

WATER PERMIT NO. 5855-3

Phone: 303 236-5321

Name of Applicant: U.S. Fish & Wildlife Service

Post Office Address: PO Box 25486, Denver Federal Center, Denver CO

Amount of Water Claimed: 103.5 AF Total Acres: NA

Source of Water Supply: runoff - unnamed trib

Water to be used for: fish & wildlife propagation County: Brookings

Location: 7 miles west of Volga

PRIORITY Date Received: 3-13-95 Fee: \$150.00

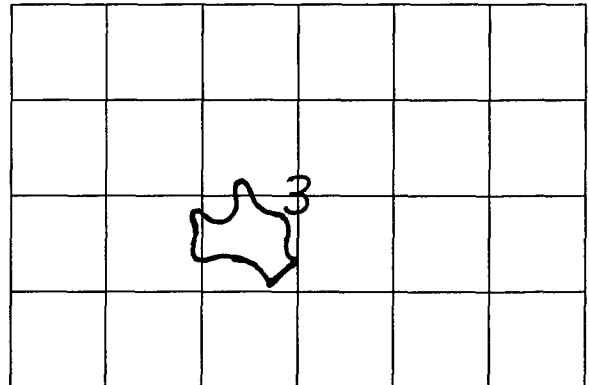
Corrected Application Received: 3-14-95 Period of Annual Use: Jan 1 - Dec 31

Remarks: _____

Diversion Point: NE 1/4 SW 1/4 Sec 3-T110N-R52W

Water Impounded: SE 1/4 NW 1/4 & N 1/2 SW 1/4

Sec 3-T110N-R52W



Well Log: Driller: _____ Licensed: YES ____ NO ____

Depth of Well: _____ REMARKS: _____

Type of Map: topo Prepared By: Albert E. Davilacqua Reviewed and the Number

Assigned on: 3-14-95 By: Karen Schlaak

FORM 2: Application for uses other than irrigation

(type or print)

DRY LAKE WPA

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

No. 5855-3 Hydrologic Unit 10170201
Basin Big Sioux River
Newspaper Brookings Daily Register, P.O. Box 177
(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 _____
(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.) _____

- Name of Applicant UNITED STATES OF AMERICA Phone (303) 236-5321
Fish and Wildlife Service
Mailing Address P.O. Box 25486, Denver Federal Center, Denver, State CO 80225
(Street, RR, or Box) (City) (Zip Code)
- Amount of water claimed _____ *CFS or _____ **GPM 103.5 ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)
- Source of water supply Unnamed Trib.
- Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) _____
NE SW Section 3, T110N R52W Water Impounded: SE 1/4 NW 1/4
N 1/2 SW 1/4 Sec 3 - T110N - R52W County Brookings
- County or counties where water will be used Brookings
- Annual period during which water is to be used January 1 - December 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)

See Attached Design Report

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~~ COLORADO
County of Jefferson)^{ss}
/s/ WILBUR N. LADD JR.

I, _____, 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.

ACTING

Signed

[Signature]
REGIONAL DIRECTOR

Subscribed and sworn to before me this 27th day of February 19 95

[Signature]
Notary Public

My Commission Expires Aug. 5, 1997

**SOUTH DAKOTA
WATER PERMIT NO. 5855-3**

Date of first receipt of application March 13, 1995.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 5855-3 to U. S. Fish and Wildlife Service, PO Box 25486, Denver Federal Center, Denver CO 80225 authorizing the construction of the water use system and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 5855-3 appropriates 103.5 acre-feet of water annually by constructing a dam on an unnamed tributary located in the NE 1/4 SW 1/4 Section 3 with water impounded in a portion of the SE 1/4 NW 1/4, N 1/2 SW 1/4 Section 3; all in T110N-R52W. The dam will impound 49.5 acre-feet of water with an additional 54.0 acre-feet to be appropriated to offset evaporation and maintain a pool elevation of 1736.0 feet mean sea level.
2. The water appropriated shall be used for the purpose of providing habitat for fish and wildlife propagation 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. 5855-3 is May 8, 1995.
5. The date from which applicant may claim right is March 13, 1995.
6. One-fifth of the construction is to be completed on or before November 8, 1997.
7. All construction is to be completed on or before May 8, 2000.
8. Water is to be put to beneficial use on or before May 8, 2004.
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. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.
2. Water Permit No. 5855-3 authorizes a dam with a storage capacity of 49.5 acre-feet of water and sufficient water annually (up to 103.5 acre-feet of water annually) to maintain the water level to the outlet elevation of 1736.0 feet mean sea level.

WATER MANAGEMENT BOARD

By: _____

John Hatch
John Hatch, Chief Engineer
Water Rights Division
Department of Environment and Natural Resources

JUL 11 1995

date

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. Dugout Information

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

3. 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:

Ducks Unlimited, Inc.

Great Plains Regional Office

3502 Franklin Ave.

Bismarck, ND 58501-0761

b) Freeboard 4'

c) Crest Width 12'

Crest Length 454'

d) Height 10' at 1740.0 msl

e) Primary Outlet Capacity 49.5 AF

If pipe, diameter 36" CMP

f) Secondary Spillway Capacity 91.8 AF @ 1738.0

Spillway Width 40'

g) X & Y Slope

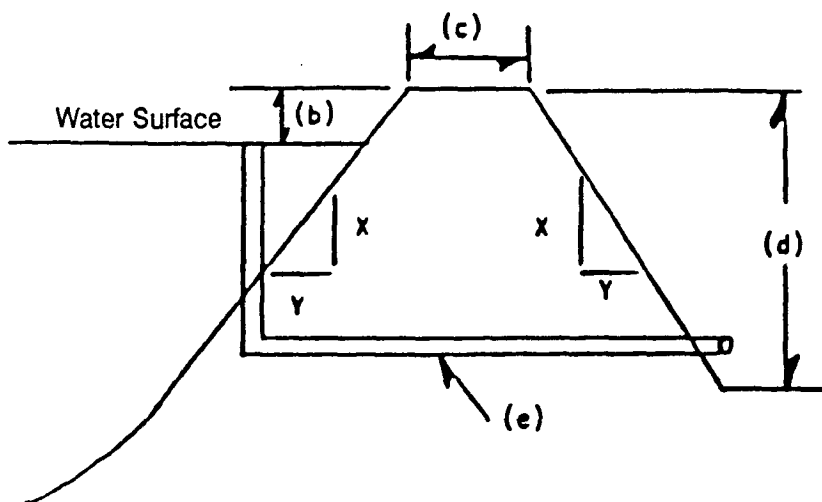
Upstream 3:1

Downstream 3:1

h) Surface Area of Impoundment 17.6 acres

i) Storage 49.5 Acre Feet
@ 1736.0

j) Drainage Area above Dam 625 Acres



Water Permit Application No. 5855-3
 U.S. Fish & Wildlife Service
 Ducks Unlimited Project
 Bullis Wetland

Top of Dam Elev. - 1740 msl, 32.6 Acres
 150.5 Ac-Ft.

Cat. 3, Low Hazard Dam

2nd Spillway Elev. - 1738 msl, 25.6 Acres
 91.8 Ac-Ft.

DA = 625 acres = 0.98 mi.²

Height = 10 feet

Primary Spillway Elev. - 1736 msl, 17.6 Acres
 49.5 Ac-Ft.

Int. Storage (91.8 Ac-Ft) x Eff. Ht. (8 ft.) = 735 < 3000 ∴ 25-year event
Minimum Spillway Design

D.A = 625 Ac = 0.98 mi.²

From USGS WRI 80-80

Slope = 30 ft./mile

SI = 3.16

$Q_{25} = 83.4 A^{.6} S^{.44} SI^{-.72}$

$Q_{100} = 132 A^{.65} S^{.46} SI^{-.67}$

$= 83.4 (98)^{.6} 30^{.44} 3.16^{-.72}$

$= 132 (98)^{.65} 30^{.46} 3.16^{-.67}$

$= 83.4 (98)(4.46)(0.44)$

$= (130.28)(4.78)(0.46)$

$= \underline{160 \text{ cfs}}$

$= \underline{289 \text{ cfs}}$

40 ft. wide 2nd Spillway w/ 2 ft. Head $Q = C L H^{3/2}$
 $= 2.6 (40 \times 2)^{1.5}$
 $= \underline{294 \text{ cfs}}$

Ducks Unlimited uses SCS TR-20 to route Q_{25} peak = 166 cfs through the dam with Max. Surface Elev. = 1737.95 leaving 2.05 ft. of freeboard and Q_{100} peak = 306 cfs through the dam with Max. Surface Elev. = 1739.04 leaving 0.96 ft. of freeboard.

