

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

RECEIVED
JUN - 2 2006
WATER RIGHTS
PROGRAM

Mail to: Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. <u>2590-2</u> (office use only) Hydrologic Unit <u>10140104</u>
	Basin <u>Bed River</u>
	Newspaper <u>Black Hills</u>

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

Check use(s) of water:

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

Type of Application:
(check one)

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

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

- Name of Applicant Acting District Ranger, Ft. Pierre Nat. Grassland Phone (605) 224-5517
 (check one) ☐ Owner ☐ Tenant/lessee
 Mailing Address 2010 North Deadwood St. Ft. Pierre State SD 57532
 (Street, RR, or Box and City) (Zip Code)
- Amount of water claimed *CFS or **GPM 52.40 ***AF
 (*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable
- Source of water supply Intermittent draw, which is a tributary to North Fork Medicine Creek.
- Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Jones
SE1/4 NE1/4 S33 T1N R30E Water Impounded S1/2 NE1/4 Sec 33 - T1N-R31E
31 (Booth Dam)
- County or counties where water will be used Jones
- Annual period during which water is to be used Yearlong Jan 1 - Dec 31
- 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)

Will repair an eroded dam that was originally constructed in about 1936. The structure breached after June 1988. A 60" dia. concrete riser and 30" dia. PE pipe will be installed. About 10,000 cu. yd. of soil will be used to fill the breach. Ft. Pierre National Grassland, USDA Forest Service and SD Game, Fish and Parks will share the cost of repair under an agreement.

STATE OF SOUTH DAKOTA)

County of Hughes

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, Tonya K. Weisbeck, 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 Tonya K. Weisbeck

Subscribed and sworn to before me this 2nd day of June 20 06

T. Olson
Notary Public signature

My commission expires May 18, 2009



**SOUTH DAKOTA
WATER PERMIT NO. 2590-2**

Date of first receipt of application June 2, 2006.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 2590-2 to Ft. Pierre National Grassland, 2010 N Deadwood St, Ft. Pierre SD 57532 authorizing the construction of the dam and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 2590-2 authorizes impoundment of 52.40 acre-feet of water from runoff on a tributary to North Fork Medicine Creek by reconstructing Booth Dam located in the SE 1/4 NE 1/4 Section 33 with water impounded in the S 1 2 NE 1 4 Section 33; all in T1N-R31E.
2. The water appropriated shall be used for the purpose of fish and wildlife propagation, recreation and livestock water 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 of approval of Permit No. 2590-2 is July 17, 2006.
5. The date from which applicant may claim right is June 2, 2006.
6. One-fifth of the construction is to be completed on or before January 17, 2009.
7. All construction is to be completed on or before July 17, 2011.
8. Water is to be put to beneficial use on or before July 17, 2015.
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. 2590-2 authorizes a dam with a storage capacity of 52.4 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

AUG 17 2006
date



(type or print in ink)

1. Well Information - Proposed Construction

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

2. Wastewater Disposal System Information

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

3. Dugout Information

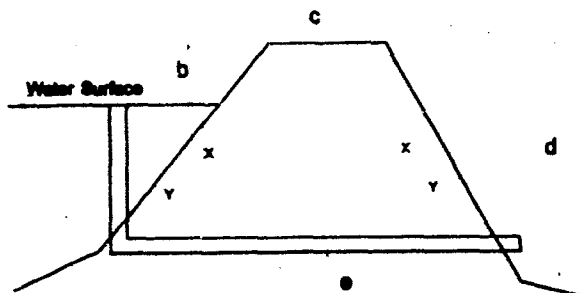
- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

4. Water Storage Dams

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

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

Dave Konechne
Konechne Engineering
104 Capitol Hill Dr.
Pierre, SD 57501



- b) Freeboard _____ 5 feet
- c) Crest Width _____ 12 feet
- Crest Length _____ 688 feet
- d) Height _____ 14.8 feet
- e) Primary Outlet Capacity _____ 98.4 c.f.s.
- If pipe, diameter _____ 30 inch
- f) Secondary Spillway Capacity _____ 1134 c.f.s.
- Spillway Width _____ 150 feet
- g) X & Y Slope _____
- Upstream _____ 1 vert. : 3 horiz.
- Downstream _____ 1 vert. : 3 horiz.
- h) Surface Area of Impoundment _____ 14.3 ac.
- i) Storage _____ 52.4 Acre Feet
- j) Drainage Area Above Dam _____ 2,246.0 Acres



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

INVOICE

Invoice No. 20411-6206

605-224-5517

US Forest Service
1020 N. Deadwood St
Ft Pierre SD 57532

application fee

\$200.00

Upper Booth Dam
water rights application

NFLM01

\$200.00

PLEASE PAY THIS AMOUNT:

\$200.00

Glenda Marks
Secretary
Water Rights Program
(605) 773-3352

BANKCARD SALES SLIP 2 PT.

NO. 000000

DO NOT WRITE

ABOVE THIS LINE

US FOREST SERVICE
FT. PIERRE

XXXX XXXX XXXX 8078

03/07

EXPIRATION
☒ DATE
CHECKED

SIGN HERE

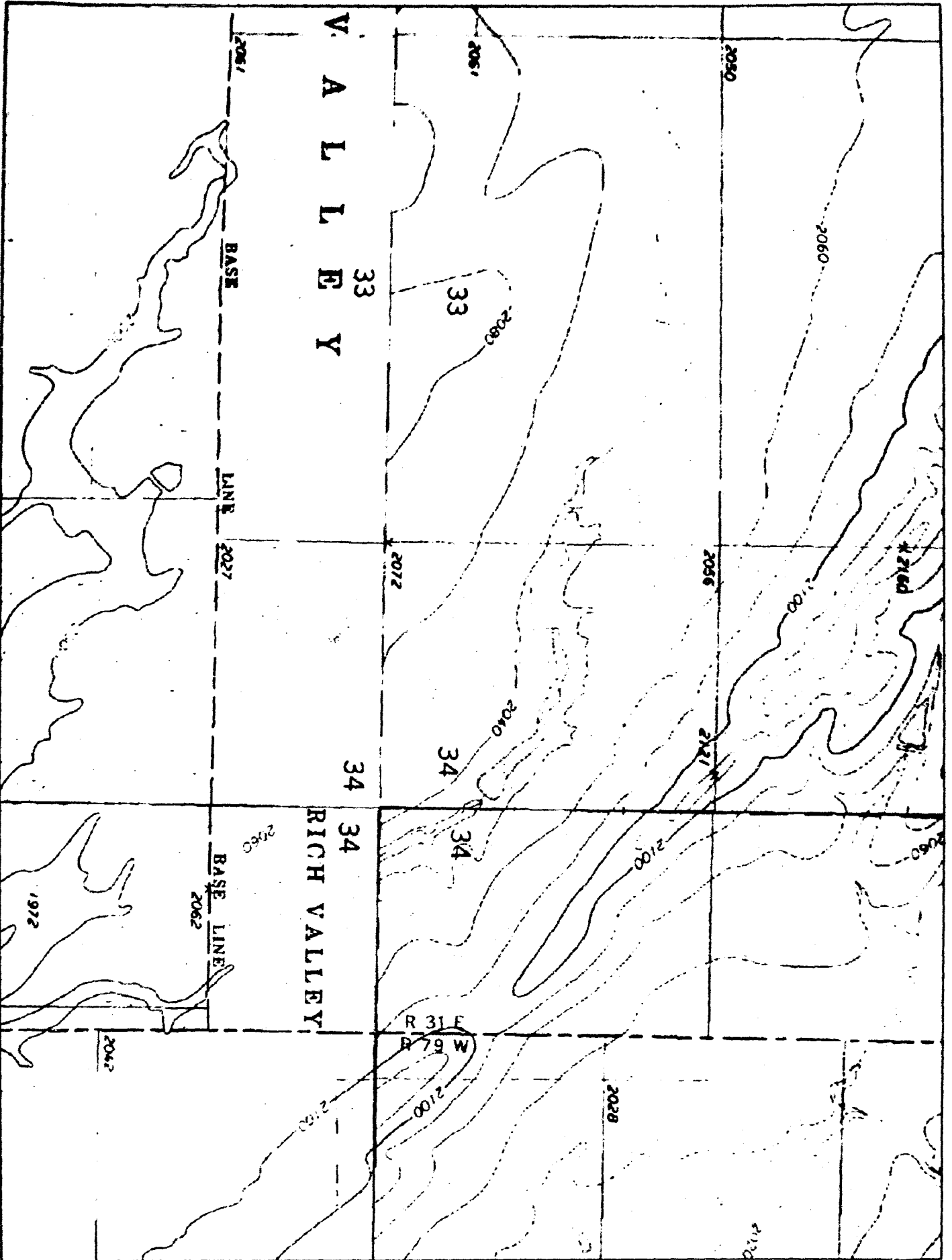
X

The holder of this card identified on this form is responsible to pay the amount shown on this form. Payment must be made in full within 30 days of the date of purchase. Payment may be made by cash, check, or credit card. Payment by credit card is subject to the cardholder's agreement with the card issuer.

↑ PLEASE DO NOT WRITE ABOVE THIS LINE ↑

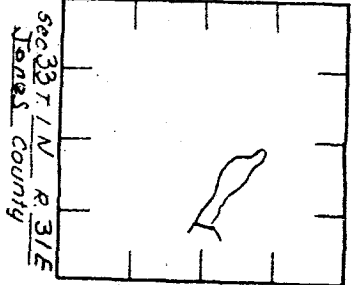
DATE	05/05/06	AUTHORIZATION	080842	SUB TOTAL	200.00
REFERENCE NO.	001	SERVICE		TAX	
ID/HOLD/CHECK/NO./LC/NO. STATE	REG/DEPT	CLERK	TR	AMSC.	
5462726				200.00	

SALES SLIP
ORIGINAL



STRUCTURE DATA

DRAINAGE AREA	ANNUAL YIELD	PEAK RUNOFF	ENERG. CAPACITY	WATER DEPTH	SURFACE AREA	SEDIMENT STORAGE	TOTAL STORAGE
ACRES	AC. FT.	25-YR.	C.F.S.	FEET	ACRES	AC. FT.	AC. FT.
2246	58	413	1134	10	14.3	—	52

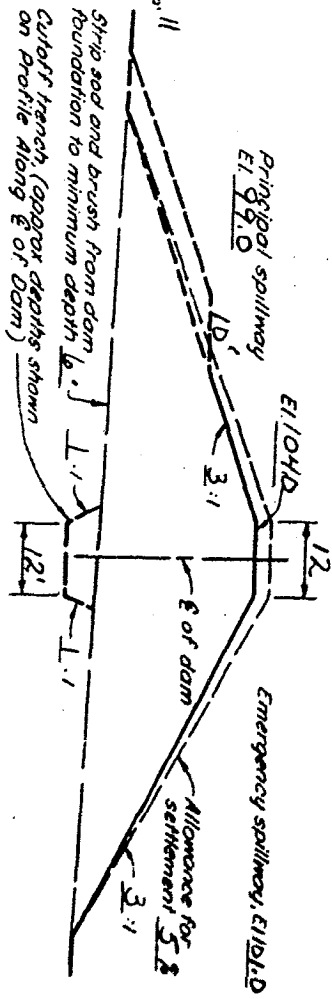


LOCATION

Em. Spill
150' width
8M. Top of 1/2" 30 west of Sta 3+50
El. 1002

TABLE OF QUANTITIES

ITEM	UNIT	QUANTITY
Earth Fill (estimated)	c y	19000
60" dia Concrete Riser-54' long	ea	1
30" dia PE pipe	Ln Ft	88
Sand deep collar	c y	20.3
PVC Drain Pipe	Ln Ft	76
concrete	c y	1.2
Steel Reinforcement	lbs	48
Timber Pipe Support	ea	1
Timber Tack Rack	ea	1



TYPICAL CROSS SECTION OF DAM

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EARTH DAM WATER RIGHTS PROGRAM

OPERATOR: USFS

CONSERVATION DISTRICT: Jones Co.

