

WATER PERMIT NO. 1699-1

Name of Applicant: Jerry Muth

Address: 15546 Duck Creek Rd, Reeder ND 58649

Phone: 605 855-2352

Amount of Water Claimed: 81.8 AF

Total Acres: NA

Source of Water Supply: runoff

Water to be used for: fish & wildlife propagation and livestock

County: Perkins

Type of Waste Disposal System: NA

Location: 14 miles east of Lodgepole

PRIORITY Date Received: 11-3-1999

Fee: \$150.00

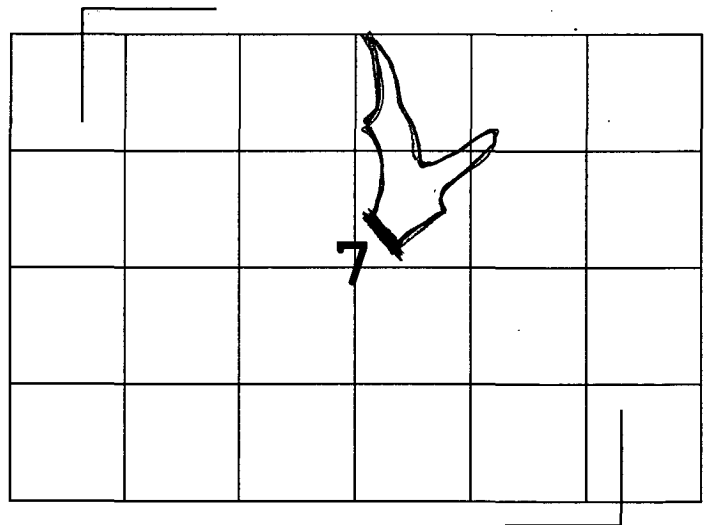
Corrected Application Received: 11-17-1999

Period of Annual Use: January 1 – December 31

Remarks:

Diversion Point: SW ¼ NE ¼ Sec 7-T21N-R10E

Water Impounded: NE ¼ Sec 7-T21N-R10E



Depth of Well: NA

Well Driller:

Remarks:

Type of Map: topo

Prepared by: Tom VerHelst, SCS

Reviewed and the Number Assigned on: 11-17-1999

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

FORM 2: Application for uses other than irrigation

(type or print)

Mail to:

Water Rights Division
Joe Foss Building
523 E Capitol
Pierre SD 57501-3181
605 773-3352

No. 1699-1 Hydrologic Unit 10130302
Basin Grand River
Newspaper The Bison Courier, Bison, SD
(office use only)



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

Check use of water:

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

Type of Application: ☒ New ☐ Vested Right (Use predates Mar 2, 1955) ☐ Future Use Reservation
(check one) ☐ 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 Jerry Muth Phone 605-855-2352
(check one) ☒ Owner ☐ Tenant/lessee

Mailing Address 15546 Duck Creek Rd. Reeder State ND 58649
(Street, RR, or Box) (City) (Zip Code)

2. Amount of water claimed _____ *CFS or _____ **GPM 82 ***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) _____
SW 1/4 NE 1/4 SEC 7 T21N-R10E

Water Impounded: NE 1/4 sec. 7-T21N-R10E County PERKINS

5. County or counties where water will be used PERKINS

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)

Project involves using an earthen dam with principal spillway to impound water for wildlife and livestock use.

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)

STATE OF SOUTH DAKOTA)

County of Perkins)^{SS}

I, Jerry Muth, 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.

Signed

Subscribed and sworn to before me this 1st day of Nov. 19 99

Gary LeFebvre
Notary Public

GARY LEFEBRE Notary Public
Perkins County SD

My commission expires December 8, 2003

Supplemental Information

(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 Thickness _____ 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) _____ c) Year Constructed _____
- d) 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.

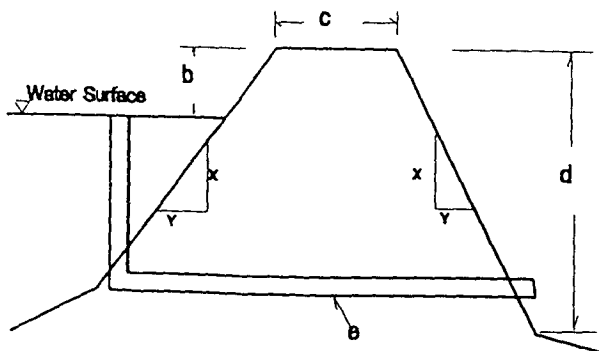
- a) If a private engineering firm or government agency was involved in the design of this dam, please give their name and address:

Thomas D. Ver Helst, NRCS

1847 5th Ave. South

Belle Fourche, SD 57783

- b) Freeboard 7.0'
- c) Crest Width 14'
Crest Length 355'
- d) Height 18.5'
- e) Primary Outlet Capacity 13.4 cfs
If pipe, diameter 12" Dia
- f) Secondary Spillway Capacity 812 cfs
Spillway Width 75'
- g) X & Y Slope
Upstream 3:1
Downstream 2:1
- h) Surface Area of Impoundment 17.8
- i) Storage 81.8 Acre Feet
- j) Drainage Area Above Dam 2578 Acres



**SOUTH DAKOTA
WATER PERMIT NO. 1699-1**

Date of first receipt of application November 3, 1999.

Date of return to applicant for corrections, amendments or changes November 8, 1999.

Date of receipt of corrected application November 17, 1999.

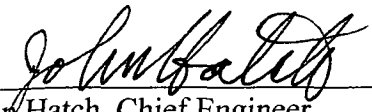
The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 1699-1 to Jerry Muth, 15546 Duck Creek Road, Reeder ND 58649 authorizing the construction of a dam and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 1699-1 authorizes impoundment of 82 acre-feet of water from runoff in a dam located in the SW ¼ NE ¼ Section 7 with water impounded in the NE ¼ Section 7; all in T21N-R10E.
2. The water appropriated shall be used for the purpose of supplying water for fish & wildlife propagation and livestock watering 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. 1699-1 is December 27, 1999.
5. The date from which applicant may claim right is November 3, 1999.
6. One-fifth of the construction is to be completed on or before June 27, 2001.
7. All construction is to be completed on or before December 27, 2004.
8. Water is to be put to beneficial use on or before December 27, 2008.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

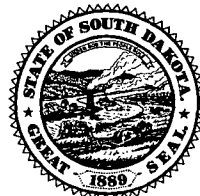
1. Water Permit No. 1699-1 authorizes a dam with storage capacity of 82 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation.
2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

WATER MANAGEMENT BOARD

By: 
John Hatch, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

JAN 6 2000

date



CONSTRUCTION SPECIFICATIONS

for



DAM

JERRY MUTH

PERKINS CO.

Prepared by:

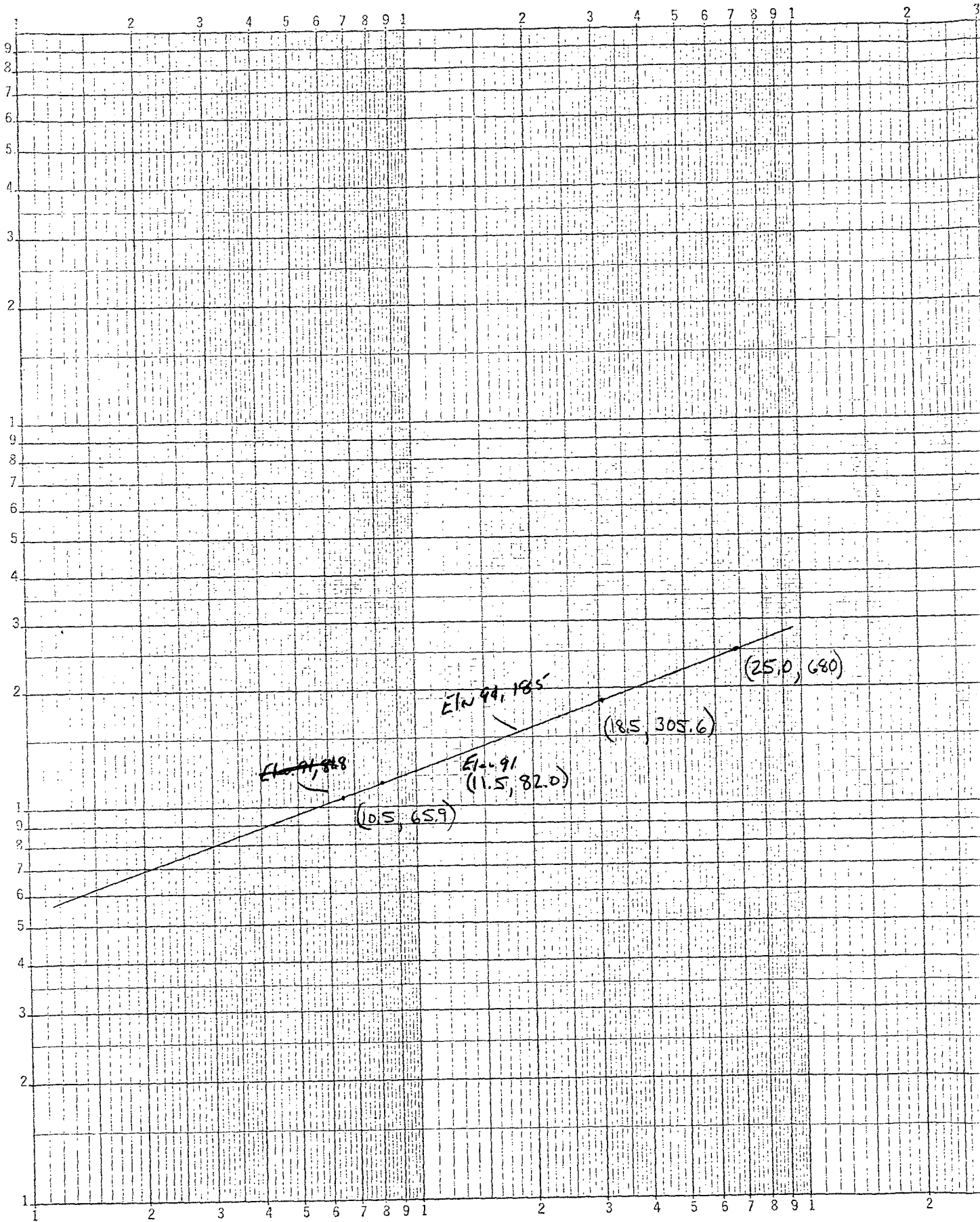
USDA-NATURAL RESOURCES CONSERVATION SERVICE

Assisting:

PERKINS Conservation District



DEPTH (FT)



STORAGE

1DAMS2 XEQ 10/15/99 STRUCTURE SITE ANALYSIS COMPUTER PROGRAM
REV 01/01/90 SCS TECHNICAL RELEASE 48, (USER MANUAL) DATED JAN. 1990
TIME 12:31:30