Section 74:02:08:09

SCS Annual Yield

1. Topo Map - OK
2. Dam Ax.'s Profile - OK
3. Max. X-Sec. - OK
4. Area Capacity Data - OK
5. Outlet Drawings - OK
6. Spillway Rating Curve - OK
7. Spillway Details - OK
8. Specs. - Std. - OK
9. EPP - N/A - OK

Assume CN = 74
 Use Isoqram No. 2 1/2

50% chance - 0.41 Ac-In/Acre
 $0.41 \times 625 = 256 \text{ Ac-In}$
 $= \underline{21 \text{ Ac-Ft.}}$

10% chance - 2.0 Ac-In/Acre
 $2.0 \times 625 = 1250 \text{ Ac-In}$
 $= \underline{104 \text{ Ac-Ft.}}$

Lake Goldsmith DA = Approx 20 mi.²

DESIGN REPORT

December 15, 1994



PROJECT: DRY LAKE WPA - BULLIS WETLAND
SD-164-001

LOCATION: Section 3, T 110 N, R 52 W
1 mile south, 4 miles east of Arlington
Brookings County, South Dakota

MARSH DATA: Full Service Level (FSL) @ 1736.0
17.6 Surface Acres @ FSL
49.5 Acre-Feet Capacity @ FSL

Emergency Spillway Crest @ 1738.0
25.6 Surface Acres @ E.S. Crest
91.8 Acre-Feet Capacity @ E.S. Crest

Top of Compacted Embankment @ 1740.0
32.6 Surface Acres @ Top of Dam
150.5 Acre-Feet Capacity @ Top of Dam

PROJECT DESCRIPTION:

The project as proposed involves the construction of a small dam located on Federal land managed by the U.S. Fish & Wildlife Service. No other private or public land will be affected by the project. The proposed embankment is on an unnamed drainage that discharges into another unnamed drainage, which discharges into Lake Goldsmith and eventually into the Big Sioux River. The contributing watershed consists of approximately 625 acres or 0.98 square miles.

PRELIMINARY RISK ASSESSMENT:

The project site is located in a rural area of Brookings County. No residences or other buildings are located directly downstream adjacent to the outlet channel. Upon leaving the outlet structure, flows will follow an improved channel through a private, farmed wetland basin for approximately one-half mile, just as they do now.

A gravel section line road with a 48" diameter corrugated metal pipe (CMP) exists approximately 3400 feet downstream from the proposed embankment. The drainage then enters a large wetland basin that is also on Federal land. Flows from the larger basin exit via another unnamed drainage.

Based on information obtained in the field, data present on the U.S.G.S. quadrangular maps, and the relative small size and capacity of the created marsh, the general public would be in no danger in the unlikely event of a dam failure. No loss of life and minimal or no economic loss would be expected. Therefore, per the classification criteria outlined in Chapter 74:02:08 "Safety of Dams," it is recommended that the proposed dam be classified as a low hazard, small, Category 3 dam.

The product of the intermediate storage capacity (91.8 acre-feet) times the effective height (8 feet) is 735 which is less than 3000. Therefore, the minimum spillway design flood is a 25-year frequency per 74:02:08:07.01 and must be passed through the spillway without overtopping the embankment.

DESIGN:

As designed, the primary spillway will pass flows produced by a 25-year, 24-hour rainfall without using the emergency spillway. In addition, the primary and emergency spillways will pass flows in excess of those produced by a 100-year, 24-hour rainfall event without overtopping the embankment.

A 60" diameter CMP overflow riser with a 36" diameter CMP outlet barrel is proposed as the primary spillway. The structure will have removable stoplogs to provide variable control and drawdown capability. The riser overflow crest elevation or full service level (FSL) is proposed at elevation 1736.0. A 40 foot wide emergency spillway with the level crest at elevation 1738.0 will assist in passing high flows.

Regression equations provided in *Techniques for Estimating Flood Peaks, Volumes, and Hydrographs on Small Streams in South Dakota*¹ were used to develop flood peaks for design purposes. The Soil Conservation Service (SCS) TR-20 Hydrology program was then calibrated by adjusting the curve number to produce a peak inflow for the various design events similar to those determined using the regression equations. The curve numbers were reviewed to ensure they were realistic for the runoff event. The calibrated TR-20 model was then used to determine the discharge at various reservoir stages with respect to time. The program uses accepted procedures to develop inflow and outflow hydrographs. The primary spillway capacity was calculated by comparing discharges developed by the weir flow formula and formulas for calculating head loss through corrugated metal pipe. The emergency spillway capacity was calculated using Technical Release No. 39 *Hydraulics of Broad-Crested Spillways* developed by the SCS. A total discharge curve for the proposed dam is attached.

The following is a relationship between peak inflows, corresponding outflows, and reservoir elevations using the previously-mentioned methods of analysis:

<u>EVENT</u>	<u>PEAK INFLOWS</u>	<u>MAXIMUM WATER SURFACE ELEVATION</u>	<u>FREEBOARD AVAILABLE</u>	<u>TOTAL DISCHARGE</u>
5 YR	66 CFS	1736.85	3.15 FT	40 CFS
10 YR	106 CFS	1737.19	2.81 FT	63 CFS
25 YR	166 CFS	1737.95	2.05 FT	74 CFS
50 YR	233 CFS	1738.59	1.41 FT	110 CFS
100 YR	306 CFS	1739.04	0.96 FT	168 CFS

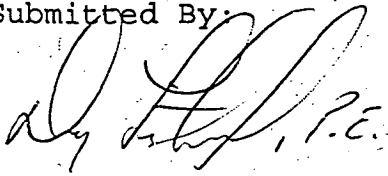
Primary Spillway (Riser) Crest Elevation . . @ 1736.0
 40' Wide Emergency Spillway Crest @ 1738.0
 Top of Compacted Embankment Elevation. . . . @ 1740.0

¹Becker, Lawrence D., U.S. Geological Survey, Water Resources Investigations 80-80, September 1980.

A preliminary set of plans is submitted with the Design Report. A set of standard construction specifications has previously been submitted to the Division of Water Rights.

