
 Add 7% contingencies \$21,767

Note: This is an estimate only. Actual cost will be determined by contractors bid and the staked and/or final quantities.

fn: costdam
USDA
Natural Resources Conservation Svc.

SD-ENG-12
July 1993

BID SCHEDULE

Cooperator Marvin Stern
Address/Ph. _____
Legal Des. Se 4, Sec 27, T 119, R 5
Designer Pete Anderson

Con. Distr. Clark
Field Office Webster
Date: 03/26/04

Item No.	Item	Unit	Quantity	Unit Cost	Total Cost
1	Earth fill (embankment 13,023 stripping 528)	cu.yd.	13,551	_____	_____
2	Core trench	cu.yd.	546	_____	_____
3	Principal Spillway				xxxxxxxxxx
3.1	18" dia. CPM	lin.ft.	14	_____	_____
3.2	15" dia. CPE	lin.ft.	100	_____	_____
3.3	Anti-seep collar	each	1	_____	_____
3.4	Baffle & posts	each	1	_____	_____
3.5	Rock riprap @ outlet w/filter fabric	cu.yd.	7	_____	_____
4	Labor to install P.S.	job	1	_____	_____

Total Cost =

EARTH BORINGS DOCUMENTATION

Cooperator Marvin Stern Practice Dam CD Dag County Chert Date 4/22/04
Driller/Logger Kempster Legal Description Or SW Sec 27 T 119 R 59 Hole N45°04.899
Eng./Technician Kempster Surface Elevation _____ Soil Name La Prairie Depth to Present 9' Depth of Seasonal High Water Table 5' Landform Position Foot slope
Hole Number 1 Remarks on site: _____

Depth, Feet	Unified Class	USDA Texture	Munsell Color	Moisture Content	Moist Consistence	% Mortles	Field Estimate of Permeability	Geologic Material	Weathered/ Unweathered	Effervescence	Concen- trations	Other Features
0-5	ML-CL	loam	black	moist	friable		moderate	Alluvium	weathered	weak		
5-6	GP	gravel	10YR 4.2	moist	loose		very rapid	Alluvium	unweathered	weak		
6-10	CL	clay loam	2.5Y 6/2	moist-sat	firm		moderately slow	glacial till	unweathered	strong		
					</							

15

Remarks on site:

Depth, Feet	Unified Class	USDA Texture	Munsell Color	Moisture Content	Moist Consistence	% Mortles	Field Estimate of Permeability	Geologic Material	Weathered/ Unweathered	Effec- vessence	Concen- trations	Other Features
0-1	ML-CL	Loam	black	moist	friable		moderate	alluvium	weathered	weak		
1-2	ML	Loam	dark brown	moist	friable		moderate	alluvium	unweathered	strong		
2-5	GP	coarse gravel	grayish	saturated	loose		very rapid	alluvium	unweathered	weak		
5-10	CL	clay loam	2.5Y 4/1	saturated	firm		moderately slow	glacial till	unweathered	strong		stones 1 to 3 dia
	Chart (see next page)	C, SC, SiC, SiCL, CL, SCL, L, SIL, Si, SL, LS, S, etc.	Dominant Matrix Color Name	Dry, Moist, Saturated	Loose, V. friable, Friable, Firm, Very firm		Chart (see next page)	Loess, Glacial till, Silty drift, Outwash, Alluvium etc.		None Weak Strong Violent	Lime Fe & Mn Gypsum, etc.	Shale Chips, Snail Shells, Gravel, Stones, Cracks, Organics

EARTH BORINGS DOCUMENTATION

Remarks on site:	Water Table	High Water Table	Position
		110'	>10'
			Shower

[illegible]





AUG 25 2004



AUG 25 2004









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AUG 11 2004

WATER RIGHTS
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Bath S. D.
Aug 10 2004

Chief Engineer
Garland Erbele

I have received information on a proposed dam to be built in the SE1'4 SE1'4 section 27, T119n,R59W. The Stern Dam Water Permit Application No 6522-3.

I have great concern of how this will affect the water flow on this spring fed creek. My grandfather homesteaded the E1'2 E1'2 Sec34 T119,R59 in 1904. This creek has always been the only water supply this land has ever had and has never failed to provide water for livestock even during the dirty thirties. Cattle can cross it and minutes later the water is clear. If this water source is lost my pasture will be of no use and of little value because of the lost water supply and for this reason I am opposed to this project.