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

ENDTABLE						
WSDATA	2A101	AC	65	2578	1.04	
PDIRECT			2.6		3.6	3.6
POOLDATA	ELEV		91.0	91.0		79.5
PSDATA	1		80	12		0.009
PSINLET	ELEV		1.0	16.00		81.0
ESCREST	ELEV					
ESDATA	01		100	0.03	3	0.035
BTMWIDTH	FEET		75	100		2.0

(378 SPECS.) MUTH DAM

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1DAMS2 -----
  XEQ 10/15/99          PERKINS COUNTY SD.          WSID= MUTH
DAM
  REV 01/01/90          SEC7  T21N R10E             SUBW= 01
  TIME 12:31:30          SITE = MUTH                PASS=    1    PAGE=    1

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SCS DESIGN STORM RAINFALL DISTRIBUTION. (CHAPTER 21 NEH4 AND SCS TR-60)

PRECIP.-	P-PS1 DAY 2.60	P-PS10 DAY .00	P-ES 3.60	P-FB 3.60
WSDATA-	CN 65.00	DA-SM 4.03	TC/L 1.04	-/H .00
SITEDATA-	PERM POOL 91.00	CREST PS 91.00	FP SED .00	QRF .00
	BASEFLOW .00	INITIAL EL .00	EXTRA VOL. .00	
PSDATA-	NO. COND. 1.00	COND L 80.00	D/W 12.00	-/H .00
	PS N .009	KE 1.00	WEIR L 16.00	TW EL 81.00
	2ND STG .00	ORF H .00	ORF L .00	START ES .00
CRESTS-	ES1 .00	ES2 .00	ES3 .00	ES4 .00
				ES5 .00
EMG DATA-	SIDE SLOPE 3.00	EXIT N .035	EXIT SLOPE .020	
EMG DATA-	ES TYPE 1	ES LENGTH 100	ES ENTRANCE N .030	
BTM WIDTH-	BW1 75.00	BW2 100.00	BW3 .00	BW4 .00
				BW5 .00

***** NOTE - THIS IS ONLY A PRELIMINARY EMG RATING CURVE OF DISCHARGE/FT
OF WIDTH AND DOES NOT INCLUDE SIDESLOPE CORRECTION OR
REVISED RATING USING ACTUAL EMG. CONFIGURATION.

EMG ID CODE	01	ELEVATION INCREMENT (FT)= 1.000	
DISCHARGES-Q1	Q2	Q3	Q4
1.807	6.409	12.900	20.955
Q5	Q6	Q7	Q8
30.240	40.653	52.017	64.357
Q9	Q10	Q11	Q12
77.558	91.549	106.290	121.731

1DAMS2 -----

XEQ 10/15/99	PERKINS COUNTY SD.	WSID= MUTH
DAM		
REV 01/01/90	SEC7 T21N R10E	SUBW= 01
TIME 12:31:30	SITE = MUTH	PAGE= 2
	PASS= 1	

PERM POOL	91.00 FT	95.9 ACFT	.00 AC	.0 CFS
CREST PS	91.00 FT	95.9 ACFT	.00 AC	.0 CFS
SED ACCUM	91.00 FT	95.9 ACFT	.00 AC	.0 CFS
STARTING E	91.00 FT	95.9 ACFT	.00 AC	.0 CFS
SCS-PSH	D= 24.00 HR TC= 1.04 HR	P= 2.60 IN CN= 65.00	Q= .34 IN VOL= 72.1 ACFT	DA = 4.03 SM
PEAK = 273.6 CFS, AT 12.8 HRS.				

ROUTED RESULTS - HYD TYPE	EMAX	VOL-MAX	AMAX	QMAX
SCS-PSH	92.99 FT	155.4 ACFT	.00 AC	12.2 CFS
PS STORAGE 59.5 ACFT BETWEEN ES CREST AND SED ACCUM ELEVATIONS				
DRAWDOWN (DDT) TEST	91.00 FT	95.9 ACFT	.00 CFS	
CONTROL IS .000 DETENTION STORAGE				
TIME = 6.62 DAYS, TO .0 CFS (LIMIT = 10.00 DAYS)				

1DAMS2 -----

XEQ 10/15/99	PERKINS COUNTY SD.	WSID= MUTH
DAM		
REV 01/01/90	SEC7 T21N R10E	SUBW= 01
TIME 12:31:30	SITE = MUTH	PAGE= 3
	PASS= 1	

ES CREST	92.99 FT	155.4 ACFT	.00 AC	12.2 CFS
PS STORAGE 59.5 ACFT BETWEEN ES CREST AND SED ACCUM ELEVATIONS				
STARTING E	91.00 FT	95.9 ACFT	.00 AC	.0 CFS
EFFECTIVE HEIGHT(H)= 13.5 FEET, PRODUCT = 2096. (H * STORAGE AT CREST EMG.)				
INPUT DESIGN CLASS = A1 =LT 3000				

SCS-ESH	D= 6.00 HR TC= 1.04 HR	P= 3.60 IN CN= 65.00	Q= .81 IN VOL= 172.8 ACFT	DA = 4.03 SM
PEAK = 740.5 CFS, AT 3.3 HRS.				
SCS-FBH	D= 6.00 HR TC= 1.04 HR	P= 3.60 IN CN= 65.00	Q= .81 IN VOL= 172.8 ACFT	DA = 4.03 SM
PEAK = 740.5 CFS, AT 3.3 HRS.				

ROUTED RESULTS	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	EMG. HP	VOL-ES
	FT	FT	ACFT	AC	FT	ACFT
SCS-ESH	75.0	94.54	202.0	.0	1.55	46.6
PEAK - CFS Q-PS Q-ES Q-TOT						

DISCHARGE = 13.0 342.3 355.3

	CRITICAL DEPTH	CRITICAL VELOCITY	CRITICAL SLOPE-S/C	25% OF S/C
	FT	FT/SEC	FT/FT	FT/FT
EMERGENCY				
SPILLWAY----	.85	5.16	.019	.026

	DURATION FLOW	ATTACK OE/B	SUMMATION VEL**2 DELTA T
	HRS	ACFT/FT	(FT/SEC)**2 HRS
EMERGENCY			
SPILLWAY----	10.7	1.4	114.0

***** MESSAGE - ES378 CRITERIA USED BUT EMERGENCY SPILLWAY NOT BASED ON RETARDANCE.

EXIT CHANNEL FLOW SUPERCRITICAL: MAX VELOCITY= 5.23 FT/SEC
EXIT SLOPE = .020 FT/FT
FLOW DEPTH = .843

DRAWDOWN USING FREEBOARD STORM FOLLOWS, STARTING AT ELEVATION 92.99 FT.

DRAWDOWN (DDT) TEST 91.00 FT 95.9 ACFT .00 CFS
CONTROL IS .000 DETENTION STORAGE

TIME = 6.60 DAYS, TO .0 CFS (LIMIT = 10.00 DAYS)

ROUTED RESULTS	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	EMG. HP FT	VOL-ES ACFT
SCS-FBH	75.0	94.54	202.0	.0	1.55	46.6

PEAK - CFS Q-PS Q-ES Q-TOT
DISCHARGE = 13.0 342.3 355.3

	CRITICAL DEPTH	CRITICAL VELOCITY	CRITICAL SLOPE-S/C	25% OF S/C
	FT	FT/SEC	FT/FT	FT/FT
EMERGENCY				
SPILLWAY----	.85	5.16	.019	.026

	DURATION FLOW	ATTACK OE/B	SUMMATION VEL**2 DELTA T
	HRS	ACFT/FT	(FT/SEC)**2 HRS
EMERGENCY			
SPILLWAY----	10.7	1.4	114.0

***** MESSAGE - ES378 CRITERIA USED BUT EMERGENCY SPILLWAY NOT BASED ON RETARDANCE.

EXIT CHANNEL FLOW SUPERCRITICAL: MAX VELOCITY= 5.23 FT/SEC
EXIT SLOPE = .020 FT/FT
FLOW DEPTH = .843

***** ES378 RUN - MINIMUM FLOW IN EMG. SPILLWAY FROM TR60
USING FORMULA WITHOUT 200 CFS MINIMUM LIMIT. *****

ROUTED RESULTS	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	EMG. HP FT	VOL-ES ACFT
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MINIMUM ES	75.0	94.83	210.6	.0	1.84	55.2
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PEAK - CFS	Q-PS	Q-ES	Q-TOT
DISCHARGE =	13.1	471.0	484.1

	CRITICAL	CRITICAL	CRITICAL	25% OF
	DEPTH	VELOCITY	SLOPE-S/C	S/C
EMERGENCY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY----	1.06	5.71	.018	.024

***** ES378 RUN - MINIMUM DEPTH, CREST EMG TO TOP OF DAM IS 2.00 FT
 NEW TOP OF DAM ELEVATION = 94.99

ROUTED	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	EMG. HP	VOL-ES
RESULTS	FT	FT	ACFT	AC	FT	ACFT
MINIMUM ES	75.0	94.99	215.3	.0	2.00	59.9

PEAK - CFS	Q-PS	Q-ES	Q-TOT
DISCHARGES =	13.2	541.8	555.0

	CRITICAL	CRITICAL	CRITICAL	25% OF
	DEPTH	VELOCITY	SLOPE-S/C	S/C
EMERGENCY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY----	1.16	5.97	.017	.023

***** ES378 RUN - MINIMUM DEPTH, DESIGN FLOW TO TOP OF DAM, REQUIRED
 FOR THIS PASS. NEW TOP OF DAM ELEVATION = 95.54

ROUTED	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	EMG. HP	VOL-ES
RESULTS	FT	FT	ACFT	AC	FT	ACFT
MINIMUM ES	75.0	95.54	232.0	.0	2.55	76.6

PEAK - CFS	Q-PS	Q-ES	Q-TOT
DISCHARGES =	13.4	799.2	812.6

	CRITICAL	CRITICAL	CRITICAL	25% OF
	DEPTH	VELOCITY	SLOPE-S/C	S/C
EMERGENCY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY----	1.49	6.74	.016	.021

ROUTED	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	EMG. HP	VOL-ES
RESULTS	FT	FT	ACFT	AC	FT	ACFT
SCS-ESH	100.0	94.35	196.3	.0	1.36	40.9

PEAK - CFS	Q-PS	Q-ES	Q-TOT
DISCHARGE =	12.9	359.7	372.6

	CRITICAL	CRITICAL	CRITICAL	25% OF
	DEPTH	VELOCITY	SLOPE-S/C	S/C
EMERGENCY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY----	.73	4.81	.020	.027

	DURATION	ATTACK	SUMMATION
	FLOW	OE/B	VEL**2 DELTA T
EMERGENCY	HRS	ACFT/FT	(FT/SEC)**2 HRS
SPILLWAY----	9.2	1.0	90.9

***** MESSAGE - ES378 CRITERIA USED BUT EMERGENCY SPILLWAY NOT BASED
ON RETARDANCE.

***** MESSAGE - EXIT CHANNEL VELOCITY EXCEEDS THEORETICAL
LIMIT OF 28.55 FT/SEC

EXIT CHANNEL FLOW SUBCRITICAL: MAX VELOCITY= 30.86 FT/SEC
EXIT SLOPE = .020 FT/FT

DRAWDOWN USING FREEBOARD STORM FOLLOWS, STARTING AT ELEVATION 92.99 FT.