BOOTH - CLASS A

Prepared by: D. Konecny

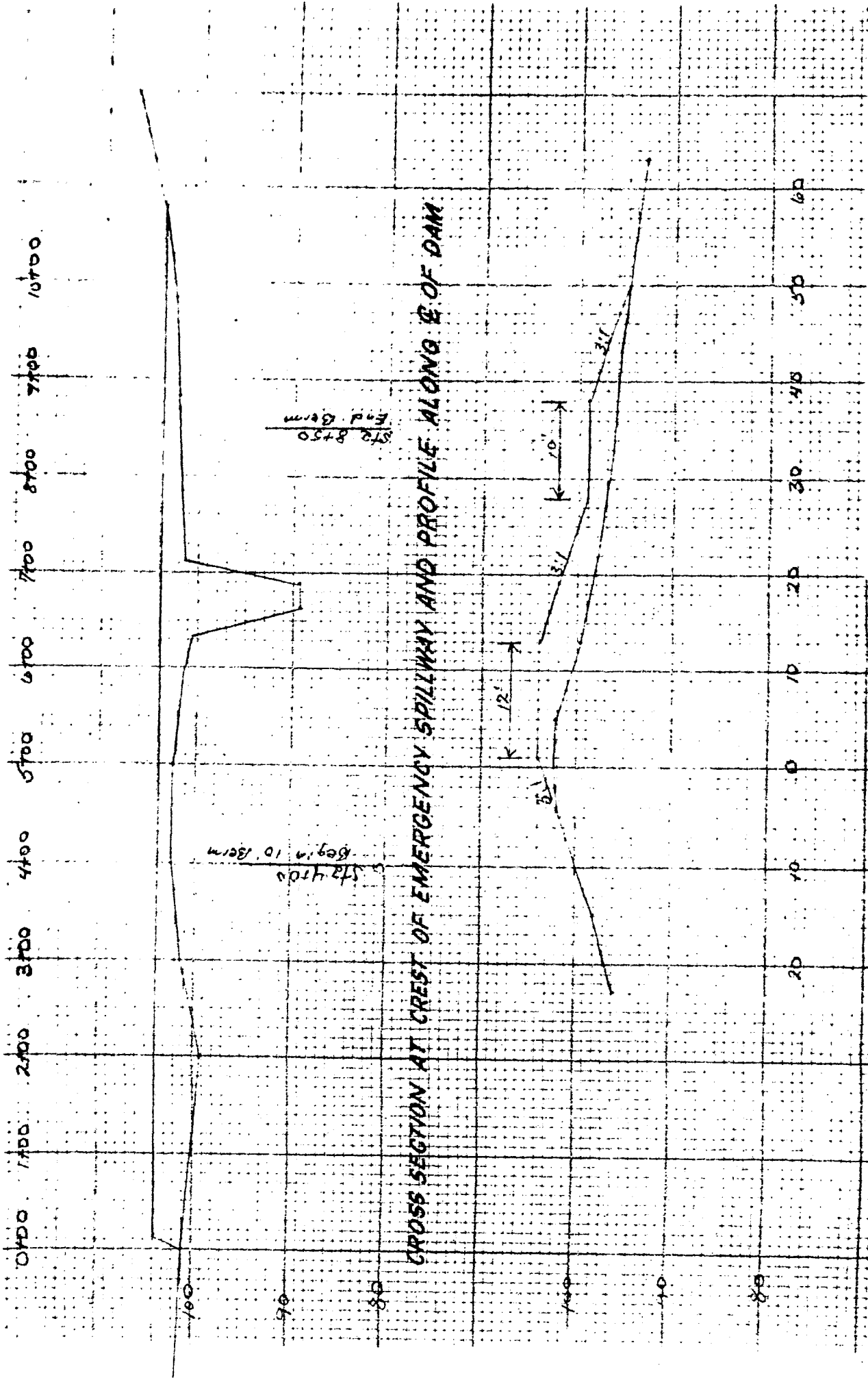
Drawn	Checked	Reviewed	Approved

SKETCH PLAN OF DAM AND RESERVOIR AREA

Approximate scale 1" = 1/4

REFERENCE: GUIDE PLAN NO. 1.0

JOB PLAN NO. 1.0



Locate principal spillway pipe at $\text{E.L. of dam sta. } 5+00$ at an angle of 90° to the E.L. of the dam.

Emergency spillway $\text{E.L. } 101.0$

Principal spillway $\text{E.L. } 99.0$
Berm, if required 3.1 slope normal to E.L. of dam

Trash rack and baffle plate not shown. See job plan no. 16.4

3.1 slope normal to E.L. of dam

3.1 slope normal to E.L. of dam

Note: Allowance for settlement 5%

$60''$ dia. riser, see job plan no. $3.3A$
 92°

Antisleep collars see Job Plan

10% gr.

$88'$ of $30''$ dia. pipe (PE)

$66'$

$22'$

CROSS SECTION OF DAM ALONG E.L. OF PRINCIPAL SPILLWAY

(Not to scale)

SPECIFICATION NOTES

1. ELBOW, IF REQUIRED, MAY BE FABRICATED BY CONTINUOUS WELDING SEPARATE 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

PE pipe shall be dual-wall polyethylene equal to ADS-NIR with water tight joints

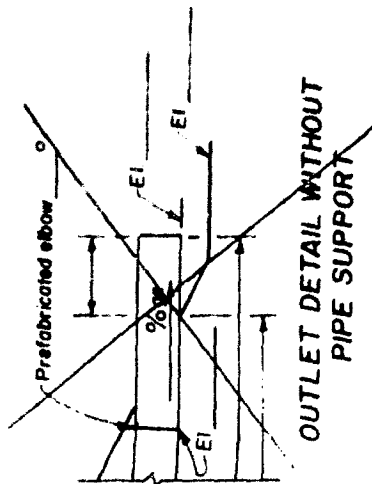
TABLE OF QUANTITIES

ITEM	UNIT	QUANTITY
60" dia pre-cast concrete riser with opening for 30" dia PE pipe	ea	1
88 ft, 30 inch dia dual wall PE pipe	ft	88

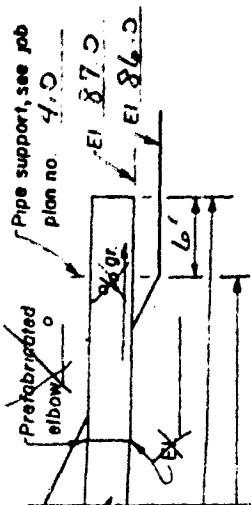
APPLICABLE STANDARD S.C.S. SPECIFICATIONS

REFERENCE: GUIDE PLAN NO. 2.0

Rev 8/80
JOB PLAN NO. 2.0



OUTLET DETAIL WITHOUT PIPE SUPPORT



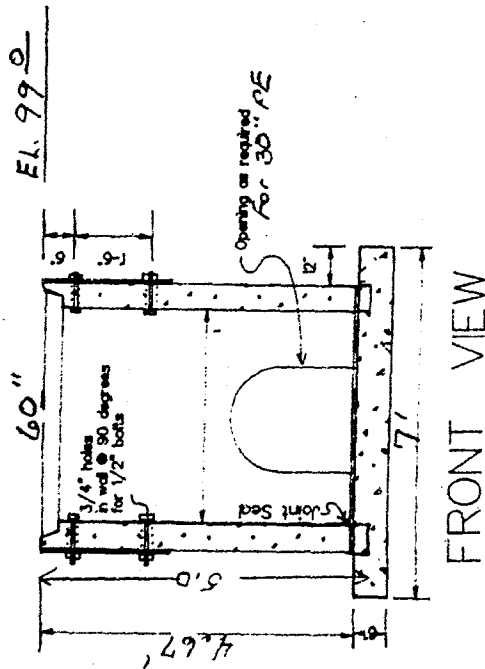
OUTLET DETAIL WITH PIPE SUPPORT

Sec. , T. , R. County

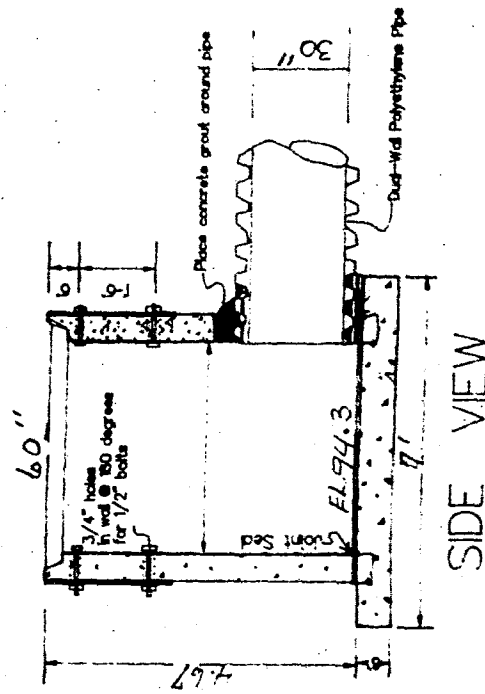
LOCATION

CORRUGATED METAL PIPE
DROP INLET PRINCIPAL SPILLWAY

OPERATOR	USFS - Booth
CONSERVATION DISTRICT	Jones
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	
Designed by	
Drawn by	
Traced by	
Checked by	



FRONT VIEW



SIDE VIEW

CONSTRUCTION NOTES:

- 1- Reinforced concrete pipe shall meet ASTM C-478.
- 2- Polyethylene pipe shall be equal to ADS N-12 or equal.
- 3- Provide holes in concrete pipe for lifting lugs.
- 4- ~~Alternative to concrete base is poured in place concrete base.~~

STEEL SCHEDULE

RISER DIA. IN.	BAR SIZE	MARK	TYPE	NO. REQ'D.	LENGTH FT.-IN.	TOTAL LENGTH FT.-IN.	TOTAL WT. LB.	C IN. FT.-IN.	L IN. FT.-IN.
48	4	1	STR.	12	6-0	72-0	48	6	6-0