Charles Boynton
39752 130th St
Bath, S.D.



United States Department of Agriculture



Natural Resources Conservation Service
600 East Highway 12, Suite 1
Webster, SD 57274-1135

June 16, 2004

Water Rights Division, DENR
Joe Foss Building
523 E Capital Ave.
Pierre, SD 57501

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Enclosed is the design for a proposed embankment dam for Marvin Stern of Conde, SD. Please review and approve at your convenience.

If you have any questions, please contact Pete Anderson at the NRCS Field Support Office in Brookings (605-692-2344).

Thank you,

A handwritten signature in cursive script that reads "Charlene Voss".

Charlene Voss
Conservation Technician
NRCS
Webster, SD

enclosures

Water Permit Application #6522-3

Marvin Stern

Top of Dam Elev. - 73.5
 2nd Spillway Elev. - 71.5
 P. Spillway Elev. - 69.0
 Dis. Toe Elev. - 43.5

Ht. = 30 ft

Cont. 3-Low Hazard Dam

Normal Storage Capacity - 48.4 Ac-Ft
 Int. Storage Capacity - 65
 Max. Storage Capacity - 81

Int. Capacity x Eff. Ht = $65 \times 28 = 1820 < 3000$ $\therefore$ 25 yr
Minimum Spillway Design

From USGS WRI 98-4055 "Tech. for Est. Peak Flows ... in SW"
 Region A $PII = 0.9$ $DA = 622 \text{ Ac} = 0.972 \text{ mi}^2$

$$Q_{25} = 218 CA^{.513} P_{II}^{.480}$$

$$= 218 (0.972)^{.513} (0.9)^{.480}$$

$$= 218 (.9855) (.6031)$$

$$= \underline{130 \text{ cfs}}$$

$$Q_{100} = 362 CA^{.521} P_{II}^{.447}$$

$$= 362 (0.972)^{.521} (0.9)^{.447}$$

$$= 362 (.9853) (.6244)$$

$$= \underline{222 \text{ cfs}}$$

Secondary Spillway Flow

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

$$C = 2.6$$

$$L = 80$$

$$H = 2$$

$$= 2.6(80)(2)^{1.5}$$

$$= \underline{588 \text{ cfs}}$$

NRCS Annual Yield

$$DA = 622 \text{ Ac} \quad CN = 68 \quad ISO = 2 1/2$$

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 Cont. 3 - OK

$$80\% \text{ chance} = 0.08$$

$$0.08 \times 622^{1/2} = \underline{4 \text{ Ac-Ft}}$$

$$50\% \text{ chance} = .28$$

$$.28 \times 622^{1/2} = \underline{14.5 \text{ Ac-Ft}}$$

$$10\% \text{ chance} = 1.5$$

$$1.5 \times 622^{1/2} = \underline{78 \text{ Ac-Ft}}$$



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

August 2, 2004

Marvin Stern
41607 152nd Street
Conde SD 57343

Dear Mr. Stern:

We have reviewed the plans and specifications for your dam project located in the SE 1/4 of Section 27-T119N-R59W, in Clark County. The plans and specifications as submitted are approved. Approval of the plans and specifications does not authorize construction of the dam. The construction may not begin until Water Permit Application No. 6522-3 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 Stern Dam will be classified as a small size Category 3, Low Hazard dam with a dam height of 30 feet and a normal storage capacity of 48.4 acre-feet and a maximum storage capacity of 81 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: Charlene Voss, NRCS, Webster



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

August 5, 2004

Charles Boynton
39752 130th Street
Bath SD 57427

Dear Mr. Boynton:

You contacted our office regarding a dam proposed to be constructed upstream of your pasture in northwestern Clark County. You expressed a concern that a dam will cut-off flow in the spring fed creek which is the source of livestock water in the pasture.

I have learned that Marvin Stern proposes to construct a dam with a storage capacity of 48.4 acre foot of water. The dam is to be located in the SE ¼ SE ¼ Section 27, T119N, R59W. The dam is of sufficient size to require a water permit to be obtained. In fact, Mr. Stern has applied for a permit and the public notice is scheduled to be published in the Clark Co. Courier on August 11 and 18, 2004.