DRAWDOWN (DDT) TEST 91.00 FT 95.9 ACFT .00 CFS
CONTROL IS .000 DETENTION STORAGE

TIME = 6.60 DAYS, TO .0 CFS (LIMIT = 10.00 DAYS)

ROUTED RESULTS	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	EMG. HP FT	VOL-ES ACFT
SCS-FBH	100.0	94.35	196.3	.0	1.36	40.9

PEAK - CFS DISCHARGE =	Q-PS	Q-ES	Q-TOT
	12.9	359.7	372.6

	CRITICAL DEPTH FT	CRITICAL VELOCITY FT/SEC	CRITICAL SLOPE-S/C FT/FT	25% OF S/C FT/FT
EMERGENCY SPILLWAY----	.73	4.81	.020	.027

	DURATION FLOW HRS	ATTACK OE/B ACFT/FT	SUMMATION VEL**2 DELTA T (FT/SEC)**2 HRS
EMERGENCY SPILLWAY----	9.2	1.0	90.9

***** MESSAGE - ES378 CRITERIA USED BUT EMERGENCY SPILLWAY NOT BASED
ON RETARDANCE.

***** MESSAGE - EXIT CHANNEL VELOCITY EXCEEDS THEORETICAL
LIMIT OF 28.55 FT/SEC

EXIT CHANNEL FLOW SUBCRITICAL: MAX VELOCITY= 30.86 FT/SEC
EXIT SLOPE = .020 FT/FT

***** ES378 RUN - MINIMUM FLOW IN EMG. SPILLWAY FROM TR60
USING FORMULA WITHOUT 200 CFS MINIMUM LIMIT. *****

ROUTED RESULTS	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	EMG. HP FT	VOL-ES ACFT
MINIMUM ES	100.0	94.57	202.9	.0	1.59	47.5

PEAK - CFS DISCHARGE =	Q-PS	Q-ES	Q-TOT
	13.0	471.0	484.0

	CRITICAL DEPTH	CRITICAL VELOCITY	CRITICAL SLOPE-S/C	25% OF S/C

EMERGENCY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY----	.87	5.25	.019	.026

***** ES378 RUN - MINIMUM DEPTH, CREST EMG TO TOP OF DAM IS 2.00 FT
 NEW TOP OF DAM ELEVATION = 94.99

ROUTED	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	EMG. HP	VOL-ES
RESULTS	FT	FT	ACFT	AC	FT	ACFT
MINIMUM ES	100.0	94.99	215.3	.0	2.00	59.9

PEAK - CFS	Q-PS	Q-ES	Q-TOT
DISCHARGES =	13.2	713.9	727.1

	CRITICAL	CRITICAL	CRITICAL	25% OF
	DEPTH	VELOCITY	SLOPE-S/C	S/C
EMERGENCY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY----	1.15	5.99	.017	.023

***** ES378 RUN - MINIMUM DEPTH, DESIGN FLOW TO TOP OF DAM, REQUIRED
 FOR THIS PASS. NEW TOP OF DAM ELEVATION = 95.35

ROUTED	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	EMG. HP	VOL-ES
RESULTS	FT	FT	ACFT	AC	FT	ACFT
MINIMUM ES	100.0	95.35	226.2	.0	2.36	70.8

PEAK - CFS	Q-PS	Q-ES	Q-TOT
DISCHARGES =	13.3	927.7	941.0

	CRITICAL	CRITICAL	CRITICAL	25% OF
	DEPTH	VELOCITY	SLOPE-S/C	S/C
EMERGENCY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY----	1.37	6.51	.016	.022

1DAMS2....JOB NO. 1 COMPLETE

MUTH DAM PERKINS COUNTY SD.

0 SUBWATERSHED(S) ANALYZED

1 STRUCTURE(S) ANALYZED

5 HYDROGRAPHS ROUTED AT LOWEST SITE

0 TRIALS TO OBTAIN BOTTOM WIDTH FOR SPECIFIED VELOCITY(S)

DAMS2.....COMPUTATIONS COMPLETE

WATERSHED ID	RUN DATE	RUN TIME
-----	-----	-----
MUTH DAM	10/15/99	12:31:30

>>>	SITE ID	SUBWS ID	SUBWS DA (SQ MI)	CURVE NO.	TC (HRS)	TOTAL DA (SQ MI)	TYPE DESIGN	STRUC CLASS	<<<
	-----	-----	-----	-----	-----	-----	-----	-----	
	MUTH	01	4.03	65.	1.04	4.03	378NR	A1	

PASS NO.	DIA/ WIDTH (IN/FT)	ES CREST ELEV (FT)	BTM WIDTH (FT)	MAX HP (FT)	MAX ELEV (FT)	YARDAGE EMB (CY)	OE/B* (AF/FT)	EXIT* VELOCITY (FT/SEC)	TYPE HYD
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	12.0	92.99	75.00	2.55	95.54	0.	1.4	5.23	MINIMUM ES
1	12.0	92.99	100.00	2.36	95.35	0.	1.0	30.86	MINIMUM ES

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

DAMS2.....SUMMARY TABLE 1 COMPLETED

SCS DAMS2 VERSION 01/01/90
MUTH DAM FILES

INPUT = muth
OUTPUT = muth.out

DATED 10/15/99 12:31:30

USE:

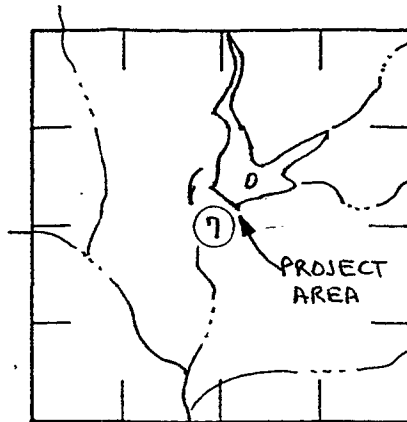
TOP - 98.0
ES - 94.0
PS - 91.0

NOTE: 1) Will use 75' wide emergency spillway, but will set it at EL 94.0 rather than at routed EL 92.99. This is due to trying to limit amount of cut yardage in emergency spillway site.

2) Routed top of dam is EL 95.54 with a flow depth in emergency spillway of 2.55'. I will use top of dam EL 98.0 to match up with increased elevation of emergency spillway and insure passage of emergency spillway hydrograph and free board hydrograph.

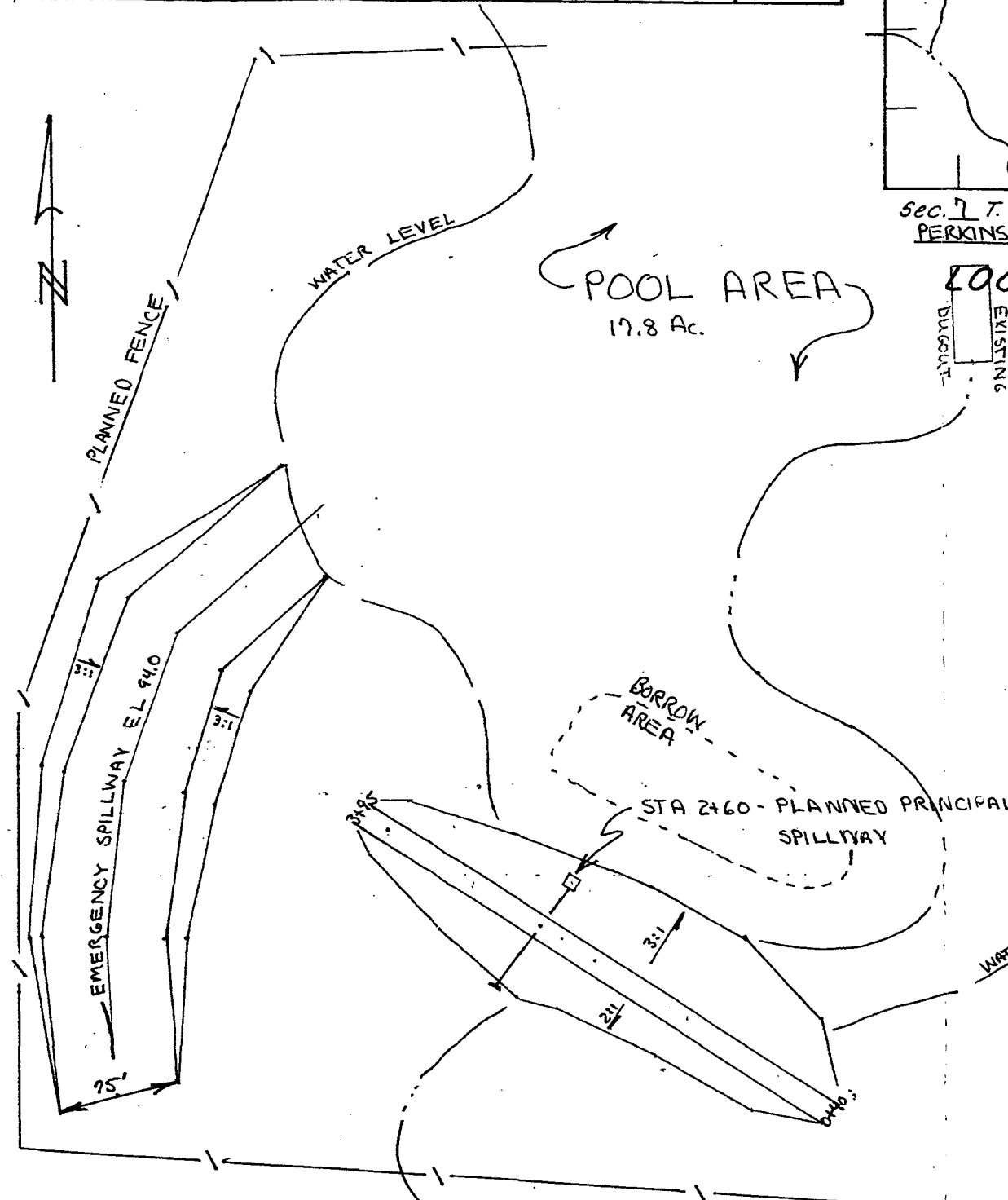
STRUCTURE DATA

DRAINAGE AREA	ANNUAL YIELD	PEAK RUNOFF	EMERG. SPLWY. CAPACITY	WATER DEPTH	SURFACE AREA	SEDIMENT STORAGE	TOTAL STORAGE
ACRES	AC. FT.	25-YR.	C.F.S.	FEET	ACRES	AC. FT.	AC. FT.
2578	12.9	741	344	11.5	17.8	19.3	81.8