Dated: December 15, 1994

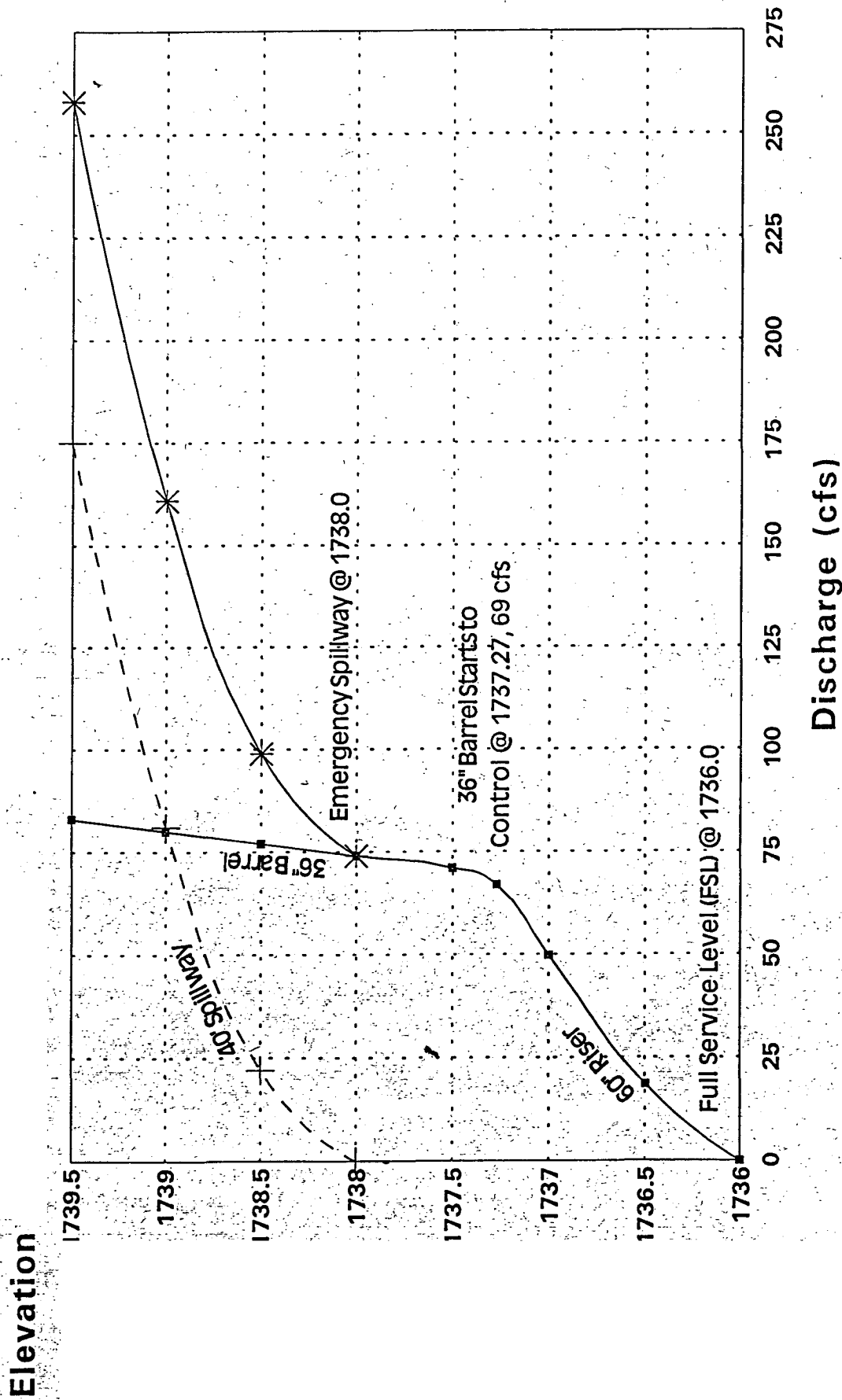
Submitted By:

A handwritten signature in dark ink, appearing to read 'Doug Lipetzky, P.E.', written over the printed name.

Doug Lipetzky, P.E.
PE-4499

DRY LAKE WPA - BULLIS WETLAND

Discharge Curve



■ 60" Riser/36" Barrel + 40' Emerg. Spillway * Primary & Emergency

Attachment #1

DRY LAKE WPA
BULLIS WETLAND
BROOKINGS COUNTY, SOUTH DAKOTA



49.5 AF Storage
+ 54.0 AF Seasonal *
103.5 AF TOTAL

Net Evaporation = 37 or 3.08 feet. (Per Gale
Selken, South Dakota Department of Environment and
Natural Resources, Water Rights Division.)

* Over the 17.6 acre wetland, this results in a net seasonal use
of 54.21 acre-feet rounded to 54 acre-feet annually.

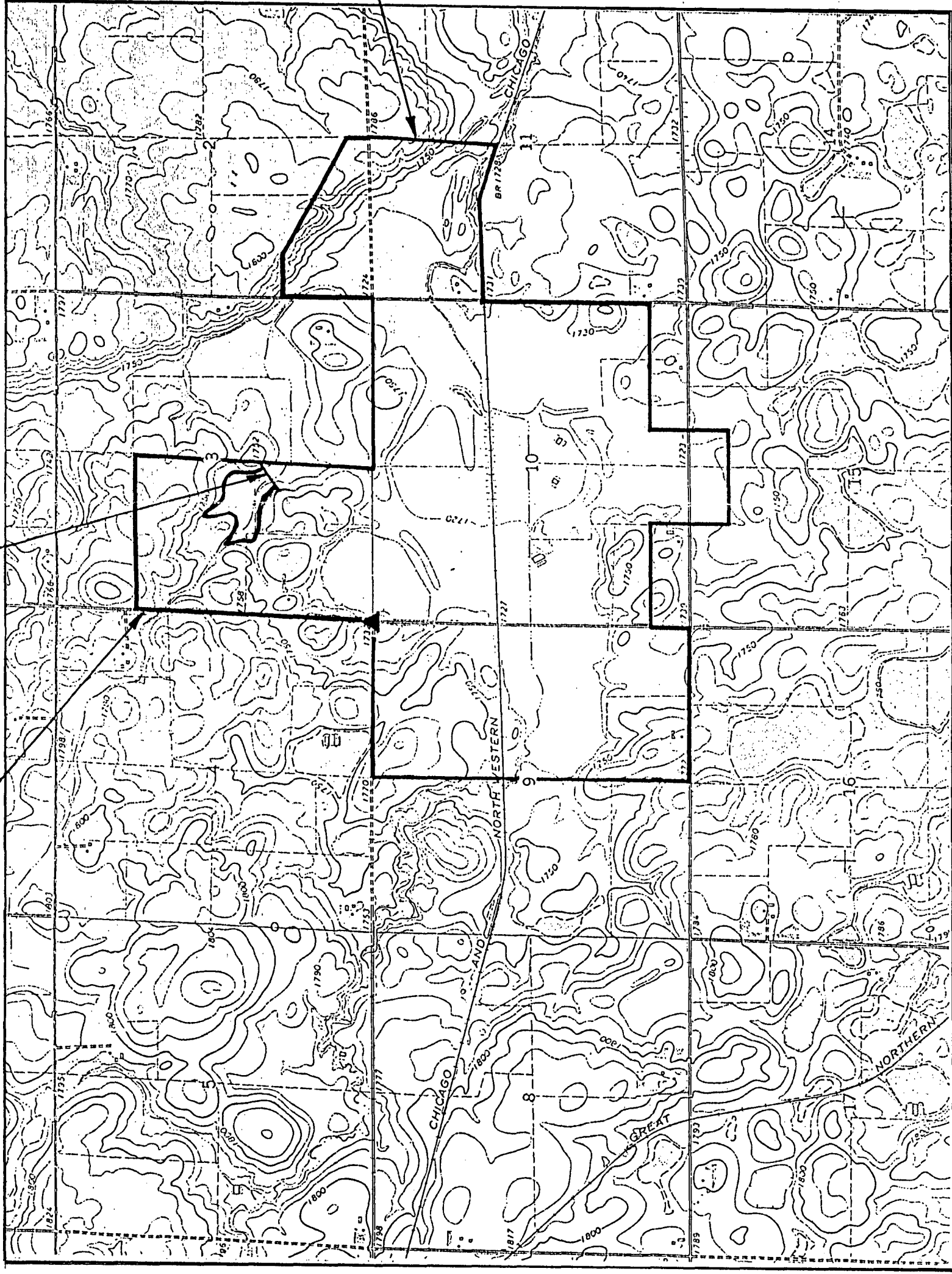
ACCESS GATE

PROJECT SITE

PROPERTY LINE

T 110 N

R 52 W



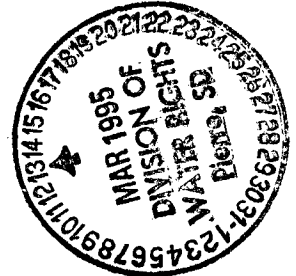
I, Albert E. Bevilacqua, of the U.S. Fish and Wildlife Service, P.O. Box 25486, DFC, Denver, CO. 80225, do hereby certify that this map was prepared from notes and drawings obtained under my direction, and that it correctly represents the works for the accompanying application.

Albert E. Bevilacqua
Regional Engineer

VICINITY MAP
SCALE 1"=2000'



UNITED STATES DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE ENGINEERING	
BROOKINGS COUNTY, SOUTH DAKOTA	
DRY LAKE WATERFOWL PRODUCTION AREA	
WATER RIGHTS FILING MAP	
DESIGNED: GC	DRAWN: DLM
CHECKED: CW	DATE: 3-95
DRAWING No. 6R-SD-672-WR-P-29.0	
SHEET: 1 OF 1	



RECEIPT

414433

Division of Water Rights

South Dakota Department of Environment and Natural Resources

Pierre, _____ March 13, 1995

RECEIVED OF US Fish & Wildlife Service, DFC, PO Box 25486, Denver, CO 80225-0486

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

Fee for Application for Permit No. <u>5855-3</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. _____		
Fee for Filing Transfer Form _____		
Fee for Filing Extension Request _____		
Fee for _____		

(Any Other Work Provided by Law)	Total	150 00

By John Hatch / gmr
Chief Engineer



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Mountain-Prairie Region

IN REPLY REFER TO:

BA WTR
WTR SD
Mail Stop 60189

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228

FEB 27 1995



Mr. John Hatch
Department of Environment
and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

Dear Mr. Hatch:

Please find enclosed the following documents pertaining to the Dry Lake Waterfowl Production Area:

- (1) Forms 2 and 2A, Application for Permit to Appropriate Water Within the State of South Dakota, with attachment;
- (2) Engineer's Design Report;
- (3) Filing Map No. 6R-SD-672-WR-P-29.0; and
- (4) Money Order in the amount of \$150 to cover filing fees.