Enclosed is a copy of the report, recommendation and public notice for Water Permit Application No. 6522-3. A petition to intervene must be submitted to the Water Rights Program and the applicant by August 30, 2004 to cause a hearing before the Water Management Board. This Board is a group of seven citizens appointed by the Governor whose function is to determine whether to approve or deny issuance of a water permit. I encourage you to submit a petition in order to have your concerns addressed. A petition may be informal and be in the form of a letter that states your concerns.

The watering of livestock from a creek is a domestic use of water that takes precedence over those uses that require a permit. If you file a petition, I anticipate that Tim Schaal, who prepared the report on this application, will want to visit the proposed site.

If you have any question on the water permitting process or filing a petition, please do not hesitate to contact me.

Sincerely,

Eric Gronlund
Water Rights Program, DENR
(605) 773-3352

enclosure

REPORT ON
WATER PERMIT APPLICATION No. 6522-3
Marvin Stern
July 19, 2004

Water Permit Application No. 6522-3 has been filed by Marvin Stern to impound 48.4 acre-feet of water from runoff by constructing a dam located in the SE ¼ SE ¼ of Section 27-T119N-R59W, in Clark 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 and recreational use.

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. 6522-3 is approved.

The dam will be 30 feet high with a normal storage capacity of 48.4 acre-feet with a reservoir level at the primary spillway elevation, and a maximum storage capacity of 81 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.

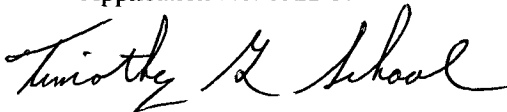
The dam has a drainage area of 622 acres or 0.97 square miles. The dam is designed to have a 15 inch diameter CPE pipe with 4.5 feet of available freeboard as the primary spillway, and an 80 foot wide earthcut secondary spillway with 2.0 feet of available freeboard. A 25 year frequency event produces a peak runoff of 130 cfs and a 100 year frequency event produces a peak runoff of 222 cfs. The 80 foot secondary spillway has a capacity of approximately 588 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 4.0 acre-feet. The annual yield with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be 14.5 acre-feet and the annual yield with a 10 percent chance, or 1 out of 10 years, is expected to be 78 acre-feet.

The Stern Dam will be located in the SE ¼ SE ¼ of Section 27-T119N-R59W on an unnamed tributary to Timber Creek about 15 miles upstream of Timber Creek. There are no existing Water Permits/Rights located on the unnamed tributary between the proposed dam and Timber Creek.

Conclusions:

1. Water Permit Application No. 6522-3 should be approved since unappropriated water is available and approval should not have any adverse effect on existing Water Permits/Rights.
2. If approved, the low flow bypass requirement for downstream domestic use should be a qualification on Water Permit Application No. 6522-3.



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**

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. 6522-3, Marvin Stern**

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. 6522-3, Marvin Stern, 41607 152nd Street, Conde SD 57343.

The Chief Engineer is recommending APPROVAL of Application No. 6522-3 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. 6522-3 authorizes a dam with a storage capacity of 48.4 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
July 29, 2004

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**NOTICE OF APPLICATION
NO. 6522-3**

to Appropriate Water

Notice is given that Marvin Stern, 41607 152nd St., Conde, SD 57343, has filed an application for a water permit to impound 48.40 acre-feet of water from runoff by constructing a dam located in the SE1/4SE1/4 Section 27 with water impounded in the SE1/4SE1/4 Section 27; all in T119N-R59W. This application requests impoundment of sufficient water to maintain water to the outlet elevation. The water is for fish and wildlife propagation and recreational purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 6522-3 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.

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 August 30, 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. Pirner, Secretary
Department of Environment and
Natural Resources

8-11-2t.