Sec. 7 T. 21N R. 10E
PERKINS County

LOCATION



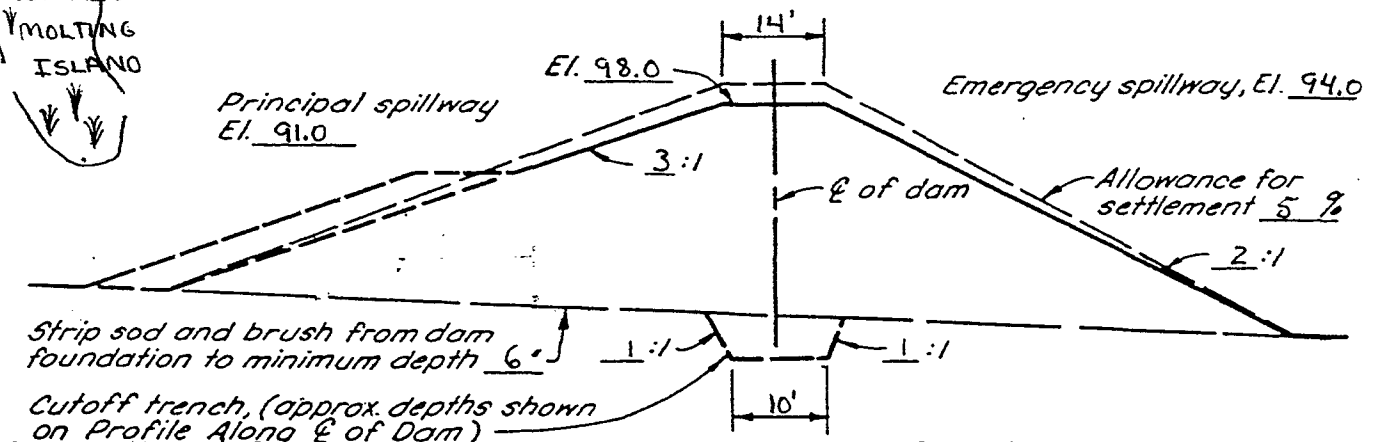
SKETCH PLAN OF DAM AND RESERVOIR AREA

Approximate scale 1" = 100'

REFERENCE: GUIDE PLAN NO. 1.0

TABLE OF QUANTITIES

ITEM	UNIT	QUANTITY
EARTH FILL - CLASS S	CY	8402
EARTH FILL - CLASS A	CY	27
STRIPPING	CY	498
CORE TRENCH	CY	298
TOPSOIL	CY	792
SEEDING	Ac	1.8
HOODED INLET & BAFFLE - (PER DETAIL)	EA	1
12" DIA - 125 PSI PVC PIPE	LF	80
SAND ANTISEEP DRAIN - (PER DETAIL)	EA	1
TIMBER PIPE SUPPORT - (PER DETAIL)	EA	1
FENCE - 4B (PER DETAIL)	LF	2500



TYPICAL CROSS SECTION OF DAM

S.D. CONSTRUCTION AND MATERIAL SPECIFICATIONS:

- SD-4 STRIPPING
- SD-7A EARTH FILL - CLASS A
- SD-7S EARTH FILL - CLASS S
- SD-10 SALVAGING & SPREADING TOPSOIL
- SD-12B CONCRETE FOR MINOR STRUCTURES
- SD-13 STEEL REINFORCEMENT
- SD-16 TIMBER FABRICATION
- SD-28 SEEDING
- SD-30 FENCING
- SD-55 PLASTIC PIPE

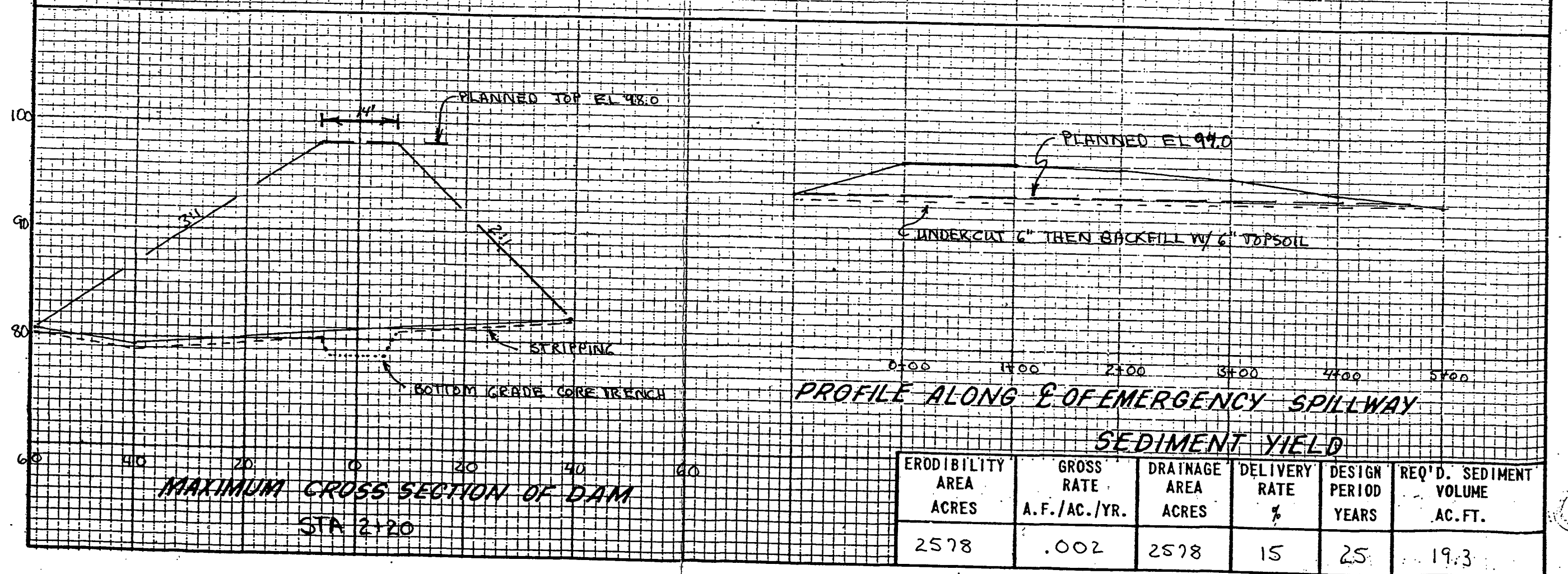
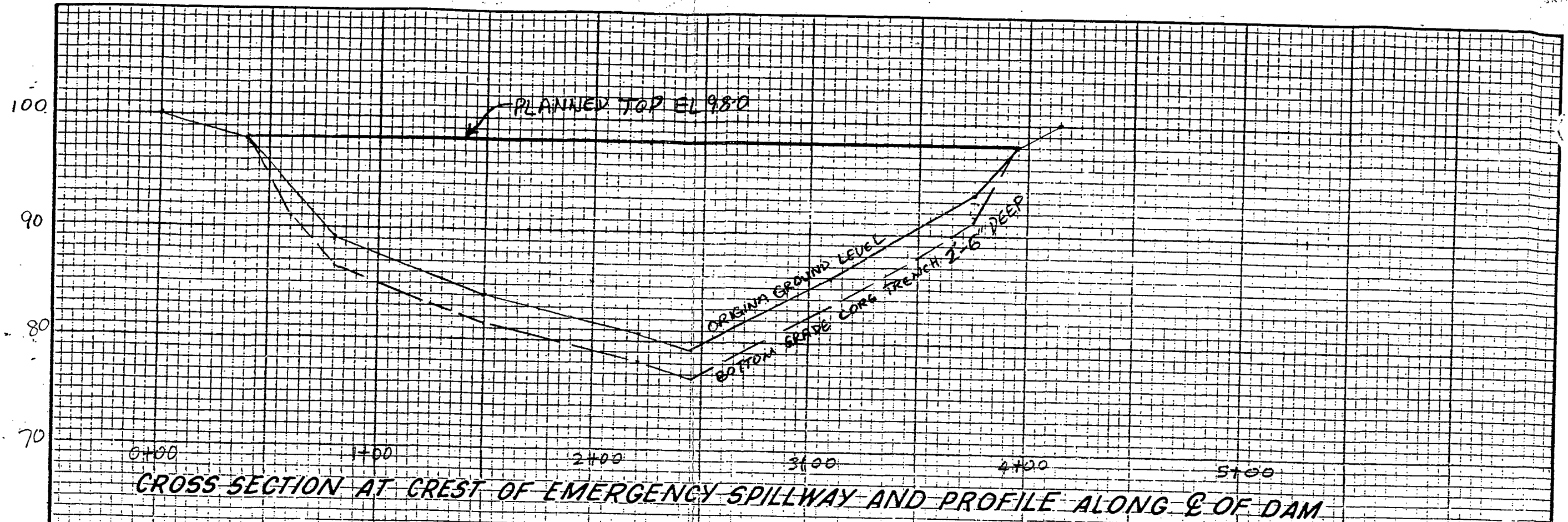
EARTH DAM-CLASS A

OPERATOR: JERRY MUTH

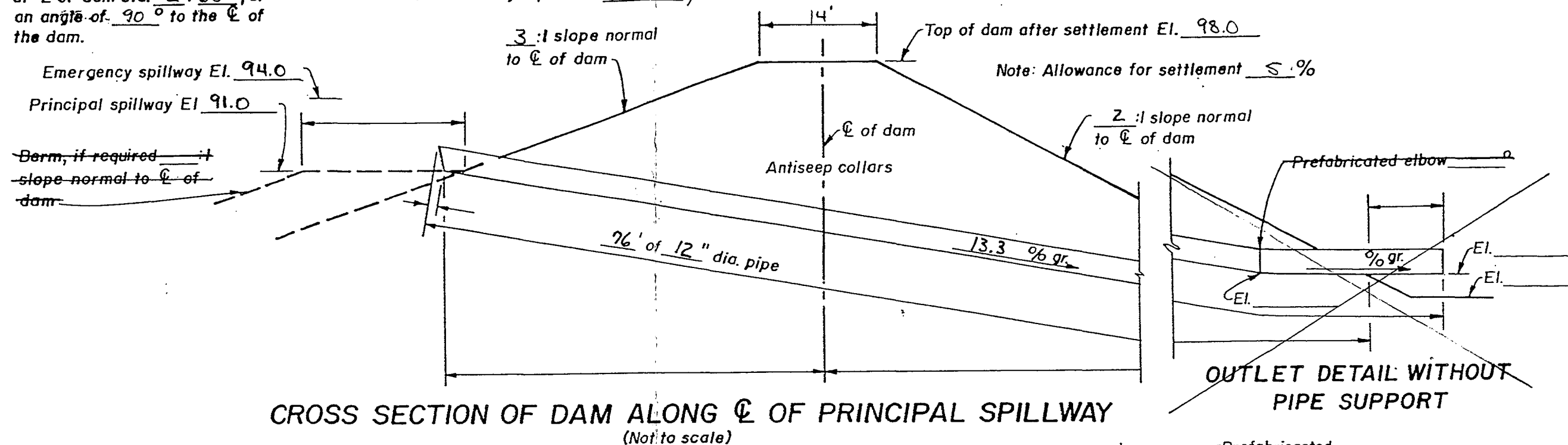
CONSERVATION DISTRICT: PERKINS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed by T. VER HEIST	Date 10/99	Approved by Thomas D. Ver Heist
Drawn by T. VER HEIST	Date 10/99	Title, As Engineer
Traced by		Title
Checked by		Sheet No. Drawing No.