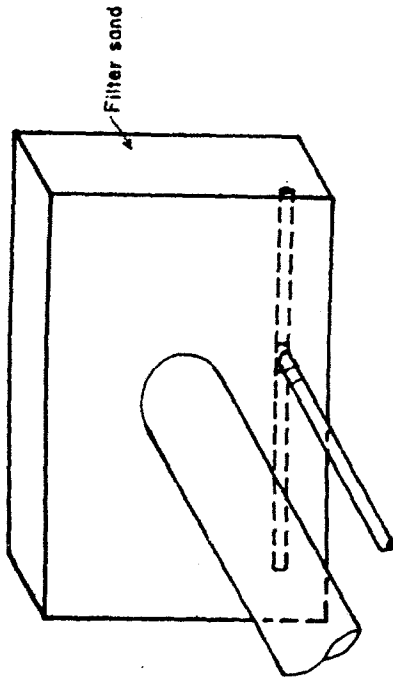
TABLE OF QUANTITIES

ITEM	UNIT	QUANTITY
CONCRETE	CU. YD.	1.2
REINFORCING STEEL	LB.	48

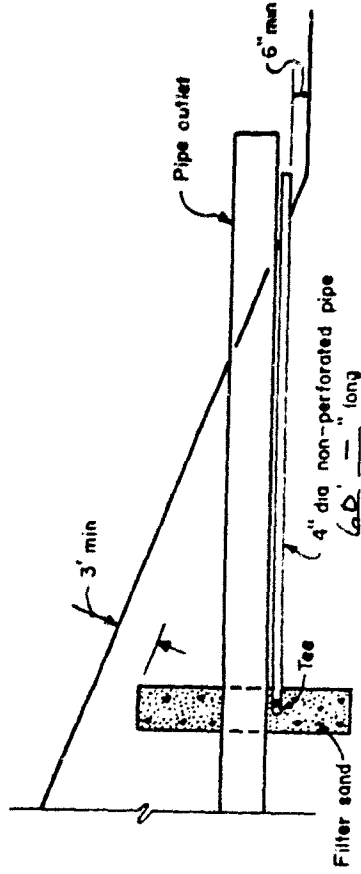
CONCRETE RISER
for Polyethylene Pipe

TUSFS BOOTH

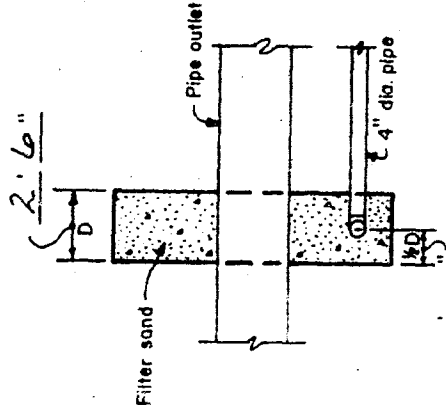
Job Plan 5.3A



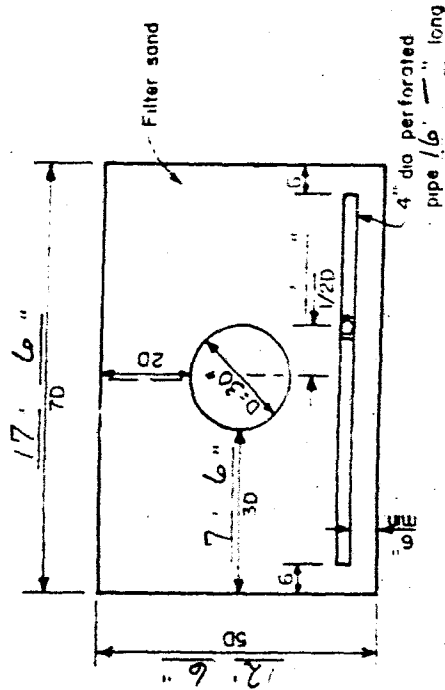
ISOMETRIC VIEW



OUTLET DETAIL



SIDE VIEW



UPSTREAM 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

20.3 c.y.

Sec. T, R. County LOCATION

SAND ANTISEEP COLLAR

OPERATOR USFS - Booth

CONSERVATION DISTRICT

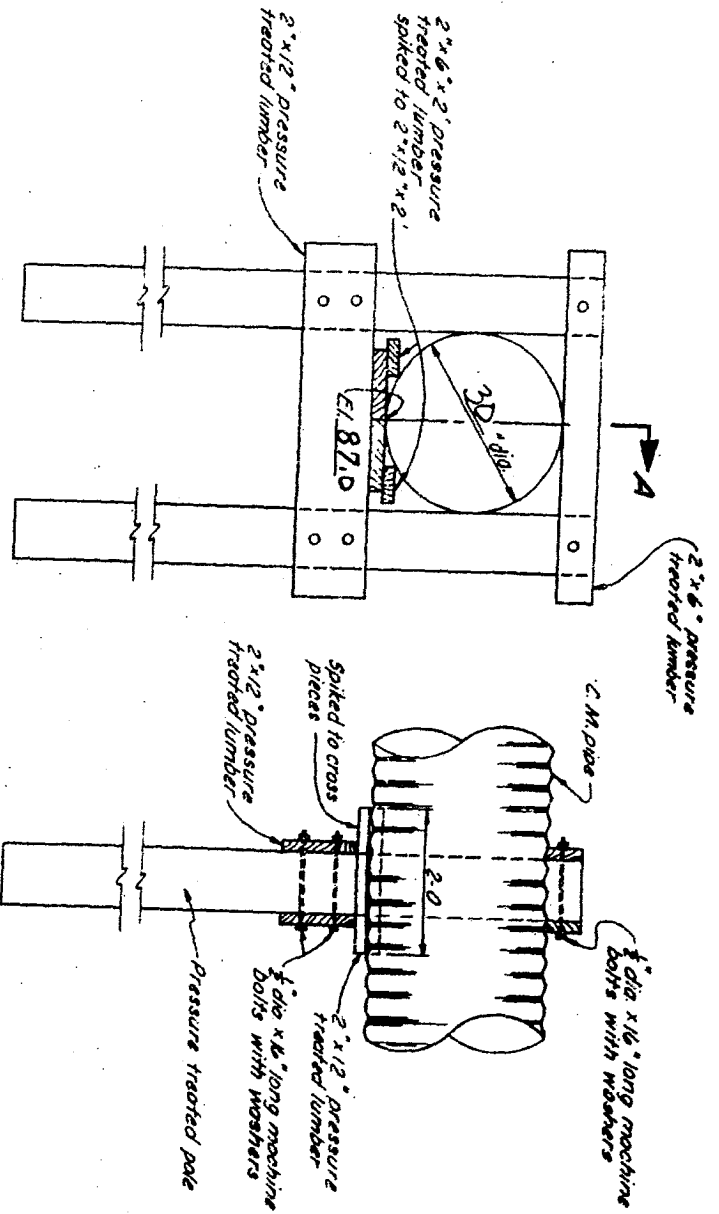
Designed by	Date
Drawn by	Time
Checked by	Initials
Reviewed by	Initials

JOB PLAN NO. 3.8

Page 5 of 7

NOTE:

1. THE 4" DIA. PIPE SHALL BE ASTM D1785, SCHEDULE 40, PVC
2. PROVIDE AN ANIMAL GUARD ON DRAIN OUTLET PIPE. DRILL 2, 1/2" DIA. HOLES, ON 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).



NOTES:

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

ELEVATION SECTIONAL ELEVATION A-A

TABLE OF QUANTITIES

ITEM	LENGTH FOR 30" DIA. PIPE	UNIT	QUANTITY
PRESSURE TREATED POLE 8" DIA.	8-0' 4"	EACH	2
2" X 12" PRESSURE TREATED LUMBER	10'	EACH	2
2" X 6" PRESSURE TREATED LUMBER	2'	EACH	2
2" X 12" PRESSURE TREATED LUMBER	5'	EACH	2
2" X 6" PRESSURE TREATED LUMBER	5'	EACH	2
1/2" DIA. MACHINE BOLTS WITH NUTS	1/6"	EACH	6
1/2" DIA. WASHERS		EACH	12

REFERENCE: GUIDE PLAN NO. 4.0

JOB PLAN NO. 4.0

TIMBER PIPE SUPPORT

OPERATOR: *WSES - 80074*

CONSERVATION DISTRICT:

3

Designed by

Drawn by

Checked by

Approved by

Date

Project No.

Sheet No.

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JUN - 2 2006

WATER RIGHTS
PROGRAM

CONSTRUCTION SPECIFICATIONS

BOOTH DAM REPAIR

USFS

NE 1/4 SECTION 33, T1N, R31E
JONES COUNTY, SOUTH DAKOTA

KONECHNE ENGINEERING
PIERRE, SOUTH DAKOTA

CONSTRUCTION SPECIFICATION

SD - 2 CLEARING AND GRUBBING

2.1 SCOPE

The work shall consist of the clearing and grubbing of the area within the stake limits by removal and disposal of trees, snags, logs, stumps, shrubs, and rubbish.

2.2 REMOVAL

Unless otherwise specified all material to be cleared and grubbed shall be removed to a depth of 1 foot below the embankment foundation after stripping and 2 feet below a concrete subgrade.

2.3 DISPOSAL

Where brush piles for wildlife are not specified, cleared and grubbed materials shall be disposed of by burning or burying at locations selected by the contractor and approved by the landowner or engineer. Materials to be buried shall be placed at least 2 feet below the surrounding ground line and have a minimum of 2 feet of cover with the finished surface graded to drain. Any burning operations shall be subject to all public laws governing such operations, and any required permits to be obtained by the contractor.

2.4 PAYMENT

Payment for this item shall be included in the cost of earth fill and is subsidiary to Construction Specification SD-7S, Earth Fill - Class S.

CONSTRUCTION SPECIFICATION

SD - 5 EXCAVATION

5.1 SCOPE

The work shall consist of all excavations to the lines and grades as shown on the drawings and the use and disposal of the excavated materials.

5.2 CLASSIFICATION

Common excavation shall be defined as the excavation of all materials that can be removed and transported by heavy duty construction equipment having a power rating of at least 200 net peak flywheel horsepower (D8 Caterpillar or equivalent), and includes boulders and loose rock less than 1 cu. yd. in volume.

Rock excavation shall be defined as the excavation of all hard compacted or cemented materials requiring blasting or larger equipment than defined under common excavation, including boulders and loose rock 1 cu. yd. or greater in volume.

5.3 USE OF EXCAVATED MATERIALS

Excavated materials deemed satisfactory by the technician shall be used for earth or rock fill to the extent needed.

5.4 DISPOSAL OF WASTE MATERIAL

All surplus or waste material shall be disposed of in areas selected by the contractor and approved by the owner or engineer. Waste piles shall be left in a neat, slightly condition and sloped to provide drainage.

5.5 BRACING AND SHORING

Excavated surfaces too steep to be stable shall be supported to prevent soil movement. The contractor shall furnish, place, and subsequently remove the supports.

5.6 STRUCTURE AND TRENCH EXCAVATION

Structure or trench excavation shall be approved by the engineer or his designee before any structure, pipe, or earth fill is placed in the excavation.

5.7 BORROW EXCAVATION

When quantities of suitable materials obtained from specified excavations are insufficient to construct specified fills, additional materials shall be obtained from designated borrow areas as directed by the engineer.

Borrow pits shall be excavated and finely dressed in a manner to eliminate steep or unstable side slopes or other hazardous or unsightly conditions.

5.8 PAYMENT

The payment for excavation shall be included in the bid for Earth Fill and is subsidiary to Construction Specification SD - 7S, Earth Fill Class S

CONSTRUCTION SPECIFICATION

SD - 7S EARTH FILL - CLASS S

7S-1 SCOPE

The work shall consist of the construction of compacted earth fills where the amount of compaction is to be controlled by a method type of specification.

7S-2 MATERIALS

All fill materials shall be obtained from required excavations and designated borrow areas. The selection, blending, routing and disposition of materials shall be subject to approval by the engineer.

Fill materials shall not contain frozen material, sod, brush, roots, or other perishable materials, or rocks larger than 8 inches in diameter. Fill shall not be placed on frozen surface.

7S-3 FOUNDATION PREPARATION

After stripping, the foundation shall be scarified or plowed to a minimum depth of 4 inches. The entire foundation area shall then be compacted by the process used on the fill.

7S-4 PLACEMENT

All foundation excavations and/or preparation shall be completed before placing fill. The fill shall be placed such that the distribution of materials is essentially uniform throughout the entire fill and is free from lenses, pockets, streaks, or layers of materials differing substantially from surrounding material.

Fill, adjacent to structures, shall be placed in a manner that will prevent damage to the structure and allow the structures to assume the backfill loads gradually and uniformly. Equipment weighing more than 400 pounds shall not be operated within 2 feet of any structure.