Ducks Unlimited previously submitted a set of standard construction specifications to your office. Should you have any questions pertaining to these documents, please contact Doug Lipetzky at (701) 258-5599.

Also, please notify this office of the newspaper selected, prior to publication of Notice of Hearing, so that the Authorizations of Advertisement can be forwarded to them.

If you have any questions or require further information, please contact Ginger Price, Water Resources Division, at (303) 236-5321.

Sincerely,

Regional Director

Enclosures (4)

cc: Doug Lipetzky
Ducks Unlimited



DUCKS UNLIMITED, INC.
GREAT PLAINS REGIONAL OFFICE

3502 Franklin Avenue
Bismarck, North Dakota 58501-0761
(701) 258-5599



March 13, 1995

Tim Schaal
SD Dept. of Water & Natural Resources
Division of Water Rights
Joe Foss Building
523 East Capitol Avenue
Pierre, SD 57501

RE: Dry Lake WPA - Bullis Wetland
SD-0164-001

Dear Tim:

As requested, enclosed is a signed copy of the plans for the Bullis Wetland project on Dry Lake WPA in Brookings County, South Dakota. If you have any questions or need any additional information, please give me a call.

Sincerely,

Doug Lipetzky, P.E.
Regional Engineer

REPORT ON
WATER PERMIT APPLICATION NO. 5855-3
U.S. FISH & WILDLIFE SERVICE
March 20, 1995

Water Permit Application No. 5855-3 has been filed by the U.S. Fish and Wildlife Service to appropriate 103.5 acre-feet of water annually by constructing the Bullis Wetland Dam. The dam will be located on an unnamed tributary in the SW 1/4 of Section 3-T110N-R52W, in Brookings County. The Bullis Wetland Dam will impound 49.5 acre-feet of water with an additional 54 acre-feet of water appropriated to offset evaporation and maintain a reservoir elevation of 1736.0 feet mean sea level.

Discussion:

The Bullis Wetland Dam will be classified as a Category 3, Low Hazard dam. The dam has been designed by Ducks Unlimited, Inc. and the plans and specifications have been reviewed and approved; however, construction cannot start until Water Permit Application No. 5855-3 is approved.

The dam will be 10 feet high with a normal storage capacity of 49.5 acre-feet with a reservoir level at the primary spillway elevation, and a maximum storage capacity of 150.5 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 Bullis Wetland Dam is designed to have a CMP drop inlet spillway with a 60-inch diameter riser and a 36-inch diameter barrel. The spillway crest will be at elevation 1736.0, giving it 4 feet of available head. The dam will also have a 40 foot wide earthcut secondary spillway with a crest elevation of 1738.0, giving it 2 feet of available head. The Bullis Wetland Dam will have a drainage area of 625 acres (0.98 sq. miles). Ducks Unlimited uses the Soil Conservation Service TR-20 model to route a 25-year event peak of 166 cfs through the dam with 2.05 feet of freeboard remaining. A 100-year event with a peak of 306 cfs is routed through the dam with 0.96 feet of freeboard remaining.

The annual yield for this drainage area with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be approximately 21 acre-feet. The annual yield for this basin with a 10 percent chance of occurrence, or 1 out of 10 years, is expected to be 104 acre-feet.

The Bullis Wetland Dam is located on an unnamed tributary about 5 miles upstream of where it discharges into Lake Goldsmith and eventually into the Big Sioux River about 3 miles downstream of Lake Goldsmith. There are no existing Water Permits/Rights on

the unnamed tributary; however, the Department of Game, Fish and Parks holds Vested Right Claim No. 898-3 for 900 acre-feet of water in Lake Goldsmith. Lake Goldsmith has a drainage area of approximately 20 square miles.

Conclusion:

1. Water Permit Application No. 5855-3 should be approved since unappropriated water is available and approval should have little affect on the existing Vested Right Claim No. 898-3 for Lake Goldsmith.
2. If approved, the low flow bypass requirement for downstream domestic use should be a qualification on Water Permit Application No. 5855-3.



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. 5855-3, U.S. Fish and Wildlife Service**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Division, Department of Environment and Natural Resources concerning Water Permit Application No. 5855-3, U.S. Fish and Wildlife Service, PO Box 25486, Denver Federal Center, Denver, CO 80225.

The Chief Engineer is recommending APPROVAL of Application No. 5855-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) in the public interest with the following qualifications:

1. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.
2. Water Permit No. 5855-3 authorizes a dam with a storage capacity of 49.5 acre-feet of water and sufficient water annually (up to 103.5 acre-feet of water annually) to maintain the water level to the outlet elevation of 1736.0 feet mean sea level.

See report on application for additional information.


for JOHN HATCH, Chief Engineer
March 29, 1995

Water Rights Division - DENR
Conversation File Documentation

NAME OF PERSON OR FILE: USFWS -- Water Permit Application No. 5855-3

ADDRESS: COUNTY: Brookings

DATE: 4/3/95 TELEPHONE:

RE: Discussion with Tim Olson, G,F&P Water Permits Coordinator

COMMENTS:

I had previously sent a copy of the draft report on Application No. 5855-3 up to Tim Olson to see if he had any comments. The draft report found that G,F&P had a prior right downstream for Lake Goldsmith and I wanted to get any comments from G,F&P prior to public noticing the application.

Tim called me back and stated that the Bullis Wetland Dam (Application No. 5855-3) was on a small branch tributary from Lake Goldsmith and he was not concerned about Lake Goldsmith being adversely impacted. He did want the low flow bypass qualification on the permit and I stated that it was already on our recommendation.

File in Permit or other file as necessary. Use to document conversations and what the other party was told; why action or decision was made.

NAME: Eric Hendrick



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181

April 4, 1995

Doug Lipetzky, P.E.
Regional Engineer
Ducks Unlimited, Inc.
3502 Franklin Avenue
Bismarck, ND 58501-0761

Dear Mr. Lipetzky:

We have reviewed the plans and specifications for the Bullis Wetland Dam located in the SW 1/4 of Section 3-T110N-R52W, in Brooking County. The plans and specifications as submitted are approved. Approval of the plans and specifications does not authorize construction of the project. No construction may begin until Water Permit Application No. 5855-3 is approved.

Our review was to determine compliance with the requirements of the Water Management Board Safety of Dams Rules, Chapter 74:02:08. Approval of these plans and specifications does not release the U.S. Fish & Wildlife Service, 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 Bullis Wetland Dam will be classified as a small size Category 3, Low Hazard Dam with an embankment height of 10 feet and a normal storage capacity of 49.5 acre-feet and a maximum storage capacity of 150.5 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: Wilbur N. Ladd Jr., Acting Regional Director
U.S. Fish & Wildlife Service



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181

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

April 4, 1995

Wilbur N. Ladd, Jr.
Acting Regional Director
U.S. Fish and Wildlife Service
PO Box 25486
Denver Federal Center
Denver, CO 80225

Dear Mr. Ladd:

Water Permit Application No. 5855-3 for fish and wildlife propagation 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 Brookings Daily Register printed at Brookings, SD (Ph # 605-692-6271). 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.

c: Ginger Price, U.S. Fish and Wildlife Service, PO Box 25486, Denver Federal Center,
Denver, CO 80225



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181

April 4, 1995

Brookings Daily Register
PO Box 177
Brookings, SD 57006-0177

ATTENTION: Legal Department

Enclosed is a Notice of Hearing on Application No. 5855-3 to be published twice. Please publish the first notice on April 18, 1995, 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 U.S. Fish and Wildlife Service, c/o Wilbur N. Ladd, Jr., Acting Regional Director, PO Box 25486, Denver Federal Center, Denver, CO 80225 (Ph # 303-236-5321).