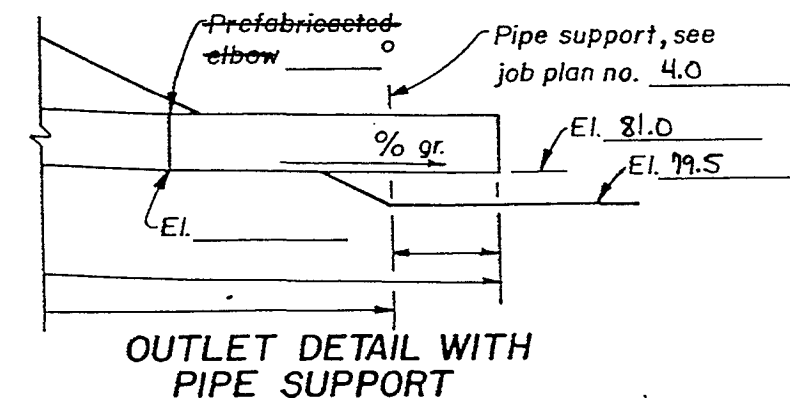
Trash rack and baffle plate not shown. See job plan no. (See Detail)



1. ELBOW IF REQUIRED MAY BE FABRICATED BY CONTINUOUS WELDING SEPERATE PIPE SECTIONS OR BY FABRICATING A CONTINUOUS WELDED JOINT ON THE UPSTREAM END OF LAST SECTION OF PIPE.
2. PIPE WALL THICKNESS SHALL BE ____ GAGE OR INCHES.

[illegible]

APPLICABLE STANDARD S.C.S. SPECIFICATIONS



Sec. 7 T. 21N, R. 10E
PERKINS County
LOCATION

HOOD INLET
PRINCIPAL SPILLWAY

OPERATOR JERRY MUTH

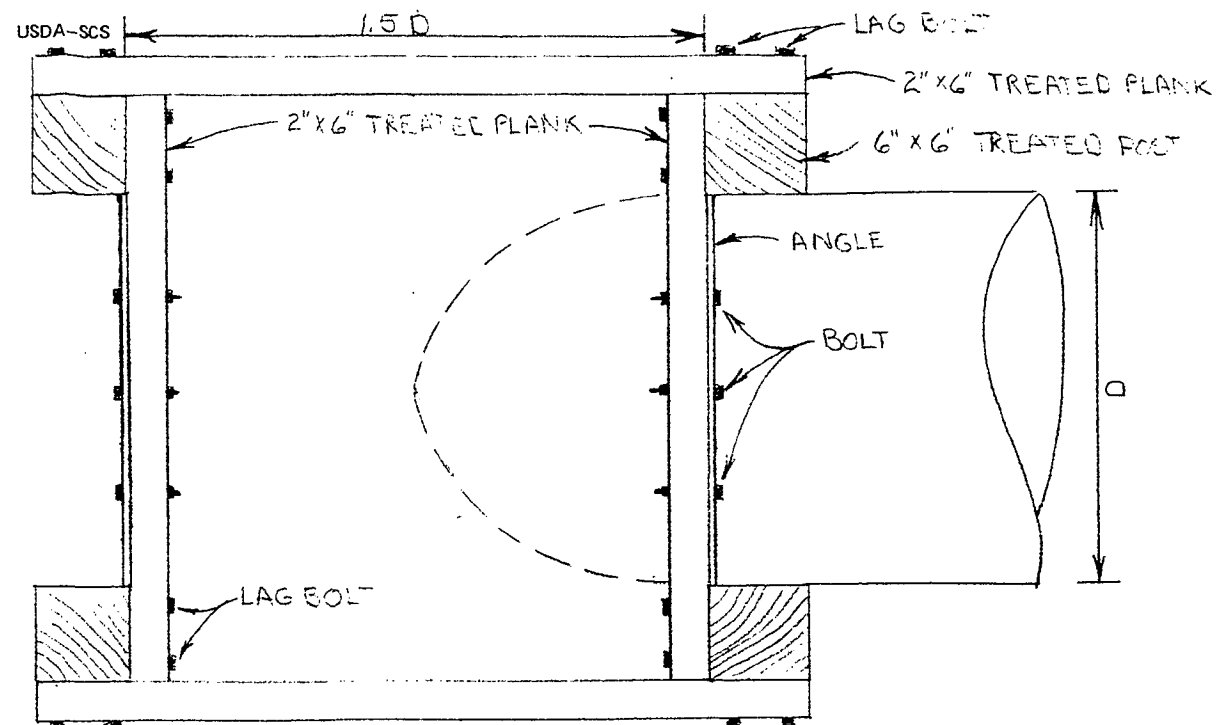
CONSERVATION DISTRICT PERKINS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

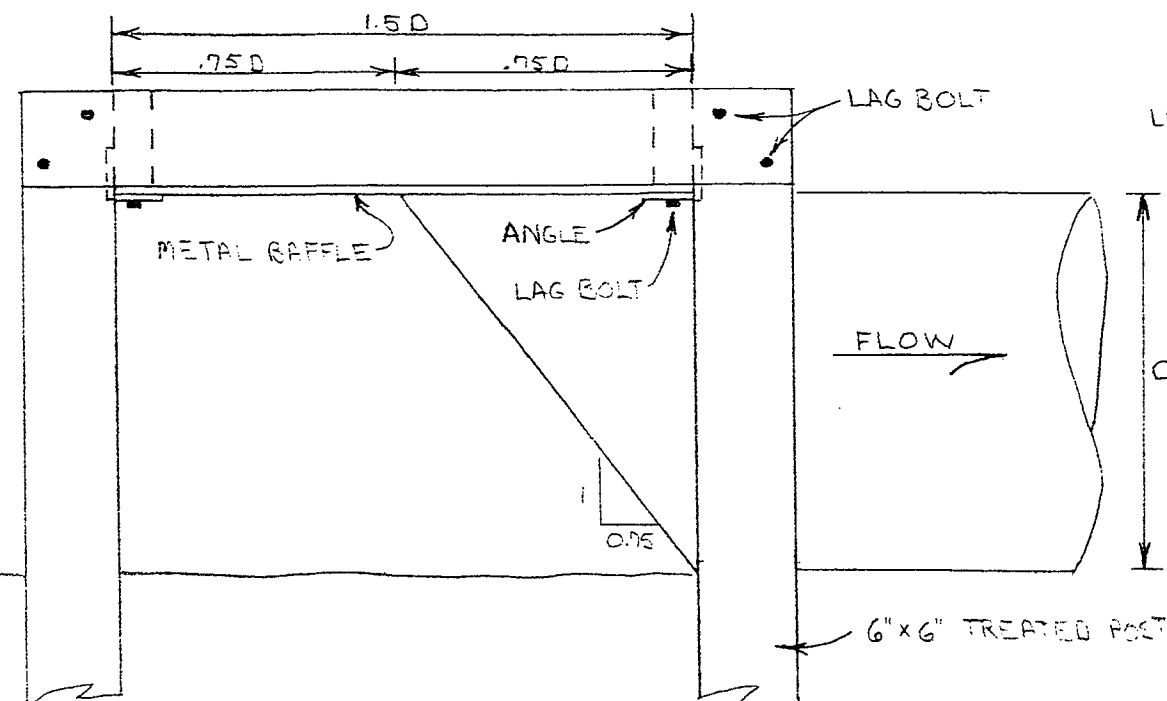
	Date	Approved by
Designed		Title
Drawn		Title
Traced		Title
Checked		Sheet No. of
		Drawing No.