Fill shall be placed in approximately equal horizontal layers. Fill layer thicknesses shall not exceed 9 inches for machine or 4 inches for hand compaction (including hand directed power tampers adjacent to structures).

7S-5 MOISTURE CONTENT

The fill material shall have a moisture content that when kneaded in the hand will form a ball which does not easily crumble when struck sharply with a pencil or which does not crumble when pressed between the hands.

If the soil is too wet, it will yield free water when kneaded in the hand. The fill may have to be wetted or dried to achieve proper moisture control.

7S.6 COMPACTION (CLASS S)

The fill shall be compacted by one of the following methods.

- a. By routing the hauling and spreading equipment such that all points of the fill is traversed by at least one tread track of the loaded equipment, parallel to the centerline of the fill

- b. By at least two passes of a tamping (sheepfoot) roller weighing at least 100 pounds per square inch bearing area.

Fill adjacent to structures shall be compacted to a density equivalent to that of the surrounding fill by means of hand tamping or manually directed power tampers or plate vibrators. Heavy equipment shall not be operated within 2 feet of any structure.

Compaction of fill adjacent to concrete structures shall not be started until the following time limits have elapsed after placement of the concrete.

<u>Structure</u>	<u>Time Interval</u>
Walls and counterforts	14 days
Conduits and Spillway Risers (cast in place)	14 days
Conduits, precast, cradled	2 days
Conduits, precast, bedded	1 day
Anti-seep Collars and Cantilever Pipe props	3 days

7S-7 PAYMENT

Earth Fill is a bid item and payment for earth fill shall be by the cubic yard and computed to the specified neat lines on the drawings for excavation and the specified neat lines of the completed earthfill.

Items subsidiary to earth fill are, Construction Specifications SD-2, and SD-5.

CONSTRUCTION SPECIFICATION

SD - 9 DRAIN FILL AND FILTER

9.1 SCOPE

The work shall consist of furnishing and placing drain fill and filter sands or gravels.

9.2 MATERIALS

a. Quality

Aggregates shall be sand, gravel, or crushed stone, composed of clean, hard, durable mineral particles free from organic matter, clay balls, soft particles or other substances that would interfere with their free draining properties.

b. Gradation

The aggregates shall meet the following gradation requirements unless otherwise specified in the plans.

<u>Size</u>	<u>% Finer</u>
3"	100%
1"	90-100%
#4	50-85%
#50	10-40%
#200	0-5%

9.3 BASE PREPARATION

Surfaces on which drain fill will be placed shall be as undisturbed as possible (do not scarify), and will be free of standing water during placement of the fill. Care shall be taken to prevent trench walls from sliding.

9.4 PLACEMENT

Material shall be placed in uniform, approximately 6-inch thick layers. Extreme care shall be taken to assure uniformity of the drain fill, and to prevent segregation or contamination of the drain fill with foreign matter. When collector pipes are included in drains, the fill materials shall be placed in a manner to avoid displacing the pipe.

9.5 PAYMENT

Drain fill is a bid item and payment will be by the cubic yard basis as shown on the plans and computed to the neat lines of the drawings.

CONSTRUCTION SPECIFICATION

SD-12B CONCRETE FOR MINOR STRUCTURES (FOR STRUCTURES UP TO 10 C.Y.)

12B.1 SCOPE

The work shall consist of proportioning, forming, placing, finishing, and curing Portland cement concrete.

12B.2 MATERIALS

Portland Cement shall be Type II or Type IIA Portland Cement. Cement that is partially hydrated or otherwise damaged shall not be used.

Fine Aggregate is defined as all material which will pass a $\frac{1}{4}$ inch screen. Fine aggregate shall compose between 35 and 45 percent of the total aggregate and shall not contain more than 1 percent clay lumps or more than 4 percent finer than a No. 200 sieve. Coal in fine aggregate shall not exceed $\frac{1}{2}$ of 1 percent.

Coarse Aggregate is defined as all material larger than $\frac{1}{4}$ inch. Maximum size aggregate shall not exceed:

1 inch - Concrete thickness of 4 inches or less

1 1/2 inch - Concrete thickness of 4 inches or more

Coarse aggregate shall compose between 55 and 65 percent of total aggregate and shall not contain more than $\frac{1}{4}$ of 1 percent of clay lumps or more than 1 percent of material finer than No. 200 sieve. Coal shall not exceed 1 percent.

Mixed fine and coarse aggregate or pit-run aggregate may be used provided the requirements stated above are met.

Water shall be clean and free of harmful chemicals (suitable for drinking).

12B.3 DESIGN OF CONCRETE MIX

The contractor or person in charge of construction shall be responsible for designing a high quality concrete mix conforming to this specification.

The mix shall contain less than 6 gallons of water per bag of cement, and at least 6 bags of cement per cubic yard of concrete. The air-entrainment shall be between 4 and 7 percent by volume, and the slump after mixture shall be between 2 and 4 inches.

The following table is recommended as a guide for developing a satisfactory mix to give 3000 psi compressive strength for air-entrained concrete.

Max Size Aggregate	Gal. Water per sack Of cement	% of Fine Aggregate	Sacks Cement per cu. yd.	Pounds Fine Aggregate per sack cement	Pounds Coarse Aggregate per sack cement
1"	6.0	40	6.0	190-200	300-310
1 1/2"	6.0	35	6.0	180-190	330-340

Ready Mixed concrete may be used provided it meets the requirements of these specifications. Upon request the vendor shall provide the owner with a signed delivery ticket giving the quantities of concrete, cement, fine aggregate, coarse aggregate and water contained in the batch.

Measurements of materials shall be by weight where suitable scales are available. Where suitable scales are not available, volume measurement may be used provided volume-weight relationships are carefully determined. Calcium chloride or other accelerators or anti-freeze compounds shall not be used.

Measurements (by weight) of materials in the mix shall be made available to the engineer.

12B.4 FORMS FOR CONCRETE

Forms shall be made of wood, plywood, steel or other approved material. The type, size, shape, quality and strength of forms will be subject to approval by the engineer.

All forms shall be true to line and grade, mortar tight, and rigid enough to prevent bulging or displacement. Tolerances will be close enough to assure that the structure appears and performs well

All forms shall be removed from the concrete. Forming shall not be embedded in the concrete.

12B.5 PLACING CONCRETE

Concrete shall be placed in final position within one and one-half hours after mixing with cement. Concrete shall be consolidated by hand spading and tamping or by mechanical vibration.

All concrete placed on earth shall be placed on clean damp surface, free of frost, ice, or running water. Concrete shall not be dropped more than 5 feet vertically unless suitable equipment is used to prevent segregation.

Uniformed surfaces (excluding slip form concrete) exposed in the completed work shall have a wood float finish. Exposed concrete edges shall be chamfered or finished with molding tools. Concrete shall be placed at air temperatures between 40 degrees F and 80 degrees F unless special measures are taken to protect the concrete. Concrete shall be protected from freezing for 7 days after placement.

12B.6 CURING CONCRETE

All concrete shall be cured by keeping all exposed surfaces wet for 7 days or by applying a spray type curing compound to exposed concrete surfaces immediately after the free water has disappeared after pouring.

12B.7 DEFECTIVE CONCRETE

Honey combed areas and other voids in concrete will be promptly repaired with mortar patching immediately upon discovery.

Concrete subjected to damage and/or other violations of this specification will be rejected.

12B.8 PAYMENT

Concrete is a bid item and payment will be by the cubic yard basis and will be calculated to the neat lines on the drawings,

CONSTRUCTION SPECIFICATION

SD - 13 STEEL REINFORCEMENT

1. SCOPE

The work shall consist of furnishing and placing steel reinforcement for reinforced concrete or pneumatically applied mortar.

2. MATERIALS

Steel reinforcement shall be free of flaky rust, oil, grease, paint, mill scale, or other deleterious matter.

Steel bar reinforcement (except as otherwise specified) shall be grade 40, 50, or 60 deformed bars conforming to one of the following specifications.

- a. Deformed and Plain Billet-Steel Bars for Concrete Reinforcement ASTM A615
- b. Rail-Steel Deformed and Plain Bars for Concrete Reinforcement ASTM A616 with SI Supplement Requirements
- c. Axle-Steel deformed and Plain Bars for Concrete Reinforcement ASTM A617

Dowels shall be plain round bars conforming to the above specifications.

Fabricated deformed steel bar mats for concrete reinforcement shall meet ASTM A184

Plain steel welded wire fabric for concrete reinforcement shall meet ASTM A185

Deformed steel welded wire fabric for concrete reinforcement shall meet ASTM A497

Epoxy-coated steel bars for concrete reinforcement shall meet ASTM A775

3. CUTTING AND BENDING

Reinforcing bars may be shop or field cut and/or bent. All bends must be made without heating or otherwise weakening the bar. Shop bends must meet American Concrete Institute Standard 315. Bars with kinks, cracks, or improper bends will be rejected.

4. SPLICING BAR REINFORCEMENT

Except as otherwise specified splices of reinforcing bars shall provide an overlap of at least 30 times the smaller bar diameter, but not less than 12 inches.

5. SPLICING WELDED WIRE FABRIC

Welded wire fabric shall be overlapped one full mesh (rectangle) not counting cut portions.

6. PLACING

Reinforcing shall be accurately placed and secured in position to prevent its displacement during concrete placement. Tack welding of bars is not permitted. Dimensions shown on the plans indicating concrete cover, are the clear distances from the concrete surface to the reinforcing steel. Metal hangers, spacers, and ties shall be placed in a manner that they are not exposed in the finished concrete surface. The legs of metal chairs or side form spacers that may be exposed on any surface of slabs, walls, beams, or other concrete surfaces shall be a design that will not corrode at the concrete surface. Precast concrete chairs shall be clean and moist at the time of concrete placement.

On structures exceeding four cubic yards of concrete, concrete shall not be placed until the reinforcement has been inspected and approved by the engineer. For any size pour, inspection of reinforcement embedded in concrete may be performed by the engineer using radar, or other inspection instruments.

7. **PAYMENT**

Steel Reinforcement is a Bid Item and will be paid for by the pound computed as indicated to the neat lines on the drawings.

CONSTRUCTION SPECIFICATION

SD-16 TIMBER FABRICATION AND INSTALLATION

16.1 SCOPE

This specification covers the quality and installation of plywood and pressure treated structural timber poles, posts and lumber structure and timber and lumber portions of composite structure.

16.2 MATERIAL

a. Plywood

Plywood shall be new, exterior grades, and shall meet Product Standard PS 1-66
Plywood for use underground shall be pressure treated in accordance with the American Wood Preservers Bureau AWPB-FDN Standard (stamped on plywood).

b. Structural Timber and Lumber

Structural timber and lumber shall be structural grade or better. Structural timber poles, posts, and lumber shall be new, sound, decay free, straight, not warped or cracked. Unless otherwise specified on the drawings, all lumber and timber except re wood and red cedar shall be treated by any of the following preservatives:

Commercial Coal Tar Creosote
Hot and Cold Bath Creosote
Pentachlorophenol – Commercial Treatment
Pentachlorophenol – Cold soaking Method
AWPB-FDN Standard Preserving Salts

c. Hardware

Bolts, rods, nuts, washers, and other hardware shall be an appropriate grade of steel, and if to be placed underground, shall be galvanized or otherwise corrosion protected.