Affidavit of Publication

State of South Dakota

§

County of Clark

William J. Krikac of said county, being first duly sworn, on oath says that he is the publisher of the **Clark County Courier**, a weekly newspaper printed and published in Clark in said County of Clark and has a full and personal knowledge of all the facts therein stated; that said newspaper is a legal newspaper and has a bona-fide circulation of a least two hundred copies weekly, and has been published within said County for fifty-two successive weeks next prior to the publication of the notice herein mentioned, and was and is printed wholly or in part in an office maintained at said place of publication; that the

**NOTICE OF APPLICATION
TO APPROPRIATE WATER
MARVIN STERN**

a printed copy of which, taken from the paper in which same was published, is attached to this sheet, and is made a part of this Affidavit, was published in said newspaper at least once in each week for

(two)

successive weeks, on the day of each week on which said newspaper was regularly published, to-wit:

August 11, 2004

August 18, 2004

that the full amount of the fees for the publication of the annexed notice is

\$40.48

William J. Krikac

Subscribed and sworn to before me this

29th day of August, 2004

Kimberly L Seefeldt

Notary Public
Clark County, South Dakota

My commission expires: 10-02-07

Instruction to Newspaper - Publish first Notice on August 11, 2004 with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 6522-3 to Appropriate Water

Notice is given that Marvin Stern, 41607 152nd St, Conde SD 57343 has filed an application for a water permit to impound 48.40 acre-feet of water from runoff by constructing a dam located in the SE ¼ SE ¼ Section 27 with water impounded in the SE ¼ SE ¼ Section 27; all in T119N-R59W. This application requests impoundment of sufficient water to maintain water to the outlet elevation. The water is for fish and wildlife propagation and recreational purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 6522-3 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.

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 August 30, 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. Pirner, Secretary, Department of Environment and Natural Resources.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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.

August 2, 2004

Marvin Stern
41607 152nd St
Conde, SD 57343

Dear Mr. Stern:

Water Permit Application No. 6522-3 for fish & wildlife propagation and recreational 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 Clark Co Courier printed at Clark, SD (Ph # 605-532-3654). 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

August 2, 2004

Clark Co Courier
119 1st Ave E
Clark SD 57225

ATTENTION: Legal Public Notice

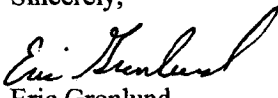
Enclosed is a Notice on Application No. 6522-3 to Appropriate Water to be published twice. Please publish the first notice on August 11, 2004 with the second publication 7 days later. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352.

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 Marvin Stern, 41607 152nd St., Conde SD (Ph # 605-382-5993).

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. 6522-3

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

Date _____

We are in receipt of your letter of August 2, 2004 enclosing Notice to Appropriate Water by Application No. 6522-3 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name

Newspaper



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

August 12, 2004

NOTICE

TO: Marvin Stern
41607 152nd Street
Conde SD 57343

Charles Boynton
39752 130th Street
Bath SD 57427

FROM: Garland Erbele, Chief Engineer
Water Rights Program *Garland Erbele*

SUBJECT: Notice of Hearing on Water Permit Application No. 6522-3, Marvin Stern

A letter has been submitted by Mr. Charles Boynton in opposition to issuance of Water Permit Application No. 6522-3 filed by Marvin Stern. This letter constitutes a petition and therefore, the application is being scheduled for a hearing before the Water Management Board. A copy of the petition is enclosed to the applicant

Application No. 6522-3 proposes to impound 48.40 acre-feet of water from runoff by constructing a dam located in the SE ¼ SE ¼ Section 27 with water impounded in the SE ¼ SE ¼ Section 27; all in T119N-R59W. This application requests impoundment of sufficient water to maintain water to the outlet elevation. The water is for fish and wildlife propagation and recreational purposes.

The Water Management Board will conduct a hearing to consider Application No. 6476-3 at 11:30 AM, Wednesday, October 6, 2004, in the Conference Room, Floyd Matthew Training Center, Joe Foss Building, 523 E. Capitol Avenue, Pierre SD 57501. Pursuant to SDCL 46-2-9, 46-2-11, and 46-2A-23, the Board has legal authority and jurisdiction to conduct this hearing. The hearing time is an estimate and may be delayed due to prior agenda items. Future notice will be provided to all parties if there is a change in the hearing date or time.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommended APPROVAL of Application No. 6522-3 with qualifications 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. The Chief Engineer's recommendation is not final or binding upon the Board. A Water Right Program staff engineer will visit the proposed site prior to the Board hearing. Based on this on-site visit the Chief Engineer may revise the recommendation prior to the hearing. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny this application based on the evidence presented at the public hearing.

The October 6, 2004, hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application. The request for an automatic delay must be filed by September 27, 2004.