A copy of BOTH publications must be SENT to the WATER RIGHTS DIVISION. IMMEDIATELY return the FIRST publication with the FIRST Transmittal form on the bottom of this page. The first copy is needed to check the publication for errors so any corrections can be made in the second publication. Publication errors can invalidate the public notice and cause the applicant costly delays.

Please be sure the SECOND publication is returned IMMEDIATELY with the enclosed Proof of Publication form. DO NOT WAIT until the end of the month or the billing cycle. No action may be taken on the permit application until proof of publication has been received.

Sincerely,


Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

-----CUT HERE-----
FIRST TRANSMITTAL NOTICE

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

No. _____

Date _____

We are in receipt of your letter of _____ enclosing Notice of Hearing to Appropriate Water by Application No. _____ 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 April 18, 1995, with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 5855-3 to Appropriate Water

Notice is given that U.S. Fish and Wildlife Service, PO Box 25486, Denver Federal Center, Denver, CO 80225 has filed an application for a water permit to appropriate 103.5 acre-feet of water annually by constructing a dam on an unnamed tributary located in the NE 1/4 SW 1/4 Section 3 with water impounded in a portion of the SE 1/4 NW 1/4, N 1/2 SW 1/4 Section 3; all in T110N-R52W (Brookings County). The dam will impound 49.5 acre-feet of water with an additional 54.0 acre-feet to be appropriated to offset evaporation and maintain a pool elevation of 1736.0 feet mean sea level. This application requests impoundment of water sufficient to maintain water at the outlet elevation of 1736.0 feet mean sea level. Water is to be used to provide habitat for fish and wildlife propagation.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5855-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the chief engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the chief engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and chief engineer. The applicant must file a petition if contesting the chief engineer's recommendation. The Chief Engineer's address is "Water Rights Division, 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 May 8, 1995.

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 Division address to request copies of information pertaining to this application. Steven M. Pirner, Acting Secretary, Department of Environment and Natural Resources.

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
 County of Brookings) ss

I, Nancy P Skyberg

certify that the attached printed Notice was

taken from the Brookings
Register

printed and published in Brookings

County of Brookings and State of

South Dakota. The notice was published in
 the newspaper on the following two dates:

April 18, 1995

April 25, 1995

Cost of Printing: \$36.37—thirty-six
dollars and thirty-seven cents

Nancy P Skyberg
 (Signature)

Legal Ad Coordinator
 (Title)

April 25, 1995
 (Date Signed)



PUBLIC NOTICES

Legal 264, 1x, April 18, 25
 NOTICE OF APPLICATION NO.
 5855-3 to Appropriate Water

Notice is given that U. S. Fish and Wildlife Service, PO Box 25486, Denver Federal Center, Denver, CO 80225 has filed an application for a water permit to appropriate 103.5 acre-feet of water annually by constructing a dam on an unnamed tributary located in the NE 1/4 SW 1/4 Section 3 with water impounded in a portion of the SE 1/4 NW 1/4, N 1/2 SW 1/4 Section 3; all in T110N-R52W (Brookings County). The dam will impound 49.5 acre-feet of water with an additional 54.0 acre-feet to be appropriated to offset evaporation and maintain a pool elevation of 1736.0 feet mean sea level. This application requests impoundment of water sufficient to maintain water at the outlet elevation of 1736.0 feet mean sea level. Water is to be used to provide habitat for fish and wildlife propagation.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5855-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the chief engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the chief engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and chief engineer. The applicant must file a petition if contesting the chief engineer's recommendation. The Chief Engineer's address is "Water Rights Division, 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 May 8, 1995.

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 Division address to request copies of information pertaining to this application.

Steven M. Pirner, Acting Secretary,
 Department of Environment and
 Natural Resources.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181

JUL 11 1995

Wilbur N. Ladd, Jr.
U.S. Fish and Wildlife Service
PO Box 25486
Denver Federal Center
Denver, CO 80225

Dear Mr. Ladd:

Enclosed is Water Permit No. 5855-3 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

Also enclosed is Form 10, Notice of Completion of Works and Application of Water to Beneficial Use, which you are to complete and submit to the Chief Engineer when you have completed the system and/or have put the water to beneficial use. An inspection can then be scheduled so that the Water License may be issued, thus completing your acquisition of a Water Right.

Very truly yours,

JOHN HATCH, Chief Engineer
Water Rights Division
605 773-3352

enclosures

PLEASE NOTE: Certain changes can be made in your permit within the five year construction period, usually without affecting the priority date provided an application to amend your permit is made within the five year period - i.e. changes in location or number of diversion points (wells) or location of land to be irrigated. Well locations for wells into the same aquifer can be moved up to 660 feet without application.

Applications to amend a permit after the five year construction period will be assigned a new priority date. Applications to change water sources, to add lands or increase original diversion rates, if approved will usually receive the date of the new application as a priority date regardless of the five year construction period.

c: Ginger Price, U.S. Fish and Wildlife Service, PO Box 25486,
Denver Federal Center, Denver CO 80225



United States Department of the Interior

FISH AND WILDLIFE SERVICE Mountain-Prairie Region

IN REPLY REFER TO:

WTR BA
WR SD
Mail Stop 60189

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225-0486

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228-1807

JUN 08 1998



Department of Environment and
Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

Dear Sir or Madam:

Enclosed are Notices of Completion of Works and Application of Water to Beneficial Use forms for the following water permits:

5714-3	Hamlin County WPA
5855-3	Bullis WPA (Dry Lake)
5882-3	Bolstad WPA
5938-3	Big Slough WPA, and
5945-3	Dry Lake

Also enclosed is FedSelect Check in the amount of \$250 to cover the inspection fees and issuance of the Water Licenses.

If you have questions or require further information, please contact Linda Coe, Water Rights Branch at (303) 236-5321.

Sincerely,

Cheryl C. Williss
Chief, Division of Water Resources

Enclosures

**NOTICE OF COMPLETION OF WORKS AND
APPLICATION OF WATER TO BENEFICIAL USE**Date JUN 08 1998

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

FROM: UNITED STATES OF AMERICA
Fish and Wildlife Service P.O. Box 25486, Denver Federal Center
(name) (address)
Denver, CO 80225 (303) 236-5321
(city) (state) (zip) (phone)

I have completed the construction of the water diversion system and I have put the water to beneficial use to the maximum extent it is going to be used. I have not exceeded the amounts specified in Water Permit No. 5855-3.

Water Permit No. 5855-3 states that the diversion system is to be constructed by 05-08-2000, and that the water is put to beneficial use by 05-08-2004.
(date) (date)

The diversion system was completed on 11-28-95.
(date)

Applying the water to beneficial use was completed on 04-11-97.
(date)

You may schedule an inspection so that the Water License may be issued.

Cheryl C. Williss
(signature)
Cheryl C. Williss, Agent

RECEIPT

Water Rights Program

South Dakota Department of Environment and Natural Resources

19 415795

Pierre, June 11, 19 98

RECEIVED OF USFWS, P.O. Box 25486, Denver, CO 80225-0486
the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. _____ to Appropriate Water, to construct
and to put water to beneficial use _____

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. 5855-3

Fee for Filing Transfer Form _____

Fee for Filing Extension Request _____

Fee for _____

(Any Other Work Provided by Law)

Total

50 00

50 00

By _____
Chief Engineer

John Hatcher

Permit No. 5855-3
Big Sioux River - Water District

Contact Person & Address: Colleen Kolbeck, US FWS, PO Box 48 Madison SD 57042

Report Of Examination Of Works

On, May 24, 2000, I made a thorough examination of the water use system constructed by US Fish and Wildlife Service of PO Box 25486, Denver Federal Center, Denver CO 80225 holder of Permit No. 5855-3, bearing the priority of March 13, 1995 authorizing the storage of 49.5 acre-feet with an additional 54.0 acre-feet annually to offset evaporation of the waters of surface water for providing habitat for fish and wildlife production purposes, in Brookings County.