16.3 INSTALLATION

The material shall be of the dimensions, and installed at the location, as shown on the drawings. All lumber to be treated shall be cut to size, insofar as practical, prior to treatment. Raw ends of lumber which has been cut after treatment shall be immersed in the preservative solution, or painted with four (4) heavy coats of the solution. Each application should be allowed to dry. For home treatment, the preservative manufacturer's directions shall be carefully followed.

16.4 PAYMENT

This item shall consist of furnishing and installing the Timber Pipe Support and the Timber Trash Rack as shown on the plans. Payment for this item is on the lump sum basis.

CONSTRUCTION SPECIFICATION

SD - 19 PVC DRAIN FOR SAND SEEP COLLAR

1. **SCOPE**

The work shall consist of furnishing and installing polyvinyl chloride (PVC) plastic pipe, fittings and appurtenances as shown on the drawings. The specification covers drains for sand seep collars.

2. **MATERIAL**

Pipe shall have a minimum 160 psi pressure rating, shall meet ASTM D1785 or D2241, and shall be defect free. Pipe compound shall meet ASTM D1784, Class 12454-B. Fittings and appurtenances shall be made of the same material as the pipe, and be designed for use with the pipe at a minimum pressure rating of 160 psi, except as noted otherwise. Solvent cement for the pipe joints shall meet ASTM D25634.

Rubber gasket joints shall conform to ASTM D3129.

3. **PIPE PLACEMENT**

Pipe must be installed to specified lines and grades without blocking, distortion or damage. The pipe must be uniformly supported on firm stable soil (or other specified bedding) over its entire length.

4. **BACKFILL**

All backfill recommendations of the pipe manufacture shall be met. Vehicles or construction equipment shall not cross the pipe until earth cover over the pipe exceeds two feet. Initial backfill to six inches above the top of the pipe is required. Except as otherwise specified, earth haunching and initial backfill shall consist of soil that is free of rocks, hard clods or other objects more than one inch in diameter. Earth fill shall be worked and compacted under the haunches of the pipe to provide continuous support in layers not more than six inches thick. Care shall be taken to insure the pipe is not deformed, damaged, or displaced. Final backfill shall consist of remaining backfill from top of initial backfill to ground surface, including mounding for settlement. Final backfill shall be free of debris, rocks or other objects three inches nominal diameter or larger. Final backfill shall be approximately uniform, void free, compacted layers.

5. **MEASUREMENT AND PAYMENT**

This item consists of furnishing and installing the PVC drain pipe used in the sand seep collar. The quantity will be measured to the nearest foot by measurement as indicated by the neat lines on the drawings. Such payment will constitute full compensation for furnishing, transporting, and installing the pipe complete in place.

MATERIAL SPECIFICATION

SD-55A CORRUGATED POLYETHYLENE (PE) PIPE

1. SCOPE

This specification covers the quality of corrugated polyethylene (PE) tubing and fittings.

2. PIPE AND TUBING

Corrugated polyethylene tubing shall conform to the following requirements for the specified tubing types, sizes, and fittings.

ASTM F667 Standard Specification for Corrugated Polyethylene Tubing
ASTM F667 Standard Specification for Corrugated Polyethylene Pipe
ASTM F894 Standard Specification for Polyethylene large Diameter Profile Wall Sewer and Drain Pipe.

AASHTO M252 Standard Specification for Polyethylene Corrugated Drainage Pipe
AASHTO M294 Standard Specification for Corrugated Polyethylene Pipe, 12 inches to 36 inches diameter.

LOCATION NOTICE--DRY DRAW

Jones County 69855 Dry Draw No.

I, USDA, Forest Service, of
Name

Box 417 Pierre Hughes
Address & Zip Code Town County

owner, of the following described land, do hereby notify the Water
owner or operator

Rights Commission of the State of South Dakota and all others concerned that I am exercising my
right under SDCL 46.4, as amended for construction of a Dry Draw dam for the purpose
of storing flood waters for livestock purposes.
(storing, diverting, or both)

The following data is presented in compliance with Section 61.0138, as amended:

(1) Dates of

(a) This application 6/20/1983

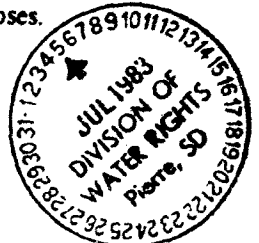
(b) Posting at construction site built in 1943

(2) Legal description of the land upon which the dam is located, SE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of
Section 33 Township 1N Range 31E. The dam is located rods
and rods of the corner of said Section
(N.S.E.W.) (N.S.E.W.) (NW,NE,SE,SW)
in the County of Jones

The owner of the land is USDA, Forest Service
Name Address

- (3) Amount of water claimed for all purposes each year 17.0 acre feet.
(4) Storage capacity of reservoir 17.0 acre feet.
(5) Surface area of reservoir 5.5 acres.
(6) Size of watershed above dam 308 acres.

(Over)



dam

Two Dollars and fifty cents (\$2.50).

Enclosed herewith is [REDACTED] The Water Rights Commission is requested to file this Location Notice in their official records.

A copy of this Location Notice has been filed (do not record) with the Register of Deeds of Jones County and has been posted at the structure site in accordance with SDCL 46-4-3, as amended.

USDA, Forest Service
Owner

by Robert E. Mountain
Locator

STATE OF SOUTH DAKOTA

County of Hughes ss.

On this 21st day of June, 1983, before me
Betty L. Adler, a Notary Public
(Notary Public or other Official having a seal)

in and for the County and State aforesaid, personally appeared Robert E. Mountain
to me personally known to be the person who executed the foregoing instrument and acknowledged
that — he executed the same for the purposes therein set forth.

Witness my hand and official seal the day and date above written.

Betty L. Adler
Name

Notary Public
Title

(SEAL)

LOCATION NOTICE-DRY DRAW

Jones
County

69854
Dry Draw No.

I, USDA, Forest Service, of
Name

Box 417
Address & Zip Code

Pierre
Town

Hughes
County

owner of the following described land, do hereby notify the Water
owner or operator

Rights Commission of the State of South Dakota and all others concerned that I am exercising my
right under SDCL 46.4, as amended for construction of a Dry Draw dam for the purpose
of storing flood waters for livestock purposes.
(storing, diverting, or both)

The following data is presented in compliance with Section 61.0138, as amended:

(1) Dates of

(a) This application 6/20/1983

(b) Posting at construction site built in 1937

(2) Legal description of the land upon which the dam is located, SE 1/4 of the NW 1/4 of
Section 34, Township 1N, Range 31E. The dam is located rods
and rods of the corner of said Section
(N.S.E.W.) (N.S.E.W.) (NW,NE,SE,SW)
in the County of Jones

The owner of the land is USDA, Forest Service
Name Address

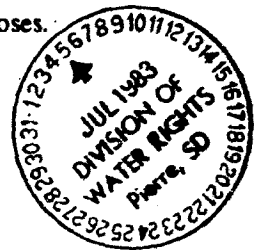
(3) Amount of water claimed for all purposes each year 21.0 acre feet.

(4) Storage capacity of reservoir 21.0 acre feet.

(5) Surface area of reservoir 8.0 acres.

(6) Size of watershed above dam 520 acres.

(Over)



dam

Two Dollars and fifty cents (\$2.50).

Enclosed herewith is [REDACTED] The Water Rights Commission is requested to file this Location Notice in their official records.

A copy of this Location Notice has been filed (do not record) with the Register of Deeds of *Jones* County and has been posted at the structure site in accordance with SDCL 46-4-3, as amended.

USDA, Forest Service
Owner

by *Robert E. Mountain*
Locator

STATE OF SOUTH DAKOTA

County of. . . *Hughes* . . . ss.

On this *21st* day of *June*, 19*83*, before me
..... *Betty L. Adler* a *Notary Public*
(Notary Public or other Official having a seal)

in and for the County and State aforesaid, personally appeared *Robert E. Mountain*
to me personally known to be the person who executed the foregoing instrument and acknowledged
that - he executed the same for the purposes therein set forth.

Witness my hand and official seal the day and date above written.

..... *Betty L. Adler*
Name

..... *Notary Public*
Title

(SEAL)

Tim Olson
Dept. of Game Fish and Parks
Foss Building
523 East Capitol Ave.
Pierre, SD 57501

April 3, 2006

Attached is one copy of approved plans and specifications for the Booth Dam located in Section 3, T1N, R31E, Jones County. The yardage is an estimate; final yardage will be available after staking the structure.

Also attached are:

- Stage - Storage curve
- Flood Routing using Sites method
- General Topographic map with scale 1 inch = 1200 ft
- Field Topographic map with scale 1 inch = 100 ft
- Cost Estimate
- Bid Form

Since minimum to no construction inspection is scheduled, it is imperative that a competent contractor be hired to construct the structure according to plans. A final checkout will be made to verify that the structure was constructed to elevations on the plans.



Dave Konechne
Konechne Engineering
104 Capitol Hill Dr.
Pierre, SD 57501

Table of Quantities & Cost Estimate

Date: Mar 26, 2006

[illegible]

BID FORM

The undersigned state at the end of this form, having reviewed the local conditions affecting the cost of the work, construction specifications, drawings, and other contract documents which shall govern the purchase of materials, labor, and the awarding of the contract, hereby purposes and agrees to do all work and provide all materials or other items per the drawing which pertains to the contract work for:

Labor and Materials associated with the repair of the USFS (Booth Dam)

BID SCHEDULE

ITEM	WORK	SPEC #	EST. QUANTITY	UNIT PRICE	UNIT	AMOUNT
1	EARTH FILL	7S	10,000		C.Y.	
2	PRINCIPAL SPILLWAY	SD-55A	xxxxxxx	xxxxxx	xxxxx	xxxxx
	-60 inch Dia. Concrete Riser 5 ft long W/30 inch Dia opening		1		Lump Sum	
	-30inch Dia. PE (dual wall)		88		Lin. Ft.	
3	Concrete	SD-12B	1.2		C.Y.	
4	Reinforcing Steel	SD-13	48		Lbs.	
5	Sand Seep Collar	SD-9	20.3		C.Y.	
6	PVC Drain Pipe	SD-55	76		Lin. Ft.	
7	Timber Pipe Support	SD-16	1		Each	
8	Timber Trash Rack	SD-16	1		Each	

The Contractor shall include all costs for Labor, Materials and applicable taxes including Excise Tax for this Proposal. The Bidder understands that the Owner reserves the right to reject any and all bids and to waive any irregularities.