This hearing may be an adversarial proceeding. Any party of record and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

Notice is further given to persons with disabilities that this hearing is being held in a physically accessible place and that interpreter services will be provided, upon request, during the hearing. Please notify Eric Gronlund at (605) 773-3352 by September 27, 2004, if you have any questions about the hearing process or have special needs for which the department will make arrangements.

This application is made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-10, 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-23; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-6-3, 46-6-3. 1, 46-6-6.1, 46-6-10, 46-6-13, 46-6-14, 46-6-26, 46-5-31; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

c: Diane Best, Assistant Attorney General

NOTE: Since this matter does not involve a monetary controversy in excess of \$2,500.00 or termination of a property right in accordance with SDCL 1-26-18.3, the Chief Engineer has determined this contested case need not be referred to the Office of Hearing Examiners. If any party disagrees with this determination, the Chief Engineer shall be notified by August 27, 2004.

CERTIFICATION

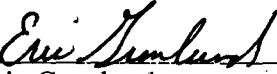
I hereby certify that on August 12, 2004 , I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated August 12, 2004 regarding Notice of Hearing on Water Permit Application No. 6522-3 addressed as stated below:

Marvin Stern
41607 152nd Street
Conde SD 57343

Charles Boynton
39752 130th Street
Bath SD 57427

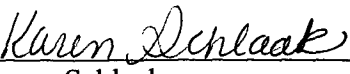
A copy of the above described Notice was sent Inter-office to:

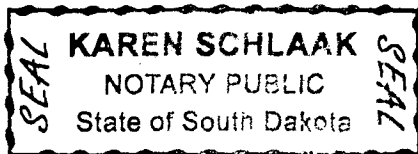
Diane Best, Assistant Attorney General, Capitol Building


Eric Gronlund
Natural Resource Engineer
Water Rights

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 13th day of August, 2004.


Karen Schlaak
Notary Public
My Commission expires April 1, 2007





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

August 12, 2004

Darrel DuVall
Natural Resource Conservation Service
600 East Hwy 12, Suite 1
Webster SD 57274-1135

Dear Mr. DuVall:

I spoke with you on August 4th regarding the proposed dam on Marvin Stern's property in Clark County. It is my understanding that the Webster NRCS office has worked with Mr. Stern on his proposed dam. I indicated during our phone conversation that Charles Boynton, who is a downstream landowner, inquired about dam.

Enclosed is a copy of the petition filed by Mr. Boynton opposing the water right permit application that was filed to authorize the dam. Also enclosed is a notice sent to both parties scheduling an October 6th hearing before the Water Management Board.

I wanted you to be aware that a petition had been filed opposing the application. Please do not hesitate to contact me if you have any questions about the water permitting process.

Sincerely,

Eric Gronlund
Water Rights Program, DENR
(605) 773-3352

enclosure



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

NOV 01 2004

Marvin Sern
41607 152nd St
Conde SD 57343

Dear Mr. Stern:

Enclosed is Water Permit No. 6522-3 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

Permit No. 6522-3
James River - Water District

Report Of Examination Of Works And/Or Application of Water To Beneficial Use

TO: Chief Engineer, Water Rights Program, DENR, Foss Bldg., Pierre, SD 57501

I have this day, **December 4, 2008**, made a thorough examination of the water use system constructed by **Marvin Stern** of **41607 152nd Street, Conde, SD 57343** holder of Permit No. **6522-3**, bearing the priority of **July 7, 2004** authorizing the storage of **48.4** acre-feet of the waters of **runoff** for **fish & wildlife propagation and recreational use** purposes, in **Clark** County.

I have to report on the conditions of the same as follows:

A. Works used to divert the water:

A 30 ft. high earthen dam with a normal storage capacity of 48.4 acre feet

B. Works used to transport water to place of use:

N/A

C. Works used to apply water to beneficial use:

A 30 ft. high earthen dam with a normal storage capacity of 48.4 acre feet

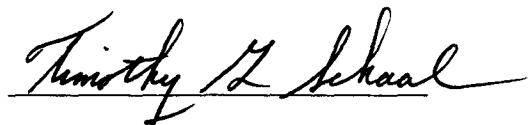
The system is in the following condition **good**. The point of diversion is located **450 ft. north & 1000 ft. west of the SE corner of Sec. 27-T119N-R59W (SE ¼ SE ¼) (Lat. 45.081599 & Long. -97.906028)**. The works are capable of storing **48.4** acre-feet of water which is to be used for **fish & wildlife propagation and recreational use**. Water has been put to beneficial use to the maximum extent as follows:

A 30 ft. high earthen dam with a normal storage capacity of 48.4 acre feet

and the license should be issued for **48.4** acre-feet of storage.