The system is in the following condition good. The point of diversion is located NE1/4 SW1/4 of Section 3 T110N-R52W with a longitude of -97.05834 and a latitude of 44.35900. The works are capable of storing 49.5 acre-feet with an additional 54.0 acre-feet annually to offset evaporation which is to be used for providing habitat for fish and wildlife production. Water has been put to beneficial and the license should be issued the storage of 49.5 acre-feet with an additional 54.0 acre-feet annually to offset evaporation.

Review of Permit Qualifications And Regulations:

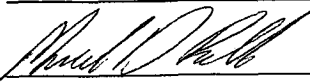
- 1) Special qualifications to permit being abided by yes
- 2) All structures, wells and lands on map yes
- 3) Exceptions to compliance are: none

Report On the Specifics of the System

Dam Information:

- | | |
|---|---|
| 1) Height to crest <u>10</u> feet | 2) Height to primary spillway or outlet <u>6</u> feet |
| 3) Height to secondary spillway <u>8</u> ft | 4) Crest width <u>12</u> feet |
| 5) Crest length <u>450</u> feet | 6) Spillway length <u>150</u> feet |
| 7) Spillway width <u>50</u> feet | 8) Approx. storage <u>49.5</u> ac-ft |
| 9) Outlet tubes: | |
| a) type <u>stop log</u> | |

COMMENTS: The original map adequately describes the project and will be used for licensing.



Mark D. Rath
Natural Resources Engineer
DENR, Water Rights Program

2/13/01

Date

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 5855-3

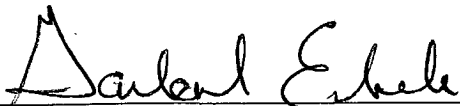
(1) The U.S. Fish & Wildlife Service, PO Box 25486, Denver Federal Center, Denver CO made Application No. 5855-3, March 13, 1995 for a water permit to impound 49.5 acre-feet of water from an unnamed tributary, Brookings County, South Dakota for fish & wildlife propagation purposes. Permit No. 5855-3, with a priority date of March 13, 1995 was approved May 8, 1995 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before May 8, 2000 and for the application to beneficial use of said water on or before May 8, 2004.

The permit holder submitted a *Notice of Completion of Works and Application of Water to Beneficial Use* on June 11, 1998. The *Notice* stated the diversion system was completed on November 28, 1995 and the water placed to beneficial use on April 11, 1997.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the construction of the storage dam and is entitled to impound 49.5 acre-feet of water for beneficial use with sufficient water annually to maintain the water level to the outlet elevation of 1736.0 feet mean sea level. The location of the storage dam (spillway) is NE ¼ SW ¼ Section 3-T110N-R52W.

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

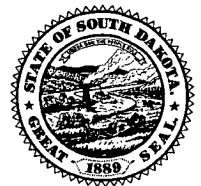
(4) Pursuant to South Dakota Water Law 46-5-30.1 the U.S. Fish & Wildlife Service, PO Box 25486, Denver Federal Center, Denver CO the holder and/or owner of Water Right No. 5855-3 is issued a license to appropriate water, the right to impound 49.5 acre-feet of water from an unnamed tributary with sufficient water annually to maintain the water level to the outlet elevation of 1736.0 feet mean sea level with a priority date of March 13, 1995 from the location specified in (2) of this license for fish & wildlife propagation. This license is subject to any limitations or qualifications listed in Water Right No. 5855-3 and subject to South Dakota State Law.



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

APR 04 2001

date





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

APR 04 2001

5714-3, 5855-3, 5882-3, 5938-3, 5945-3

Cheryl Willis, Agent
US Fish & Wildlife Service
PO Box 25486
Denver Federal Center
Denver, CO 80225

Dear Ms. Willis:

Enclosed are Water License Nos. 5714-3, 5855-3, 5882-3, 5945-3 and 5938-3. This is the final water right document completing your process of obtaining a Water Right. Enclosed are Receipt Nos. 415794, 415795, 415796, 415798 and 415797 in the amount of \$50.00 which you paid for the investigation and issuance of the Water License.

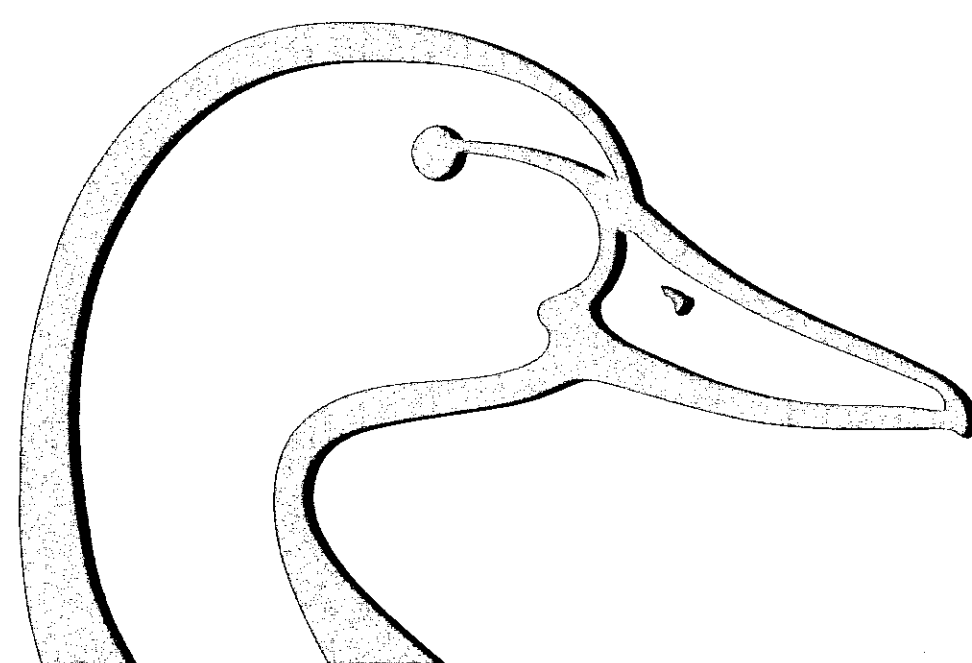
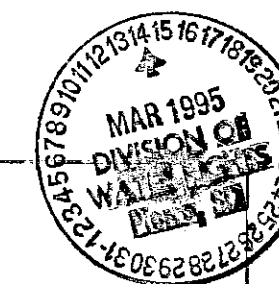
As long as you use the water beneficially, as stated in the Water License, State Water Laws provide that you have a continuing right to use the water.

Sincerely,

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

enclosures

Appl 5865-3



DUCKS UNLIMITED

DUCKS UNLIMITED

PROJECT

DRY LAKE WPA BULLIS WETLAND SECTION 3, T 110 N, R 52 W, BROOKINGS COUNTY, SOUTH DAKOTA

IN COOPERATION WITH

U.S. FISH & WILDLIFE SERVICE

SPECIFICATIONS

GENERAL CONDITIONS	101
MOBILIZATION	201
SITE PREPARATION	202
EXCAVATION	203
EMBANKMENT CONSTRUCTION	204
WATER	205
WATER CONTROL	
STRUCTURE INSTALLATION	206
WATER CONTROL STRUCTURE	
& CULVERT APPURTENANCES	206A
CULVERT INSTALLATION	207
CAST-IN-PLACE	
REINFORCED CONCRETE	208
RIPRAP PLACEMENT	209