BIDDER _____

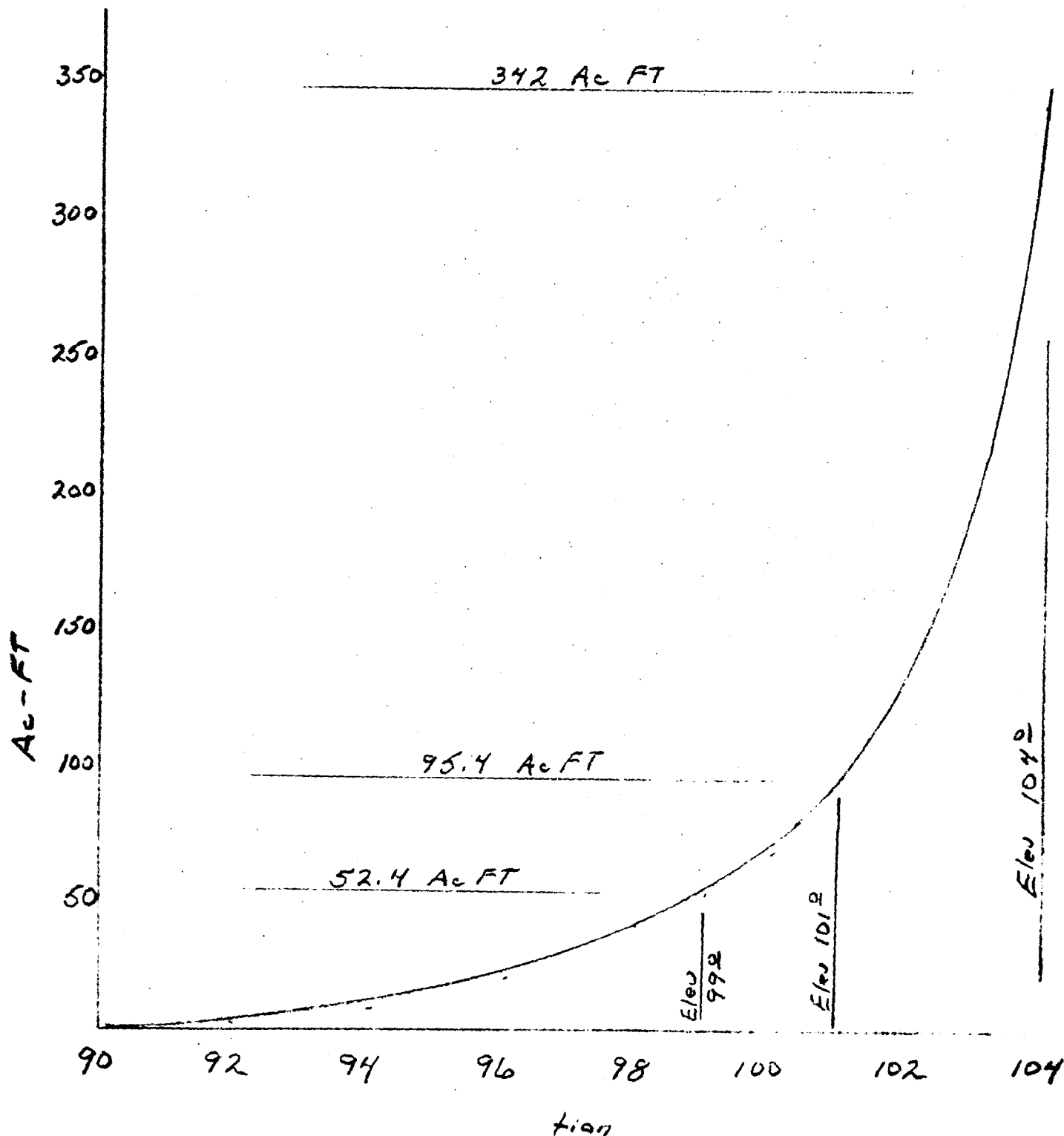
DATE _____

TELEPHONE NUMBER _____

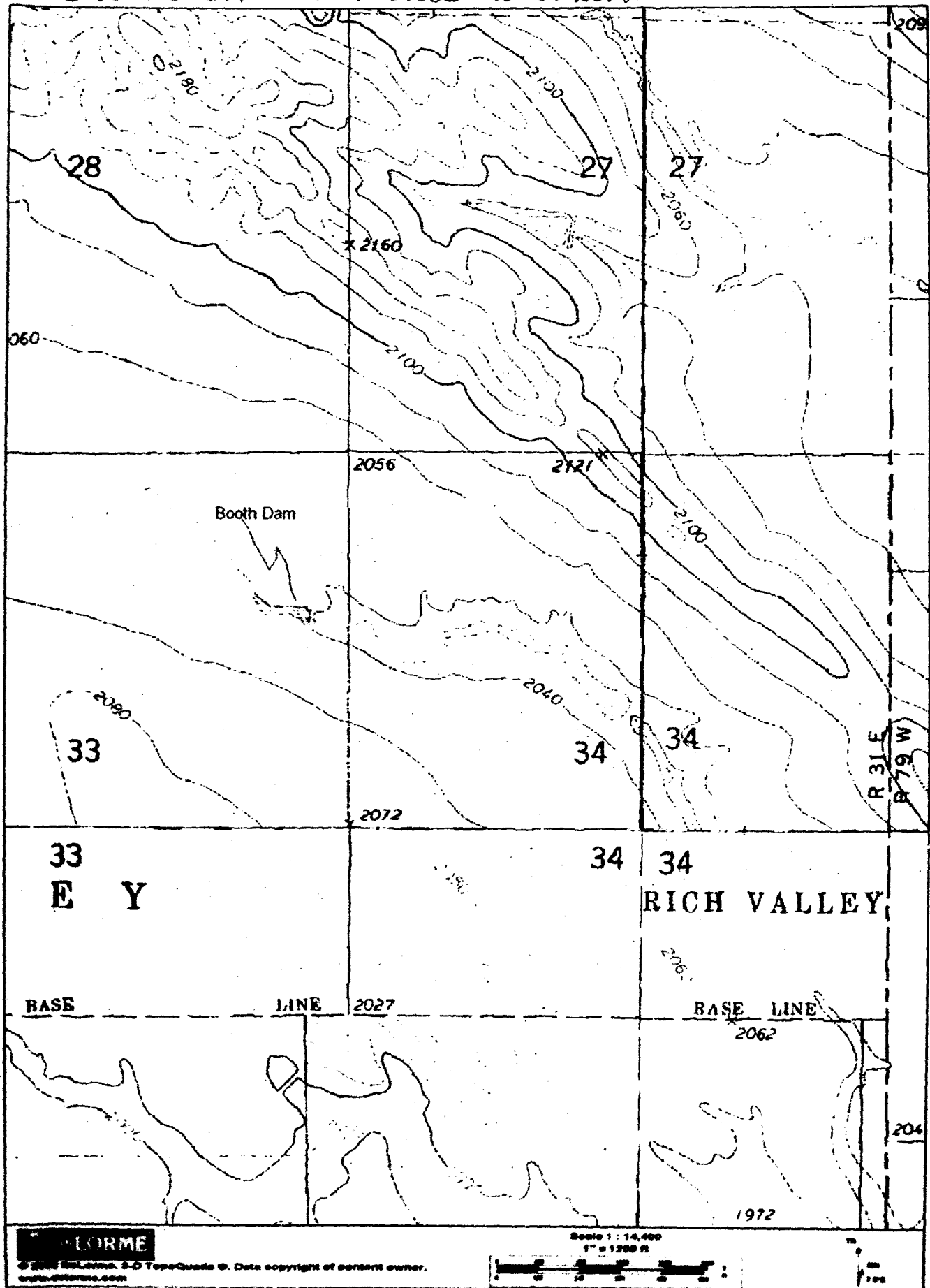
COMPUTATION SHEET

BY	DATE	PROJECT <i>USFS - Booth</i>	SHEET ____ OF ____
CHKD BY	DATE	FEATURE	
DETAILS <i>Sec 36, T1N, R31E Jones Co.</i>			

STAGE - STORAGE



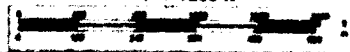
Booth Dam N 44° 0.336' W 100° 23.244'



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www.lorme.com

Scale 1 : 12,000
1" = 1200 ft



 SITES XEQ 10/31/2005 WATER RESOURCE SITE ANALYSIS COMPUTER PROGRAM
 VER 2000 (USER MANUAL - DATED MAY 2001)
 TIME 10:36:42

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

SITES 05/01/2000 Booth 3.509375 HS
 SAVMOV 0 101
 SAVMOV 101 1 1
 STRUCTURE Booth
 90 0
 92 1.7
 94 4.4
 96 7.9
 98 11.5
 100 17
 104 120
 ENDTABLE
 WSDATA 5A1 AC 80 2246 19114 .5
 PDIRECT 2.1 .00 4.20
 POOLDATA ELEV 99.0 99.0 86 88 SC
 PSINLET 1 15.7
 PSDATA 1 92 30 .009 88
 ASDATA 41 300 150 2 .05 2
 ASINSURF 41 .035
 ASINLET 41 0.0 0.0 100 0.0 3
 150 4
 ENDTABLE
 ASEXSURF 41 .035
 65 0
 3
 2 0
 .02
 ENDTABLE
 ASEXIT 41 N 200
 BTMWIDTH FEET 150 E.S.
 GRAPHICS 1
 GO,DESIGN HL TYPE2 24 TYPE2378 24
 SAVMOV 2 101 1
 ENDJOB

***** 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 10/31/2005 Booth WSID=
 VER 2000 Booth SUBW= A
 TIME 10:36:42 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
 2.10 0.00 0.00 4.20

WSDATA - CN DA-SM TC/L -/H QRF
 80.00 3.51 19114.00 0.50 0.00

SITEDATA- PERM POOL CREST PS FP SED VALLEY FL 378?
 99.00 99.00 0.00 88.00 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 92.00 30.00 0.00

 PS N KE WEIR L TW EL
 0.009 1.00 15.70 88.00

2ND STG ORF H ORF L START AUX.
 0.00 0.00 0.00 0.00

ASCRESTS - AUX.1 AUX.2 AUX.3 AUX.4 AUX.5
 0.00 0.00 0.00 0.00 0.00

AUX.DATA - REF.NO. RETARD. Ci TIE STATION INLET LENGTH
 41 0.00 300.00 150

AUX.DATA - INLET N SIDE SLOPE EXIT N EXIT SLOPE ACTUAL AUX?
 0.035 2.00 0.035 0.050 NO

BTM WIDTH - BW1 BW2 BW3 BW4 BW5
 ft 150.00 0.00 0.00 0.00

AUXILIARY SPILLWAY RATING DEVELOPED USING WSPVRT.

1SITES

XEQ 10/31/2005 Booth WSID=
 VER 2000 Booth SUBW= A
 TIME 10:36:42 SITE = S 1 PASS= 1 PART= 2

PERM POOL 99.00 FT 52.4 ACFT 14.25 AC 0.0 CFS

CREST PS 99.00 FT 52.4 ACFT 14.25 AC 0.0 CFS

SED ACCUM 99.00 FT 52.4 ACFT 14.25 AC 0.0 CFS

START ELEV 99.00 FT 52.4 ACFT 14.25 AC 0.0 CFS

NRCS-PSH D= 24.00 HR P= 2.10 IN Q= 0.62 IN DA= 3.51 SM
TC= 7.93 HR CN= 80.00 VOL= 116.9 ACFT

2 yr Annual Yield

PEAK = 149.9 CFS. AT 17.3 HRS.

ROUTED RESULT - HYD TYPE EMAX VOL-MAX AMAX QMAX
NRCS-PSH 100.75 FT 88.1 ACFT 36.36 AC 90.5 CFS

PS STORAGE 35.7 ACFT, BETWEEN AUX. CREST AND SED. ACCUM ELEVATIONS.

DRAWDOWN (DDT) TEST 99.00 FT 52.4 ACFT 0.00 CFS
CONTROL IS 0.000 DETENTION STORAGE

TIME = 2.06 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	99.00	0.00	0.00	0.00	52.38	14.25
2	99.38	11.21	11.21	0.00	57.92	15.28
3	99.75	31.71	31.71	0.00	63.86	16.32
4	100.13	58.25	58.25	0.00	70.37	20.28
FULL CONDUIT FLOW, ELEV = 100.50 FT						
5	100.50	89.68	89.68	0.00	79.81	29.95
6	100.94	91.29	91.29	0.00	95.36	41.21
7	101.38	92.82	92.82	0.00	115.83	52.46
8	101.81	94.33	94.33	0.00	141.23	63.72
9	102.25	95.81	95.81	0.00	171.54	74.98
10	102.69	97.27	97.27	0.00	206.78	86.23
11	103.13	98.70	98.70	0.00	246.93	97.49
12	103.56	100.12	100.12	0.00	292.01	108.74
13	104.00	101.52	101.52	0.00	342.00	120.00

1SITES

XEQ 10/31/2005

VER 2000

TIME 10:36:42

Booth

Booth

SITE = S 1

WSID=

SUBW= A

PASS= 1 PART= 3

AUX. CREST 100.75 FT 88.1 ACFT 36.36 AC 90.5 CFS

PS STORAGE 35.7 ACFT, BETWEEN AUX. CREST AND SED. ACCUM ELEVATIONS.