REFERENCE: GUIDE PLAN NO. 2.1

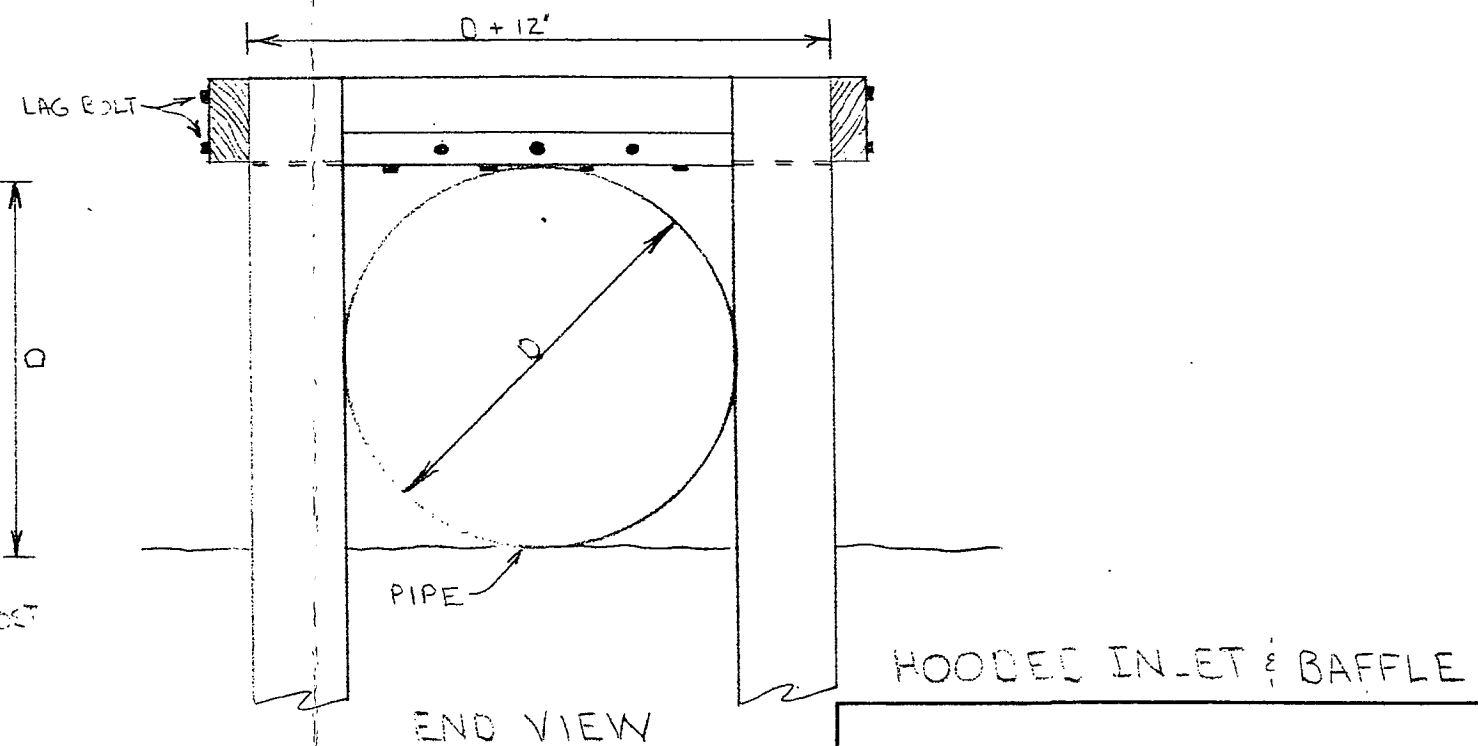
Rev. 8/80
JOB PLAN NO. 2.1



PLAN VIEW



SIDE VIEW



END VIEW

SD-ENG-42
7/81

DIMENSIONS

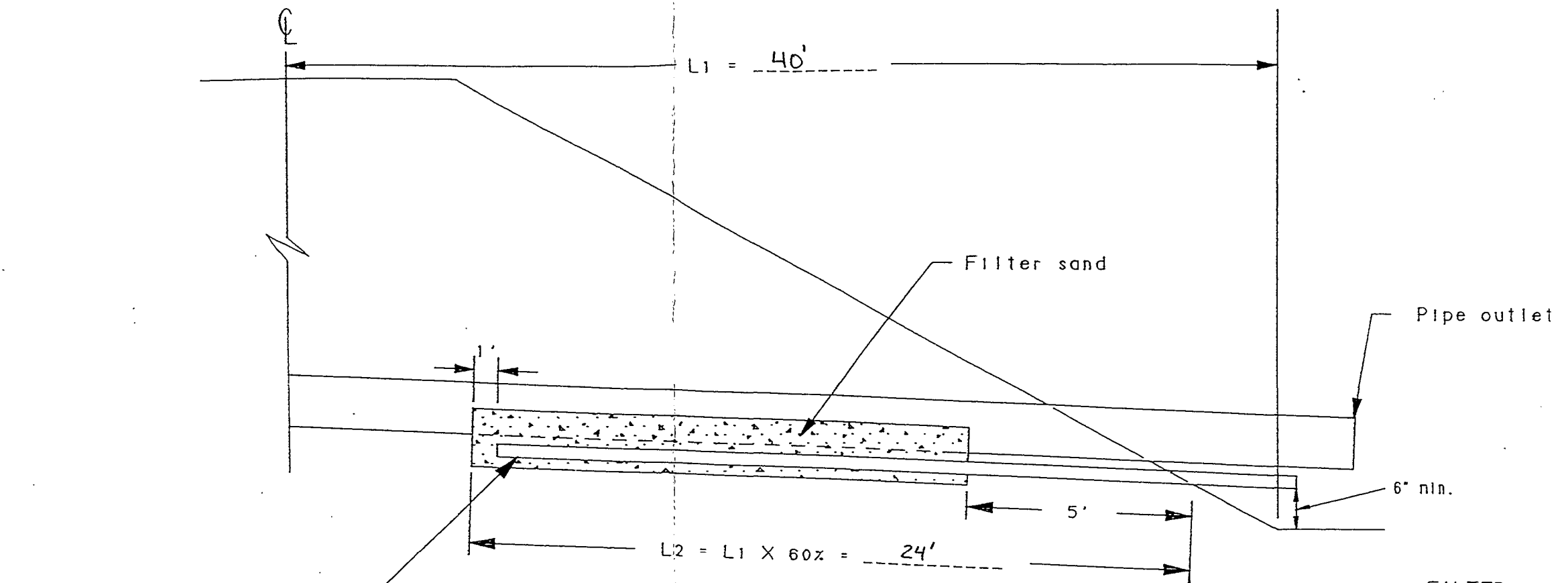
PIPE DIA INCHES	BAFFLE THICKNESS INCHES	BAFFLE SIZE INCHES	ANGLE IRON LENGTH INCHES	LAG BOLT SIZE INCHES	BOLT SIZE INCHES	2x6 PLANK LENGTH INCHES	6x6 POST LENGTH INCHES
12	0.25	18 x 24	12	1/4 x 3	3/8 x 2 1/2	2 @ 30 & 24	72
15	0.25	22.5 x 27	15	"	"	2 @ 34.5 & 27	"
18	0.25	27 x 30	18	"	"	2 @ 39 & 30	"
21	0.25	31.5 x 33	21	"	"	2 @ 43.5 & 33	"
24	0.25	36 x 36	24	"	"	2 @ 48 & 36	"
27	0.25	40.5 x 39	27	"	"	2 @ 52.5 & 39	"

- NOTES: 1) ALL NUTS, BOLTS & WASHERS SHALL BE GALVANIZED.
2) ALL BOLTS SHALL HAVE NUT & LOCK WASHERS.
3) ALL LAG BOLTS SHALL HAVE WASHERS.
4) ALL PLANKS & POSTS SHALL BE PRESSURE TREATED LUMBER.
5) PAINT METAL BAFFLE W/ 3 COATS OF ZINC DUST-ZINC OXIDE PRIMER.

JERRY MUTH

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

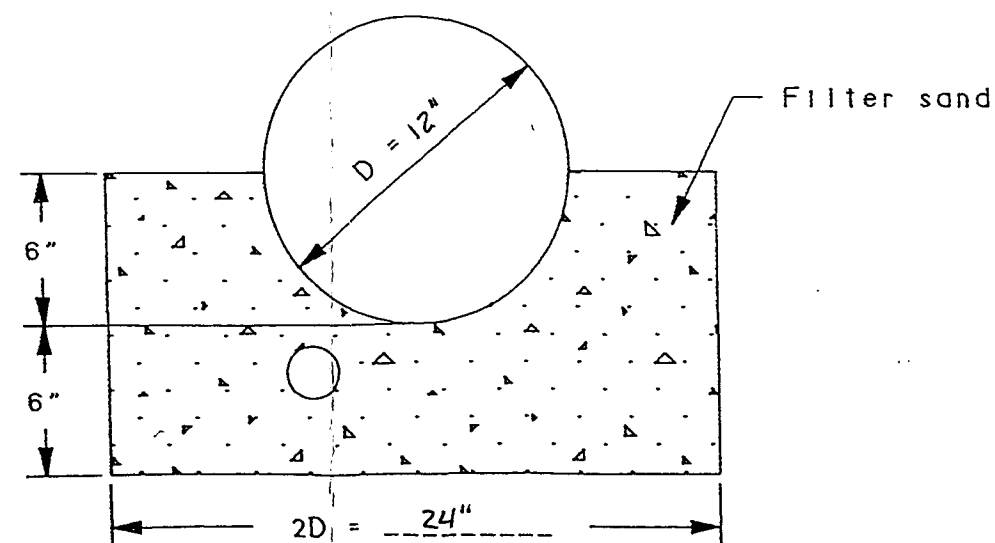
Designed.....	Date.....	Approved by.....
Drawn.....		Title.....
Traced.....		Title.....
Checked.....	Sheet No.....	Drawing No.....



SIDE VIEW

FILTER 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



UPSTREAM VIEW

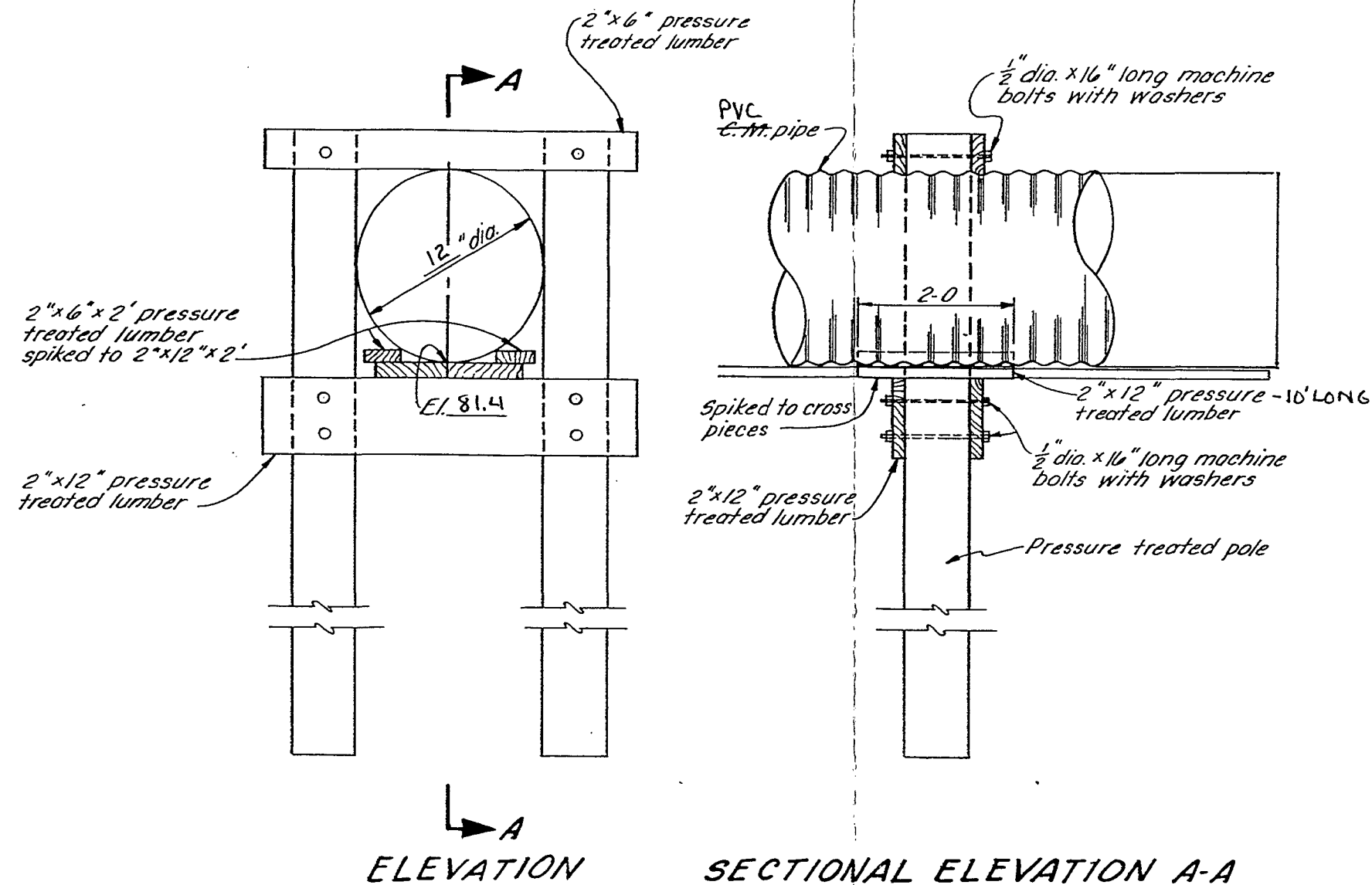
- NOTE:
1. THE 4" DIA. PIPE SHALL BE SDR 35 PVC, OR STRONGER
 2. PROVIDE AN ANIMAL GUARD ON DRAIN OUTLET PIPE. DRILL 2. 1/2" DIA. HOLES, ON ϕ 6" FROM END OF PIPE AND PLACE A 3/8" DIA., 5 1/2" LONG GALVANIZED STEEL BOLT THRU THEM AND SECURE WITH A NUT (PLACE BOLT HORIZONTAL).
 3. FILTER SAND WILL BE CLEAN PEA AGGREGATE OR CONCRETE SAND.