Applicable permit qualifications have been complied with: Yes **X**

Exceptions to compliance are: **none** Date Report Completed: **February 5, 2009**



Timothy G. Schaal, P.E.
Natural Resources Engineering Specialist
DENR, Water Rights Program

REPORT ON INSPECTION OF PERMIT NO. 6522-3

DATE OF INSPECTION: **December 5, 2009**

NAME & ADDRESS OF INSPECTION CONTACT/ **Marvin Stern, 41607 152nd Street, Conde, SD 57343**

RELATIONSHIP TO PERMIT HOLDER, IF APPLICABLE: **owner**

DIVERSION POINT LEGAL LOCATION: 450 ft. north & 1000 ft. west of the SE corner of Sec. 27-T119N-R59W (SE ¼ SE ¼) (Lat. 45.081599 & Long. -97.906028).

DAM INFORMATION:

- 1) Height to crest **30** feet
- 2) Height to primary spillway **25.5** feet
- 3) Height to secondary spillway **28** feet
- 4) Crest width **14** feet
- 5) Crest length **265** feet
- 6) Spillway length **XXX** feet
- 7) Spillway width **80** feet
- 8) Approx. storage (Normal) **48.4** acre-feet
- 9) Approx. storage (Maximum) **81** acre-feet
- 10) Date constructed: **2005**

PERMIT QUALIFICATIONS AND REGULATIONS:

- 1) Soil and water permit lands agree with lands being irrigated and lands listed on permit **N/A**
- 2) Special qualifications to permit being abided by **yes**
- 3) All structures, wells and lands on map **yes**
- 4) Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period **N/A**

Water Permit Application No.6522-3



Timothy G. Schaal 2/5/09
Timothy G. Schaal, P.E.
Natural Resources Engineering Specialist
DENR, Water Rights Program



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

FEB 13 2009

6522-3

Marvin Stern
41607 152nd St
Conde SD 57343

Dear Mr. Stern:

Enclosed is your Water License No. 6522-3. Included with the license is a map prepared by the staff engineer who conducted the inspection. Water License No. 6522-3 is the final document which completes the process of obtaining a water right.

As long as you use the water beneficially, as stated in the Water License, State Water Laws provide that you have a continuing right to use the water.

Sincerely,

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

enclosures

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 6522-3

(1) Marvin Stern, 41607 152nd St, Conde SD 57343 made Application No. 6522-3, July 7, 2004 for a water permit to impound 48.4 acre feet of runoff water in a storage dam located in Clark County, South Dakota for fish & wildlife propagation and recreational use purposes. Permit No. 6522-3, with a priority date of July 7, 2004 was approved October 6, 2004 and issued to the applicant for diversion of water with construction of the described project to be completed on or before October 7, 2009 and for the application to beneficial use of said water on or before October 7, 2011.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the project and is entitled to impound 48.4 acre feet of water for beneficial use. The location of the diversion point (spillway) is:

- .450 feet north and 1000 feet west of the SE corner of Section 27, T119N, R59W (SE ¼ SE ¼)
Water is impounded in the SE ¼ SE ¼ Section 27, T119N, R59W.

(3) The permit holder has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use.

(4) Pursuant to South Dakota Water Law 46-5-30.1 Marvin Stern, 41607 152nd St, Conde SD 57343 the holder and/or owner of Water Right No. 6522-3 is issued a license to appropriate water, the right to impound 48.4 acre feet of runoff water with a priority date of July 7, 2004 from the location specified in (2) of this license for the purpose of fish & wildlife propagation and recreational use.

This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Right No. 6522-3 and subject to the following qualifications:

- Water Right No. 6522-3 authorizes a dam with a storage capacity of 48.4 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation.
- Low flows as needed for downstream domestic use, including livestock water and prior water rights must be bypassed.



Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

FEB 13 2009

date



Gronlund, Eric

From: Gronlund, Eric
Sent: Friday, August 19, 2022 1:58 PM
To: Rath, Mark; Kilts, Whitney (DENR)
Cc: Duvall, Ron
Subject: Complaint regarding Water Right No. 6522-3, Marvin Stern

Mr. Charles Boynton (605 228-3246) called regarding the dam authorized by Water Right No. 6522-3 was impairing his downstream livestock watering. He stated his fears from when he opposed this application have come true as the stream through his pasture is dry. Through discussions, I ascertained that this involved Water Right No. 6522-3. Mr. Boynton opposed this application which came before the Water Management Board in October 2004. The minutes reflect that Mr. Boynton expressed his concern about not having water in his pasture.

During our call Mr. Boynton stated his domestic use of water for livestock needs to be protected. He further stated that the culvert through the dam is collapsing and does not flow to pass. I asked if there was inflow into the dam at this time. Mr. Boynton stated the dam was holding water. To clarify said I know water is likely impounded in the dam but what I was requesting whether he was aware if there is flow in the stream above the dam. He indicated he did not know as he didn't have access to check whether the stream was flowing above the dam. I went on to say that Mr. Stern is not required to release stored water. However, if there is inflow coming into the dam the low flow condition requires him to bypass that inflow so that domestic use below is satisfied. Mr. Boynton said even if there was inflow the culvert does not allow flow to pass.

I attempted to call Mr. Marvin Stern at 605 382-5993. This is the phone number on the application and the number returned when I conducted an internet search. There was no answer and did not go to voice mail.

I called Mr. Boynton back and said I was unable to get ahold of Mr. Sterns. He indicated I likely would not be able to because his understanding is the Mr. Sterns is in a nursing home. Next called the Clark County Register of Deed to see if they had on record a person responsible for caring for the property. Their records only indicated Marvin and Marilyn Stern as the deed holder.

Anyone have I idea how to handle this going forward?



Eric Gronlund, PE
Chief Engineer, Water Rights Program
Department of Agriculture and Natural Resources
523 E. Capitol Ave. Pierre SD, 57501
605.773.3352
danr.sd.gov

6522-3



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 E. CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

August 26, 2022

Marvin and Marilyn Stern
41607 152nd Street
Conde, SD 57434

Dear Mr. and Mrs. Stern:

I am writing you concerning Water Right No. 6522-3 which allows storage of water in a dam located in the SE1/4 SE1/4 section 27-T119N-R59W. The water right is conditioned that low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed. The dam was constructed in 2005 and an inspection of the dam was completed in December 2008.

We received a report that there is a lack of flow in the creek for livestock watering below the dam. Our response was that you, as the upstream water right holder, are only required to bypass low flows coming into the dam but you are not obligated to release stored water. Part of the downstream concern is whether the spillway on your dam is operating properly preventing water from moving downstream. Please ensure that your spillway is in good repair and clear of any debris that may be blocking or restricting flow leaving the dam.

This letter is also notification of my intent to enter the property to inspect the condition of the dam including the spillways as allowed by South Dakota Codified Law 46-2-19. We have tried to contact you via phone about this matter and inspecting the dam but the phone number (605-382-5993) does not ring past an answering service and a message cannot be left. If you have a different phone number or other contact information, please let us know. I can be reached by phone at 605-773-3352 or by email at eric.gronlund@state.sd.us.

If you have any questions or concerns, I can be reached at the above phone number and email address.

Sincerely,

Eric Gronlund, Chief Engineer
SD DANR Water Rights Program

Gronlund, Eric

From: Gronlund, Eric
Sent: Wednesday, August 31, 2022 2:33 PM
To: Duvall, Ron; Rath, Mark
Subject: FW: [EXT] Stearns Dam Clark County Complaint
Attachments: culvert when plugged.JPG; plugged poly dam culvert.JPG; culvert when plugged.JPG; contents plugging culvert 2.JPG; contents plugging culvert 3.JPG; contents plugging culvert.JPG

I spoke with Justin Boynton (605 380-9024) to discuss that Mark planned to conduct a site visit. That we plan to attempt to contact the local conservation officer (Zach Thomsen 605 881-2260) to accompany him. The purpose of the CO is to determine beaver activity and ability to remove the beaver(s).