START ELEV 99.00 FT 52.4 ACFT 14.25 AC 0.0 CFS

EFFECTIVE HEIGHT(H)= 14.8 FEET, PRODUCT= 1299. (H * STORAGE AT CREST AUX.).

INPUT DESIGN CLASS = A1 = LT 3000. PRODUCT.

NRCS-FBH D= 24.00 HR P= 4.20 IN Q= 2.21 IN DA= 3.51 SM
TC= 7.93 HR CN= 80.00 VOL= 413.3 ACFT

25-yr

PEAK = 570.4 CFS, AT 17.3 HRS.

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	99.00	0.00	0.00	0.00	52.38	14.25
2	99.38	11.21	11.21	0.00	57.92	15.28
3	99.75	31.71	31.71	0.00	63.86	16.32
4	100.13	58.25	58.25	0.00	70.37	20.28
FULL CONDUIT FLOW, ELEV = 100.50 FT						
5	100.50	89.68	89.68	0.00	79.81	29.95
6	100.53	89.85	89.85	0.00	80.75	30.75
7	100.57	89.96	89.96	0.00	81.72	31.55
8	100.60	90.07	90.07	0.00	82.72	32.35
9	100.63	90.18	90.18	0.00	83.73	33.16
10	100.66	90.30	90.30	0.00	84.78	33.96
11	100.69	90.41	90.41	0.00	85.85	34.76
12	100.72	90.52	90.52	0.00	86.94	35.56
13	100.75	90.63	90.63	0.00	88.06	36.36
14	100.91	104.65	91.20	13.44	94.30	40.54
15	101.08	118.32	91.77	26.55	101.23	44.72
16	101.37	186.07	92.80	93.27	115.40	52.25
17	101.73	323.08	94.03	229.06	135.71	61.45
18	102.38	718.97	96.23	622.74	181.07	78.18
19	103.19	1378.04	98.91	1279.13	253.04	99.09
20	104.00	2212.88	101.52	2111.37	342.00	120.00

SUMMARY OF AUXILIARY SPILLWAY SURFACE CONDITIONS USED IN COMPUTATIONS BY REACH

REACH	FROM	TO	SLOPE	RETARDANCE	VEGETAL	MAINT.	ROOTING	REACH
	STA	STA	CURVE	COVER	CODE	DEPTH	LOCATION	
	(ft)	(ft)	(%)	INDEX@	FACTOR	(ft)	*	
1	150.	200.	-8.0	0.035	**	**	**	INLET

```

2 200 300 0 0 0.035 ** ** ** CREST
3 300 500 5 0 0.035 0.65 3 2.0 EXIT !

```

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

* Upper case indicates a reach of constructed spillway channel.

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

! Reach 3 used in computing exit channel velocities.

DRAWDOWN USING FREEBOARD STORM FOLLOWS, STARTING AT ELEVATION 100.75 FT.

DRAWDOWN (DDT) TEST 99.00 FT 52.4 ACFT 0.00 CFS
CONTROL IS 0.000 DETENTION STORAGE

TIME = 1.88 DAYS TO 0.0 CFS (LIMIT = 10.00 DAYS)

ROUTED RESULTS	BTM WIDTH FT	MAX ELEV ACFT	VOL-MAX AC	AREA-MAX FT ACFT	AUX.-HP	VOL-AUX.
NRCS-FBH	150.0	102.01	154.1	68.7	1.26	66.1

PEAK - CFS Q-PS Q-AUX. Q-TOT.
DISCHARGE = 95.0 388.9 483.9

	CRITICAL DEPTH FT	CRITICAL VELOCITY FT/SEC	CRITICAL SLOPE-Sc FT/FT	25% OF Q Sc FT/FT
AUXILIARY SPILLWAY —	0.59	4.35	0.021	0.029

EFFECTIVE STRESS FOR STABILITY ANALYSIS OF AUX. EXIT CHANNEL
(Refer to Ag. Handbook 667, Chapt. 3, for allowable stresses.)

Aux. Discharge = 389. cfs; Bottom Width = 150. ft

REACH NO.	FROM STA	TO STA	SLOPE %	MANNING'S n	VELOCITY ft/s	STRESS lb/ft^2
3	300	500	5.00	0.035	5.62	0.871

AUXILIARY SPILLWAY DURATION FLOW = 17.3 HOURS
ATTACK. OE/B = 1.5 ACFT/FT

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

EXIT CHANNEL FLOW SUPERCRITICAL: MAX VELOCITY= 5.6 FT/SEC
EXIT SLOPE = 0.050 FT/FT
FLOW DEPTH = 0.5 FT

>>>>> NHCP378 RUN - MINIMUM FLOW IN AUX. SPILLWAY FROM TR60
USING FORMULA WITHOUT 200 CFS MINIMUM LIMIT (440. CFS)

ROUTED RESULTS	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	AUX.-HP FT	VOL-AUX. ACFT
MIN. AUX.	150.0	102.09	160.0	70.9	1.34	72.0

PEAK - CFS Q-PS Q-AUX Q-TOT
DISCHARGE = 95.3 440.1 535.4

CRITICAL CRITICAL CRITICAL 25% OF Q
DEPTH VELOCITY SLOPE-Sc Sc
AUXILIARY FT FT/SEC FT/FT FT/FT
SPILLWAY — 0.64 4.53 0.021 0.028

>>>>> NHCP378 RUN - MINIMUM DEPTH, CREST AUX. TO TOP OF DAM IS 2 00 FT.
NEW TOP OF DAM ELEVATION = 102.75.

ROUTED RESULTS	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	AUX.HP FT	VOL-AUX. ACFT
MINIMUM AUX.	150.0	102.75	214.4	88.5	2.02	126.3

PEAK - CFS Q-PS Q-AUX Q-TOT
DISCHARGES = 97.6 926.5 1024.1

CRITICAL CRITICAL CRITICAL 25% OF Q
DEPTH VELOCITY SLOPE-Sc Sc
AUXILIARY FT FT/SEC FT/FT FT/FT
SPILLWAY — 1.05 5.78 0.018 0.024

>>>>> NHCP378 RUN - MINIMUM DEPTH, DESIGN FLOW TO TOP OF DAM; 1.00 FT REQUIRED
FOR THIS PASS. NEW TOP OF DAM ELEVATION = 103.01.

ROUTED RESULTS	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	AUX.HP FT	VOL-AUX. ACFT
MINIMUM AUX.	150.0	103.01	237.2	94.9	2.27	149.2

PEAK - CFS Q-PS Q-AUX Q-TOT
DISCHARGES = 98.4 1134.7 1233.1

CRITICAL CRITICAL CRITICAL 25% OF Q
DEPTH VELOCITY SLOPE-Sc Sc
AUXILIARY FT FT/SEC FT/FT FT/FT
SPILLWAY — 1.20 6.18 0.017 0.023

INFLOW HYD 1 PSH-PEAK = 90.54 CFS AT 21.57 HRS, LOCATION POINT

INFLOW HYD 1 FBH-PEAK = 483.93 CFS AT 19.17 HRS, LOCATION POINT
HYDOUT 1

1SITES . JOB NO 1 COMPLETE

Booth

0 SUBWATERSHED(S) ANALYZED.

1 STRUCTURE(S) ANALYZED.

2 HYDROGRAPHS ROUTED AT LOWEST SITE.

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

SITES.....COMPUTATIONS COMPLETE

>>> SITE SUBWS SUBWS DA CURVE TC TOTAL DA TYPE STRUC <<<									
ID	ID	(SQ MI)	NO.	(HRS)	(SQ MI)	DESIGN	CLASS		
S	1	A	3.51	80.	7.93	3.51	378CR	A1	

PASS	DIA/	AUX.CREST	BTM.	MAX.	MAX.	EMB.	INTEGR.*	EXIT*	TYPE
NO.	WIDTH	ELEV	WIDTH	HP	ELEV	VOL.	DIST.	VEL.	HYD
(IN/FT)	(FT)	(FT)	(FT)	(FT)	(CY)	(FT)	(FT/SEC)		
1	30.0	100.8	150.0	2.3	103.0	0.	0.	5.6	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:\data\Engineering\sites\booth\30pipe.D2C

OUTPUT - DATED 10/31/2005 10:36:42
C:\data\Engineering\sites\booth\30pipe.OUT

GRAPHICS FILES GENERATED

OPTION "L" DATED 10/31/2005 10:36:42
C:\data\Engineering\sites\booth\30pipe.DRG

OPTION "P" DATED 10/31/2005 10:36:42

P&S Review 6/12/06 TGS

Water Permit Application No. 2590-2
US Forest Service
Ft. Piute National Grasslands

Top of Dam Elev. - 104 } Cat. 3 - Low Hazard Dam
2nd Spillway Elev. - 191
P. Spillway Elev. - 99 } Ht. = 14.8 ft
Dis Emb. Toe Elev. - 89.2

Normal Storage Capacity - 52.4 A.-ft
Int Storage Capacity - 95.4
Max Storage Capacity - 342

Int. Capacity x Est Ht = $95.4 \times 12 = 1145 \pm 3000 \therefore 25\text{yr.}$
Minimum Spillway Design

From USGS WRI 98-4055 "Tech. for Est. Peak Flows ... in SD"
Region C

$$DA = 2246 \text{ A.} = 3.51 \text{ mi.}^2$$

$$Q_{100} = 207 CA^{.573} \\ = 207(3.51)^{.573} \\ = \underline{425 \text{ cfs}}$$

$$Q_{100} = 379 CA^{.566} \\ = 379(3.51)^{.566} \\ = \underline{771 \text{ cfs}}$$

Secondary Spillway Capacity

$$Q = C L H^{3/2} \quad C = 2.6 \\ = 2.6(150)^{3/2} \quad L = 150 \\ = \underline{2025 \text{ cfs}} \quad H = 3$$

Section 74: 02:08:09

1. Top 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 = 2246 CN = 80 ISO 2

$$80\% \text{ chance} = 0.26 \\ 0.26 \times 2246/12 = \underline{48 \text{ A.-ft}}$$

$$50\% \text{ chance} = 0.60 \\ 0.60 \times 2246/12 = \underline{112 \text{ A.-ft}}$$

$$10\% \text{ chance} = 2.5 \\ 2.5 \times 2246/12 = \underline{468 \text{ A.-ft}}$$



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

June 23, 2006

Acting District Ranger
Ft. Pierre National Grasslands
2010 North Deadwood St.
Ft. Pierre, SD 57532

Dear District Ranger:

We have reviewed the plans and specifications for your dam project (Booth Dam) located in the SE ¼ NE¼ of Sec. 33-T1N-R31W, in Jones County. The plans and specifications for the construction of your dam are approved. Approval of the plans and specifications does not authorize construction of the dam. The construction of the dam may not begin until Water Permit No. 2590-2 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 Booth Dam will be classified as a small size Category 3, Low Hazard dam with a dam height of 15 ft. and a normal storage capacity of 52.4 acre-feet and a maximum storage capacity of 342 acre-feet.