PLAN INDEX

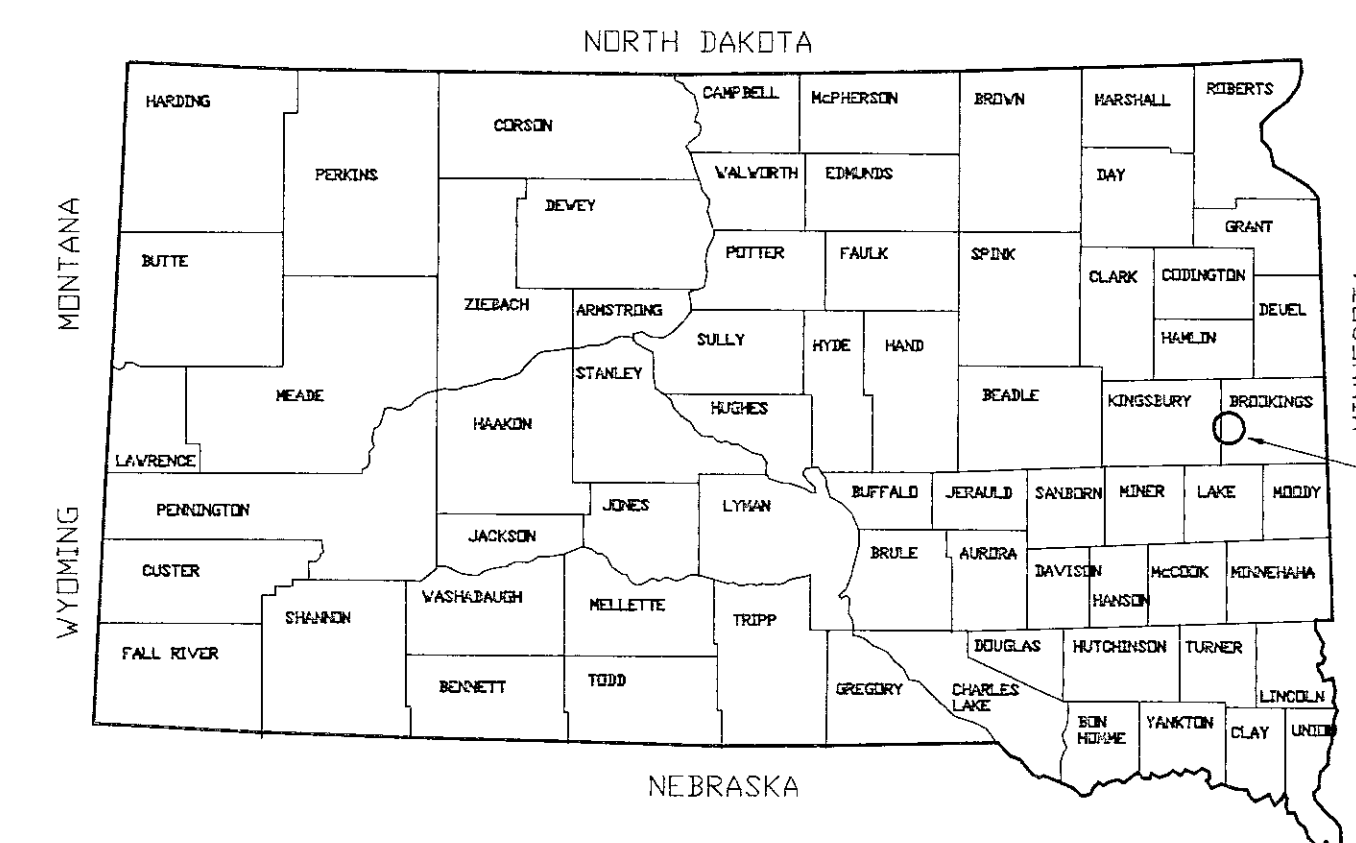
VICINITY MAP	1
PROJECT TOPOGRAPHY	2
SITE PLAN & PROFILES	3
STRUCTURE PLAN & PROFILES	
SOILS INFORMATION	4
(SOILS NOT YET AVAILABLE)	
STRUCTURE DETAILS	5

QUANTITIES

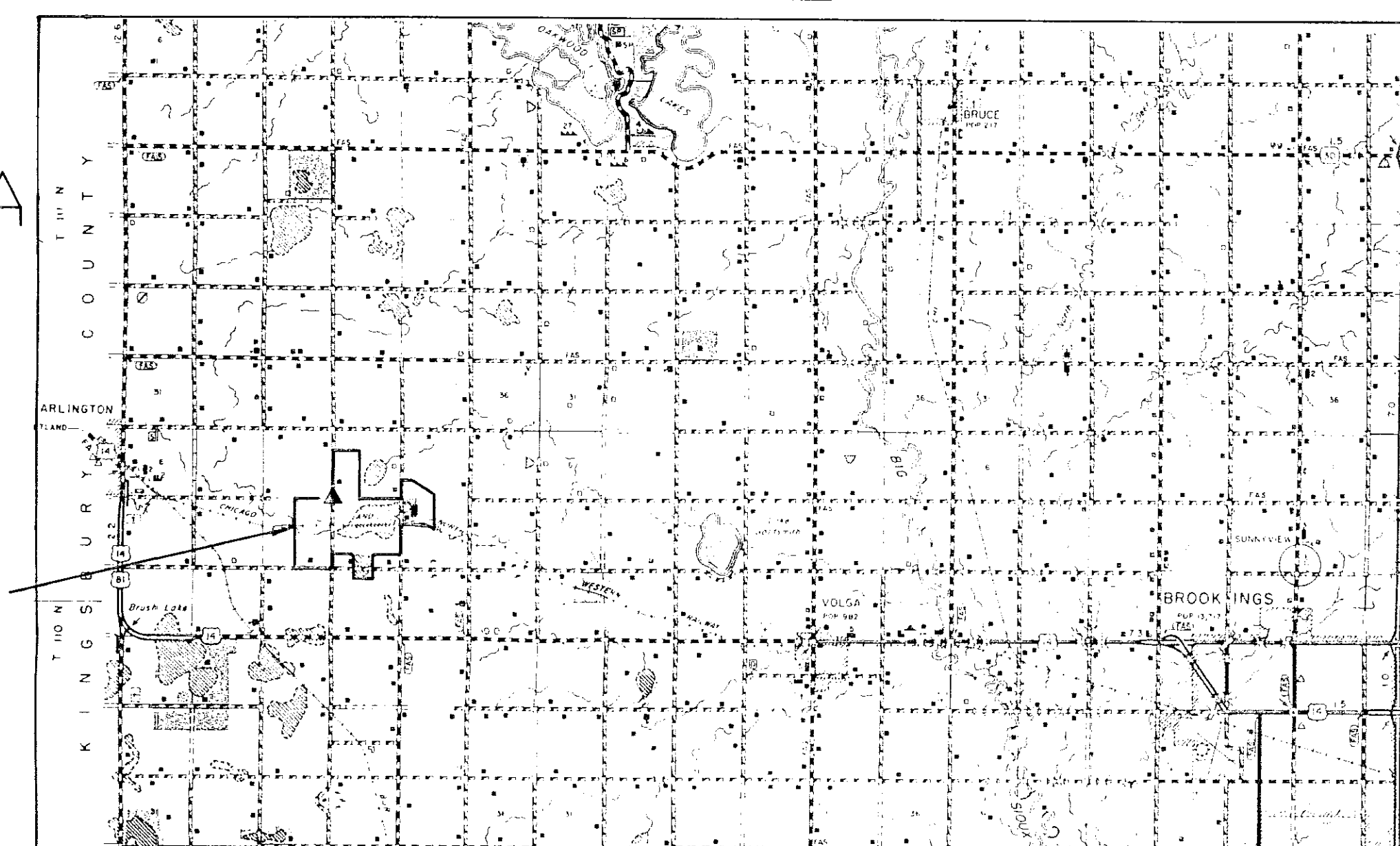
MOBILIZATION	1 L.S.
SITE PREPARATION	1107 C.Y.-P
EMBANKMENT	7129 C.Y.-S*
WATER	35 M-GAL.**
WATER CONTROL STRUCTURE	
60"Ø CMP RISER, 7 L.F.	1 L.S.
APPURTENANCES	1 INC.
CULVERT INSTALLATION	
36"Ø CMP	54 L.F.
18"Ø CMP	16 L.F.
CLASS I RIPRAP	17 C.Y.-P