Then called Marilyn Stern (605 382-5993) – made her aware of Mark conducting a site visit on Thursday, September 1st. Mrs. Stern indicated that they were not aware of the problem until contacted by me. They recognize the downstream landowner's need low flow bypass for livestock needs in their pastures. The following came out of that discussion:

- Mark and the local conservation officer may enter the property.
- Mrs. Stern did not have a problem with the downstream landowner entering the property to clean out in front of the culvert
- Mrs. Stern did not have a problem with removal of the beaver(s).
- Mrs. Stern has her son-in-law looking at possible solutions to the issues with the culvert/outlet. She was looking for ways to keep the cost of repair to a minimum
- She requested that I contact her son-in-law, Thad Duerre, to discuss the issue. Provide me his phone number (605 880-0561)

I called Justin Boynton back. I said it is in no way legally binding but Mrs. Stern indicated to me that they do not have any problem with the landowners entering the property to clean out in front of the culvert. This is a short term solution while everyone looks to a long term solution.

I called Thad Duerre (605 880-0561). He is aware of the issue. Reiterated there is no problem with downstream landowners entering the property clean out in from the culvert. He indicated he plans to cut the front portion of the culvert off and insert a steel pipe inside the PVC culvert. Also plans to install a trash deflector in front of the culvert entrance. He is aware of the beaver issue and are not opposed to removal. We both recognize another beaver will again move into the area at some point in the future.

From: Justin Boynton <boynton.justin22@yahoo.com>
Sent: Wednesday, August 31, 2022 12:13 PM
To: Gronlund, Eric <Eric.Gronlund@state.sd.us>
Subject: [EXT] Stearns Dam Clark County Complaint

Justin Boynton
 39752 130th St

8/30/22

To Whom it May Concern:

I am writing today to file my complaint on water flow to my pasture for my cattle. Earlier this year when I was checking our pasture I noticed the spring fed creek that runs through our pasture was on the low side but really didn't think much of it. From there just left it be due to not running cattle in that pasture yet. Fast forward to 8/17/22 going through the pasture and crossing my creek I had such a small flow you could plug it with a 20oz pop bottle. Never have I ever seen the water that low, to family knowledge that creek has flowed full since we homesteaded it. Even through the 1930's. So on 8/18/22 I ventured across the fence to see if there was maybe a downed tree I could just cut up and get out of the water. I walked all the way up to the bottom of the Stearns dam and found minimal water trickling out of the outlet culvert. I then went to the top to see it completely silted in. I had to cut a hole in the culvert to get it flowing so the cattle downstream would have water, upon cutting the hole I felt the inside of the culvert and it was crushed. I have had to return there every day to unplug it. I believe there is a beaver plugging it every night, which is causing additional issues but water levels are getting really low and I am in fear of the silt being an issue. There was supposed to be a bypass for this but no clue how to work it or if it works.













Water Rights Program - DANR

Conversation or File Documentation

Name of Person: *Marvin Stern*

File No. 6522-3

Address: *41607 152nd St, Conde SD 57343*

County: *Clark*

Date: *09-01-2022* **Telephone:** *605-382-5993*

RE: *Plugged outlet tube on dam*

Comments:

Upon approval from Marylyn Sterns, I made a site investigation of the Marvin Stern dam located in the SE ¼ SE ¼ of Section 27 T119N-R59W in Clark County. The Water Rights Program had received an emailed complaint from Justin Boynton a downstream landowner complaining that the outlet tube was plugged and was not allowing water to flow downstream to water the Boynton's livestock.

I found the outlet tube was partially plugged by cattails and mud and looked as if this debris had been placed by beaver, figure 1. I removed the debris and the water flow immediately increased figure 2. I walked along the north side of the reservoir and found some trees that had been taken down by beaver, figure 3.



Figure 1 – plugged outlet tube.



Figure 2 – debris removed from the outlet tube.



Figure 3 - beaver downed trees next to the dam

Upon returning to the office, Eric Gronlund and I called Thad Duerre, Sterns' son-in-law, concerning the complaint investigation. He said that he concurred that a beaver was causing the problem and the problem would be taken care of within the next week. Mr. Duerre indicated he was going to replace the plastic inlet to the outlet tube with a metal one and also construct a trash rack in front of the inlet.

We then called Mr. Boynton and explained what I found, and that Mr. Duerre indicated he would take care of the problem with the beaver.

Mark D Rath
Natural Resources Engineer III

Handwritten signature of Mark D Rath.