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

Sincerely,

Timothy G. Schaal, P.E.
Natural Resources Engineer Specialist
for Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

c: Tim Olson, GF&P
Dave Konechne

REPORT ON
WATER PERMIT APPLICATION No. 2590-2
US Forest Service
Ft. Pierre National Grasslands
June 21, 2006

Water Permit Application No. 2590-2 has been filed by the US Forest Service, Ft. Pierre National Grasslands to impound 52.4 acre-feet of water by reconstructing a dam located in the SE ¼ NE ¼ of Section 33-T1N-R31W, in Jones County. The application also requests impoundment of sufficient water to maintain water at the outlet elevation. The water will be used for recreation, fish and wildlife production and livestock watering purposes.

Discussion:

The dam will be classified as a small size, Category 3, Low Hazard dam. Konechne Engineering 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. 2590-2 is approved.

The dam will be 15 feet high with a normal storage capacity of 52.4 acre-feet with a reservoir level at the primary spillway elevation, and a maximum storage capacity of 342 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 2246 acres or 3.51 square miles. The dam is designed to have a 60 inch diameter concrete drop inlet structure with a 30 inch barrel as the primary spillway and a 150 foot wide earthcut spillway. A 25 year frequency event produces a peak runoff of approximately 425 cfs and a 100 year frequency event produces a peak runoff of approximately 771 cfs. The earthcut secondary spillway will have a capacity of approximately 2000 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 48 acre-feet. The annual yield with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be 112 acre-feet and the annual yield with a 10 percent chance, or 1 out of 10 years, is expected to be 468 acre-feet.

Booth Dam is located in the SE ¼ NE ¼ of Section 33-T1N-R31W on an unnamed tributary to the North Fork of the Medicine Creek about 3.0 miles upstream of the confluence of the unnamed tributary and the North Fork of Medicine Creek. In 1983, the US Forest Service filed Location Notice No. 69854 to store 17 acre-feet of water in Booth Dam and Location Notice No. 69854 to store 21 acre-feet of water in a dam, which is about one-half mile downstream of Booth Dam, located in the NW ¼ of Sec. 34-T1N-R31E. Since Booth Dam has been breached for a period of about 10 years, Location Notice No. 69854 is no longer valid and the storage will now be covered by Water Permit No. 2590-2. Interference with the downstream dam does not seem to be a problem with the US Forest Service and on some years there should be enough runoff from the upstream watershed for both dams. There are no other existing Water Permits/Rights located on the unnamed tributary between the proposed dam and the North Fork of Medicine Creek.

Conclusions:

1. Water Permit Application No. 2590-2 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. 2590-2.


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



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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PIERRE, SOUTH DAKOTA 57501-3182
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**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 2590-2, US Forest Service**

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. 2590-2, US Forest Service, Ft. Pierre National Grassland, c/o Tonya K. Weisbeck, 2010 North Deadwood Street, Ft. Pierre SD 57532.

The Chief Engineer is recommending APPROVAL of Application No. 2590-2 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. 2590-2 authorizes a dam with a storage capacity of 52.4 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.

See report on application for additional information.

Garland Erbele, Chief Engineer
June 23, 2006

**Notice of Application
No. 2590-2 to
Appropriate Water**

PUBLISHER'S AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA

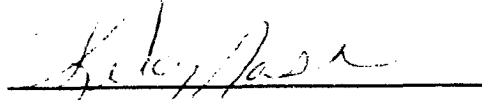
ISS

COUNTY OF JONES

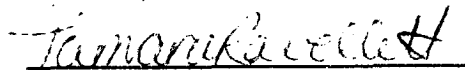
Kevin Nash of said County and State, being duly sworn, on oath says THE MURDO COYOTE is a weekly newspaper of general circulation, printed and published in MURDO in said County and State and has been such newspaper during the times hereinafter mentioned, that the said THE MURDO COYOTE is a legal newspaper and has been in existence for more than one year immediately preceding the first publication herein mentioned; and has more than 200 bonified subscribers; that I, the undersigned am Editor 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. 2590-2 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 29th day of June 2005, and the last publication on the 6th day of July 2005, that \$ 45.36 being the full amount of the fee for publication of the annexed notice 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



Subscribed and sworn to before me this 6th day of July 2005


Notary Public, State of South Dakota
My Commission Expires

Notice is given that the Ft. Pierre National Grassland 2010 N. Deadwood St. Ft. Pierre, SD 57532 has filed an application for a water permit to impound 52.40 acre-feet of water from runoff on a tributary to North Fork Medicine Creek by reconstructing Booth Dam located in the SE 1/4 NE 1/4 Section 33 with water impounded in the S 1/2 NE 1/4 Section 33; all in T1N-R31E. This application requests impoundment of sufficient water to maintain water to the outlet elevation. The water is for fish and wildlife propagation, recreation and livestock water purposes.

Pursuant to SDCL 46-2A-2, the chief engineer recommends APPROVAL of Application No. 2590-2 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 July 17, 2006.

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. Pinner,
Secretary, Department of Environment
and Natural Resources

(Publish June 29 & July 6, 2006)

RECEIVED

JUL 11 2006

WATER RIGHTS
PROGRAM

Instruction to Newspaper - Publish first Notice on June 29, 2006 with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 2590-2 to Appropriate Water

Notice is given that the Ft. Pierre National Grassland, 2010 N Deadwood St. Ft. Pierre SD 57532 has filed an application for a water permit to impound 52-40 acre-feet of water from runoff in a tributary to North Fork Medicine Creek by reconstructing Booth Dam, located in the SE 1/4 NE 1/4 Section 33 with water impounded in the S 1/2 NE 1/4 Section 33, all in T1N-R31E. This application requests impoundment of sufficient water to maintain water to the outlet elevation. The water is for fish and wildlife propagation, recreation, and livestock water purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 2590-2 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 July 17, 2006.

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



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

June 23, 2006

Murdo Coyote
PO Box 465
Murdo SD 57559-0465

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application No. 2590-2 to Appropriate Water to be published twice. Please publish the first notice on June 29, 2006 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 Ft Pierre, National Grassland, %Tonya K Weisbeck, 2010 N Deadwood St, Ft Pierre SD (Ph # 605-224-5517).

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. 2590-2

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

Date _____

We are in receipt of your letter of June 23, 2006 enclosing Notice to Appropriate Water by Application No. 2590-2 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name

Newspaper



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

www.state.sd.us/denr

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

June 23, 2006

Ft Pierre National Grassland
% Tonya K Weisbeck
2010 North Deadwood St
Ft Pierre SD 57532

Dear Ms. Weisbeck:

Water Permit Application No. 2590-2 for fish & wildlife propagation, recreation and livestock water 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 Murdo Coyote printed at Murdo, SD (Ph # 605-669-2271). 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.



AUG 17 2008

**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

Ft Pierre National Grassland
•• Tonya K Weisbeck
2010 North Deadwood Street
Ft Pierre SD 57532

Dear Ms Weisbeck:

Enclosed is Water Permit No. 2590-2 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. 2590-2
Bad 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, October 8, 2008, made a thorough examination of the water use system constructed by Ft. Pierre National Grasslands of 1014 N. Deadwood St., Ft. Pierre, SD 57523 holder of Permit No. 2590-2, bearing the priority of June 2, 2006 authorizing the storage of 52.4 acre-feet of the waters of runoff-trib. to North Fork Medicine Creek for fish & wildlife production, recreation, and livestock watering purposes, in Jones County.

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

A. Works used to divert the water:

A 14.8 ft. high earthen dam with a normal storage capacity of 52.4 acre-feet of water.

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

N/A

C. Works used to apply water to beneficial use:

A 14.8 ft. high earthen dam with a normal storage capacity of 52.4 acre-feet of water.

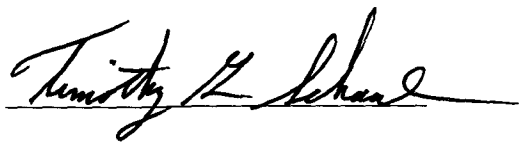
The system is in the following condition good. The point of diversion is located 1600 ft. south & 300 ft. west of the NE corner of Sec. 33-T1N-R31E (SE ¼ NE ¼) (Lat. 44.005208, Long. -100.387111). The works are capable of storing 52.4 acre-feet of water which is to be used for fish & wildlife production, recreation, and livestock watering. Water has been put to beneficial use to the maximum extent as follows:

A 14.8 ft. high earthen dam with a normal storage capacity of 52.4 acre-feet of water.

and the license should be issued for 52.4 acre-feet of storage.

Applicable permit qualifications have been complied with: Yes X

Exceptions to compliance are: none Date Report Completed: July 15, 2009



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

REPORT ON INSPECTION OF PERMIT NO. 2590-2

DATE OF INSPECTION: **October 8, 2008**

NAME & ADDRESS OF PERMIT HOLDER: **Ft. Pierre National Grasslands, 1020 N. Deadwood St.,
Ft. Pierre, SD 57523**

DIVERSION POINT LEGAL LOCATION: **1600 ft. south & 300 ft. west of the NE corner of
Sec. 33-T1N-R31E (SE ¼ NE ¼) (Lat. 44.005208, Long. -100.387111).**

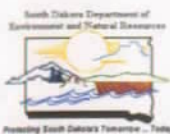
DAM INFORMATION:

- 1) Height to crest **14.8** feet
- 2) Height to primary spillway **9.8** feet
- 3) Height to secondary spillway **11.8** feet
- 4) Crest width **12** feet
- 5) Crest length **688** feet
- 6) Spillway length **xxx** feet
- 7) Spillway width **150** feet
- 8) Approx. storage (Normal) **52.4** acre-feet
- 9) Approx. storage (Maximum) **342** acre-feet
- 10) Date constructed: **2007**

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 No. 2590-2



Timothy G. Schaal 7/15/09

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



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AUG 14 2009

2590-2

Tonya Weisbeck
Ft Pierre National Grassland
2010 N Deadwood St
Ft Pierre SD 57532

Dear Ms. Weisbeck:

Enclosed is Water License No. 2590-2 authorizing storage of water in Booth Dam in Jones County. Water License No. 2590-2 is the final document which completes the process of obtaining a water right. Also included with the license is a map prepared by the staff engineer who conducted the field investigation.

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. 2590-2

(1) The Ft. Pierre National Grassland, 2010 N Deadwood St, Ft Pierre SD 57532 made Application No. 2590-2, June 2, 2006 for a water permit to impound 52.4 acre feet of runoff water on a tributary to North Fork Medicine Creek by reconstructing Booth Dam in Jones County, South Dakota. The water would be impounded for fish and wildlife propagation, recreation and livestock water use. Permit No. 2590-2, with a priority date of June 2, 2006 was approved July 17, 2006 and issued to the applicant for impoundment of water with construction of the described storage dam to be completed on or before July 17, 2011 and the application to beneficial use of water on or before July 17, 2015.

(2) The impoundment 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 Ft. Pierre National Grassland, 2010 N Deadwood St, Ft Pierre SD 57532 the holder and/or owner of Water Right No. 2590-2 is issued a license, bearing a priority date of June 2, 2006 to impound 52.4 acre feet in Booth Dam from runoff water on a tributary to North Fork Medicine Creek for fish and wildlife propagation, recreation and livestock water use.

The 14.8 high earthen dam is located (spillway):

- 1,600 feet south and 300 feet west of the NE corner of Section 33, T1N, R31E (SE ¼ NE ¼).

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 2590-2 including the following qualifications:

- Water Right No. 2590-2 authorizes a dam with a storage capacity of 52.4 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

Garland Erbele, Chief Engineer

Water Rights Program

Department of Environment and Natural Resources

AUG 14 2009

date