SAND ANTISEEP DRAIN

OPERATOR <u>JERRY MUTH</u>	
CONSERVATION DISTRICT <u>PERKINS</u>	
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	
Date _____	Approved by _____
Designed _____	Title _____
Drawn _____	Title _____
Traced _____	Sheet No. _____
Checked _____	Dwg. No. _____

Rev. 3/96

JOB PLAN NO. 3.8-P



NOTES:

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

TABLE OF QUANTITIES

ITEM	LENGTH FOR 12" DIA. PVC PIPE	UNIT	QUANTITY
PRESSURE TREATED POLE 10" DIA.	8'-0"	EACH	2
2" X 12" PRESSURE TREATED LUMBER	10'-0"	EACH	1
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		EACH	6
1/2" DIA. WASHERS		EACH	12

TIMBER PIPE SUPPORT

OPERATOR: JERRY MUTH

CONSERVATION DISTRICT: PERKINS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

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

REFERENCE: GUIDE PLAN NO. 4.0

JOB PLAN NO. 4.0

5,N-29,073.4a



Water Permit Application No. 1699-1
Jerry Muth

Top of Dam Elev. - 98
2nd Spillway Elev. - 94
P. Spillway Elev. - 91
D/S Toe Elev. - 79.5

Ht. = 18.5 ft.

Cat. 3 - Low Hazard Dam

Normal Storage Capacity - 81.8 Ac.-Ft
Int. Storage Capacity - 185 Ac.-Ft
Max Storage Capacity - 306 Ac.-Ft

Int Capacity x Eff Ht. = 185 x 15 = 2775 < 3000 ∴ 25-year
Minimum Spillway Design

From USGS WRI 80-80 "Tech. for Est. Flood Peaks ... in SD"

DA = 2578 Ac. = 4.03 mi.²
Slope = 120 ft/mi.
SI = 3.16

$$Q_{25} = 83.4 A^{.64} S^{.72} S_i$$

$$= 83.4 (4.03)^{.64} (120)^{.44} (3.16)^{-.72}$$

$$= 83.4 (2.31) (8.21) (0.437)$$

$$= \underline{692 \text{ cfs}}$$

$$Q_{50} = 106 A^{.63} S^{.45} S_i$$

$$= 106 (4.03)^{.63} (120)^{.45} (3.16)^{-.65}$$

$$= 106 (2.41) (8.62) (0.452)$$

$$= \underline{996 \text{ cfs}}$$

Secondary Spillway Flow

$$Q = CLH^{3/4} C = 2.6 L = 75 H = 34$$

$$= 2.6 (75)^{.75} (3)^{1.5}$$

$$= \underline{1580 \text{ cfs}}$$

$$Q_{100} = 132 A^{.65} S^{.46} S_i$$

$$= 132 (4.03)^{.65} (120)^{.46} (3.16)^{-.67}$$

$$= 132 (2.47) (9.04) (0.463)$$

$$= \underline{1365 \text{ cfs}}$$

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

NRCS Annual Yield

$$DA = 2578 \text{ Ac.}, CN = 65 (\text{use } 70) ISO = 1$$

$$80\% \text{ chance} = 0.027$$

$$0.027 \times 2578/12 = \underline{6 \text{ Ac.-Ft}}$$

$$50\% \text{ chance} = 0.09$$

$$0.09 \times 2578/12 = \underline{19 \text{ Ac.-Ft}}$$

$$10\% \text{ chance} = 0.7$$

$$0.7 \times 2578/12 = \underline{150 \text{ Ac.-Ft}}$$



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

November 8, 1999

Jerry Muth
15546 Duck Creek Rd.
Reeder ND 58649

Dear Mr. Muth:

Thank you for submitting the *Application for a Permit to Appropriate Water* for a 81.8 acre-feet storage dam located in Perkins County. The application filing fee will be \$150. In addition to the application filing fee, the Water Rights Program now collects the \$50 licensing fee at the time of filing. Please submit a total of \$200.

Tim Schaal with this office, has contacted Tom VerHelst's office with NRCS. Mr. Schaal requested they submit the map, plans and specifications and risk assessment which are required prior to processing the application.

If you have any questions, please contact me.

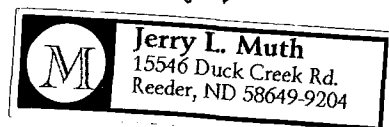
Sincerely,

Karen Schlaak

Karen Schlaak
Water Rights Program
605 773-3352

c: Tom VerHelst, NRCS

*Application for a
Permit to Appropriate
Water for a 81.84-
feet storage dam
in Perkins Co.
application filing
fee \$150.-
licensing fee 200.-*



RECEIPT

Water Rights Program

South Dakota Department of Environment and Natural Resources

NE 416262

Pierre, November 17, 19 99

RECEIVED OF Jerry Muth, 15546 Duck Creek Rd., Reeder, ND 58649-9204
the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. <u>1698-1</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>1698-1</u> _____	50	00
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for _____		

(Any Other Work Provided by Law)	Total	200 00

By John H. H. H.
Chief Engineer



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

December 6, 1999

Jerry Muth
15546 Duck Creek Rd.
Reeder, ND 58649

Dear Mr. Muth:

We have reviewed the plans and specifications for your dam located in the SW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 7-T21N-R10E, in Perkins County. The plans and specifications as submitted are approved. Approval of the plans and specifications does not authorize construction of the dam. Construction may not begin until Water Permit Application No. 1699-1 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 Muth Dam will be classified as a small size Category 3, Low Hazard dam with a dam height of 18.5 feet and a normal storage capacity of 82 acre-feet and a maximum storage capacity of 306 acre-feet.

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

Sincerely,

Gale N. Selken, P.E.
Natural Resources Engineer IV
for John Hatch, Chief Engineer
Water Rights Division
(605) 773-3352

c: Tom Ver Helst, NRCS, Belle Fourche

REPORT ON
WATER PERMIT APPLICATION NO. 1699-1
Jerry Muth
December 2, 1999

Water Permit Application No. 1699-1 has been filed by Jerry Muth to impound 82 acre-feet of water from runoff by constructing a dam located in the SW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 7-T21N-R10E, in Perkins County. The water will be used for fish and wildlife production and livestock watering.

Discussion:

The new dam will be classified as a Category 3, Low Hazard dam. The project has been designed by the Natural Resources Conservation Service (NRCS). The plans and specifications have been reviewed and will be approved; however, construction of the dam can not begin until Water Permit Application No. 1699-1 is approved.

The Muth Dam will be 18.5 feet high with a normal storage capacity of 82 acre-feet with a reservoir level at the primary spillway elevation, and a maximum storage capacity of 306 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 4.03 square miles. A 25-year frequency event for this drainage area produces a peak runoff of approximately 692 cfs. A 100-year frequency event produces a peak of approximately 1365 cfs. The dam is designed to have a 12 inch diameter CMP as the primary spillway, with a hooded inlet and 7 feet of available freeboard; and a 75 foot wide earthcut secondary spillway with 4 feet of available freeboard. The 75 foot wide secondary spillway will have a capacity of approximately 1560 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 6 acre-feet. The annual yield with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be 19 acre-feet and the annual yield with a 10 percent chance, or 1 out of 10 years, is expected to be 150 acre-feet.

The Muth Dam will be located in the SW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 7-T21-R10E on Five Mile Creek about six miles upstream of its confluence with Big Nasty Creek. There are no existing Water Permits/Rights located on Five Mile Creek between the proposed dam and Big Nasty Creek, or on Big Nasty Creek in the five mile stretch between Five Mile Creek and its confluence with the South Fork of the Grand River.

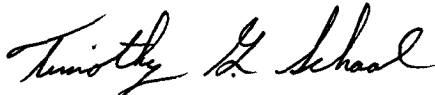
Application No. 1699-1

Jerry Muth

Page 2

Conclusions:

1. Water Permit Application No. 1699-1 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. 1699-1.



Timothy G. Schaal, P.E.

Natural Resources Engineer III

Approved by:



Gale N. Selken, P.E.

Natural Resources Engineer IV

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 1699-1, Jerry Muth**

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. 1699-1, Jerry Muth, 15546 Duck Creek Road, Reeder ND 58649.

The Chief Engineer is recommending APPROVAL of Application No. 1699-1 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. 1699-1 authorizes a dam with storage capacity of 82 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.

See report on application for additional information.

A handwritten signature in black ink, appearing to read "John Hatch", with a stylized flourish at the end.

JOHN HATCH, Chief Engineer
December 3, 1999



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

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

December 3, 1999

Jerry Muth
15546 Duck Creek Rd.
Reeder, ND 58649

Dear Mr. Muth:

Water Permit Application No. 1699-1 for fish & wildlife propagation and livestock use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice of hearing has been sent to the Publisher of the Bison Courier printed at Bison, SD (Ph # (605) 244-7199). 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 of Hearing and to arrange for payment. Early contact with the paper can eliminate delays. The publisher has been instructed to publish your notice once each week for two consecutive weeks with the last publication to occur twenty days before the board meeting. The newspaper has 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 57501-3181
www.state.sd.us/denr

December 3, 1999

The Bison Courier
Box 429
Bison, SD 57620-0429

ATTENTION: Legal Public Notice

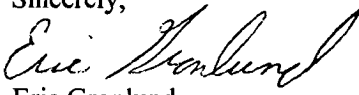
Enclosed is a Notice of Hearing on Application No. 1699-1 to Appropriate Water to be published twice. Please publish the first notice on December 9, 1999, with the second publication 7 days later.

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 Jerry Muth, 15546 Duck Creek Rd., Reeder, ND 58649 (Ph # (605) 855-2352).

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

-----CU T HERE-----

No. 1699-1

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

Date _____

We are in receipt of your letter of December 3, 1999, enclosing Notice of Hearing to Appropriate Water by Application No. 1699-1 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name

Newspaper

Instruction to Newspaper - Publish first Notice on December 9, 1999, with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 1699-1 to Appropriate Water

Notice is given that Jerry Muth, 15546 Duck Creek Rd, Reeder ND 58649 has filed an application for a water permit to impound 82 acre-feet of water from runoff by constructing a dam located in the SW ¼ NE ¼ Section 7 with water impounded in the NE ¼ Section 7; all in T21N-R10E. This application requests impoundment of sufficient water to maintain water at the outlet elevation. The water is to be used for fish and wildlife propagation and livestock watering.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 1699-1 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.

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 27, 1999.

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. Nettie H. Myers, Secretary, Department of Environment and Natural Resources.

PUBLISHER'S AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA

)SS

COUNTY OF PERKINS

Marsha Veal of said County and State, being duly sworn, on oath says: THE BISON COURIER is a weekly newspaper of general circulation, printed and published in Bison, in said County and State and has been such newspaper during the times hereinafter mentioned; that the said BISON COURIER is a legal newspaper and has been in existence for more than one year immediately preceding the first publication herein mentioned; and has more than 200 bonafide subscribers; that I, the undersigned, am Office Manager of said newspaper, and in charge of the advertising department thereof, and have personal knowledge of all facts stated in this affidavit; and that the advertisement headed

NOTICE OF APPLICATION NO. 1699-1 TO APPROPRIATE WATER

a printed copy of which is hereto attached, was printed and published in said newspaper for 2 successive issues, the first publication being on the 9 day of Dec., 1999 and the last publication on the 16 day of Dec., 1999 that \$ 41.48 being the full amount of the fee for publication of the annexed notice insures solely to the benefit of the publishers of the said newspaper; that no arrangement 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.

Marsha Veal
12-20-99

Subscribed and sworn to before me this _____ day of _____, 19 ____.

My commission expires: _____

Notary Public, Perkins County



NOTICE OF APPLICATION NO. 1699-1 TO APPROPRIATE WATER

Notice is given that Jerry Muth, 15546 Duck Creek Rd, Reeder ND 58649 has filed an application for a water permit to impound 82 acre-feet of water from runoff by constructing a dam located in the SW 1/4 NE 1/4 Section 7 with water impounded in the NE 1/4 Section 7; all in T21N-R10E.

This application requests impoundment of sufficient water to maintain water at the outlet elevation. The water is to be used for fish and wildlife propagation and livestock watering.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 1699-1 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.

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 27, 1999.

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. Nettie H. Myers, Secretary, Department of Environment and Natural Resources.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

JAN 6 2000

Jerry Muth
15546 Duck Creek Road
Reeder, ND 58649

Dear Mr. Muth:

Enclosed is Water Permit No. 1699-1 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.

Very truly yours,

JOHN HATCH, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures

Permit No. 1699-1
Grand 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, April 6, 2004, made a thorough examination of the water use system constructed by Jerry Muth of 15546 Duck Creek Road, Reeder, ND 58649 holder of Permit No. 1699-1, bearing the priority of November 3, 1999 authorizing the storage of 82 acre-feet of the waters of runoff for fish & wildlife propagation and livestock water purposes, in Perkins County.

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

A. Works used to divert the water:

An 18.5 foot high earthen dam with a normal storage capacity of 82 acre-feet

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

N/A

C. Works used to apply water to beneficial use:

An 18.5 foot high earthen dam with a normal storage capacity of 82 acre-feet

The system is in the following condition good. The point of diversion is located 1650 ft. south & 2000 ft. west of the NE corner of Sec. 7-T21N-R10E (SW ¼ NE ¼) (Lat. 45.800973, Long. -102.930043). The works are capable of storing 82 acre-feet of water which is to be used for fish & wildlife propagation and livestock water.

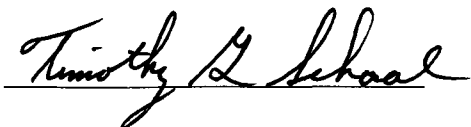
Water has been put to beneficial use to the maximum extent as follows:

An 18.5 foot high earthen dam with a normal storage capacity of 82 acre-feet

and the license should be issued for 82 acre-feet of storage.

Applicable permit qualifications have been complied with: Yes X

Exceptions to compliance are: none Date Report Completed: August 5, 2004



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

REPORT ON INSPECTION OF PERMIT NO. 1699-1

DATE OF INSPECTION: April 6, 2004

NAME & ADDRESS OF INSPECTION CONTACT/ Jerry Muth

RELATIONSHIP TO PERMIT HOLDER, IF APPLICABLE: owner

NAME & ADDRESS OF PERMIT HOLDER: Jerry Muth, 15546 Duck Creek Road, Reeder, ND 58649

DIVERSION POINT LEGAL LOCATION: 1650 ft. south & 2000 ft. west of the NE corner of Sec. 7-T21N-R10E (SW ¼ NE ¼) (Lat. 45.800973, Long. -102.930043).

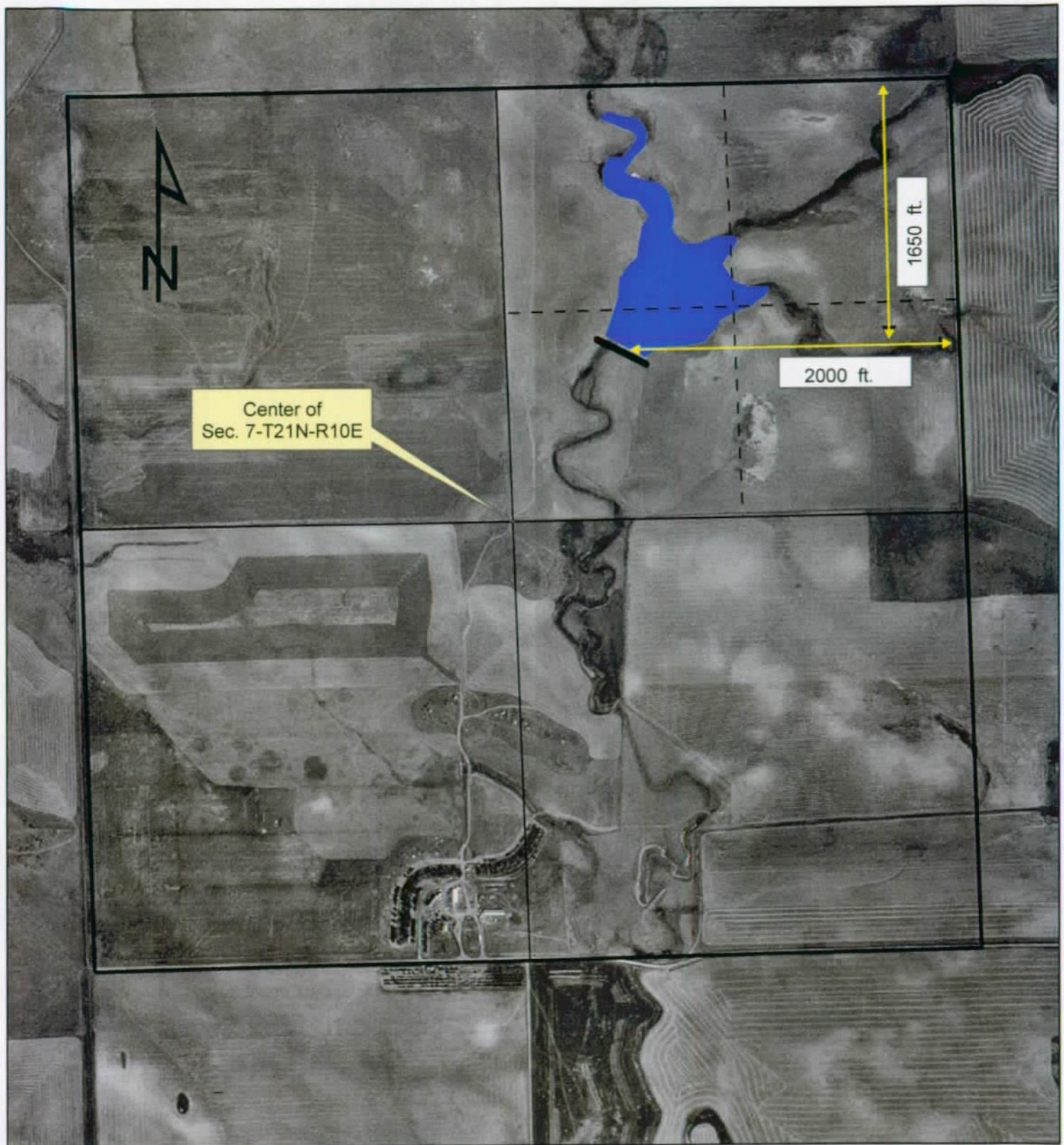
DAM INFORMATION:

- 1) Height to crest 18.5 feet
- 2) Height to primary spillway 11.5 feet
- 3) Height to secondary spillway 14.5 feet
- 4) Crest width 14 feet
- 5) Crest length 355 feet
- 6) Spillway length XXX feet
- 7) Spillway width 75 feet
- 8) Approx. storage (Normal) 82 acre-feet
- 9) Approx. storage (Maximum) 306 acre-feet
- 10) Date constructed: 2000

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. 1699-1



0 0.25 0.5 1 Miles

South Dakota Department of
Environment and Natural Resources



Protecting South Dakota's Tomorrow ... Today



Timothy G. Schaal

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

8/5/04

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 1699-1

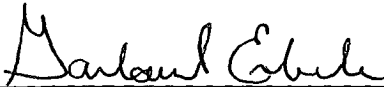
(1) Jerry Muth, 15546 Duck Creek Road, Reeder ND 58649 made Application No. 1699-1, November 3, 1999 for a water permit to impound 82 acre feet of water from runoff, Perkins County, South Dakota for fish and wildlife propagation and livestock watering purposes. Permit No. 1699-1, with a priority date of November 3, 1999 was approved December 27, 1999 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before December 27, 2004 and for the application to beneficial use of water on or before December 27, 2008.

(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. 1699-1 is issued a license, bearing a priority date of November 3, 1999, to impound 82 acre feet of water for fish and wildlife propagation and livestock watering purposes.

The location of the storage dam (spillway) is 1,650 feet south and 2,000 feet west of the northeast corner of Section 7-T21N-R10E (SW ¼ NE ¼).

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 1699-1, including the following now applicable qualifications:

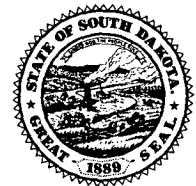
- Water Permit No. 1699-1 authorizes a dam with storage capacity of 82 acre-feet of water and sufficient water annually to maintain the water level to the outlet elevation.
- Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.



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

AUG 17 2004

date





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

AUG 17 2004

1699-1

Jerry Muth
15546 Duck Creek Rd
Reeder ND 58649

Dear Mr. Muth:

Enclosed is Water License No. 1699-1. This is the final water right document completing your 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