*INCLUDES 10% FOR SHRINKAGE

**ESTIMATED WATER QUANTITY BASED ON
5 GALLONS PER CUBIC YARD, ACTUAL QUANTITY MAY VARY

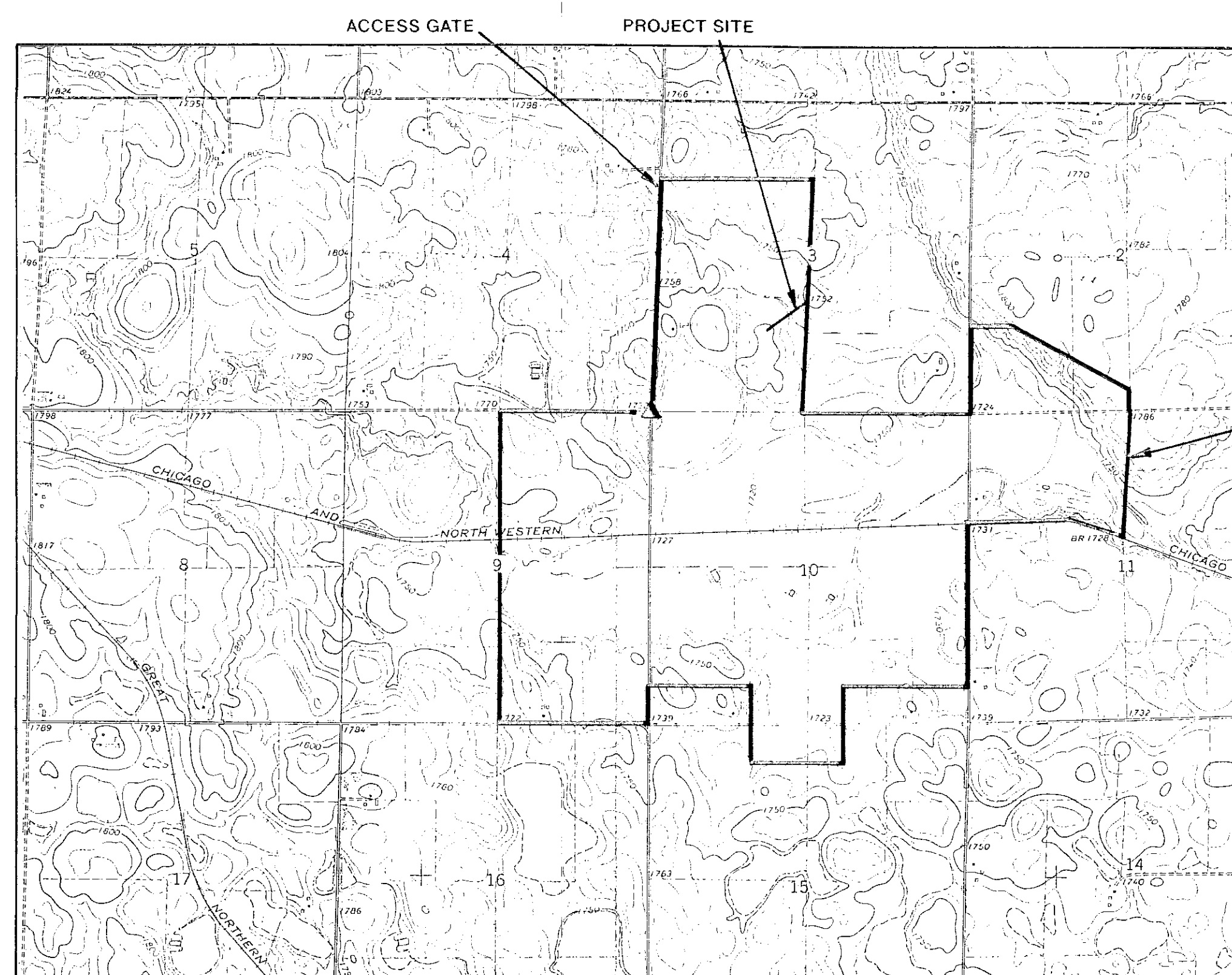


PROJECT LOCATION



PARTIAL BROOKINGS COUNTY

MAP POINT 'A' IS 1 MILE SOUTH,
3 MILES EAST, 1 MILE NORTH OF
ARLINGTON, SD.



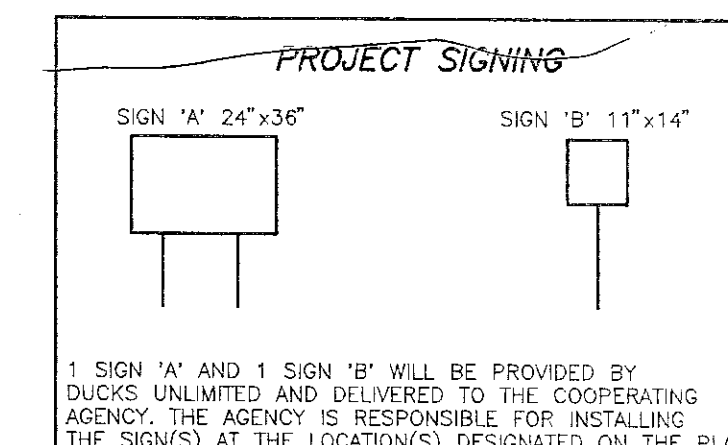
VICINITY MAP
SCALE: 1"=2000'

PROPERTY LINE/CONSTRUCTION LIMITS

T 110 N

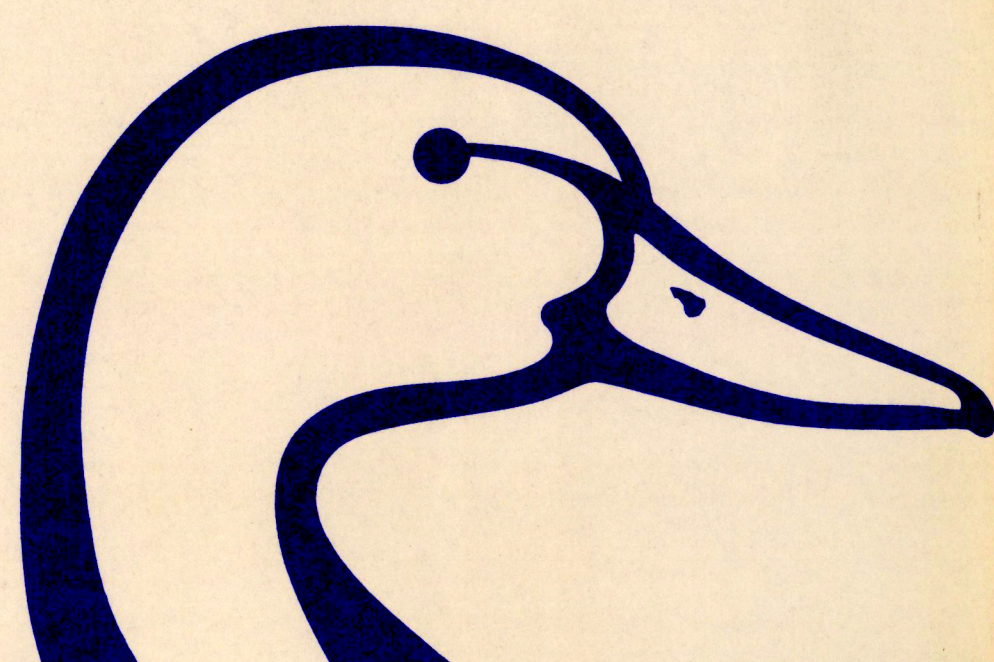
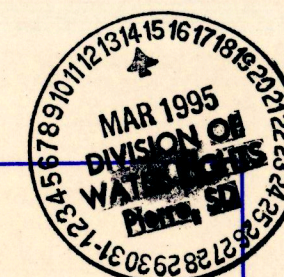
R 52 W

AGENCY CONTACT:
TDM TORNOW
MADISON WMD
605/256-2974



	PROJECT NO. SD-164-1	DESIGNED BY: D.J.L.
	DRY LAKE WPA BULLIS WETLAND VICINITY MAP	DRAWN BY: KB
GREAT PLAINS REGIONAL OFFICE	CHECKED BY: B.R.K.	APPROVED BY:
DATE: 2-1-95	SHEET NO. 1 OF 5	APPROVED BY:

Appl 5855-3



DUCKS UNLIMITED

DUCKS UNLIMITED

PROJECT

DRY LAKE WPA BULLIS WETLAND SECTION 3, T 110 N, R 52 W, BROOKINGS COUNTY, SOUTH DAKOTA

IN COOPERATION WITH

U.S. FISH & WILDLIFE SERVICE

SPECIFICATIONS

GENERAL CONDITIONS	101
MOBILIZATION	201
SITE PREPARATION	202
EXCAVATION	203
EMBANKMENT CONSTRUCTION	204
WATER	205
WATER CONTROL	
STRUCTURE INSTALLATION	206
WATER CONTROL STRUCTURE	
& CULVERT APPURTENANCES	206A
CULVERT INSTALLATION	207
CAST-IN-PLACE	
REINFORCED CONCRETE	208
RIPRAP PLACEMENT	209

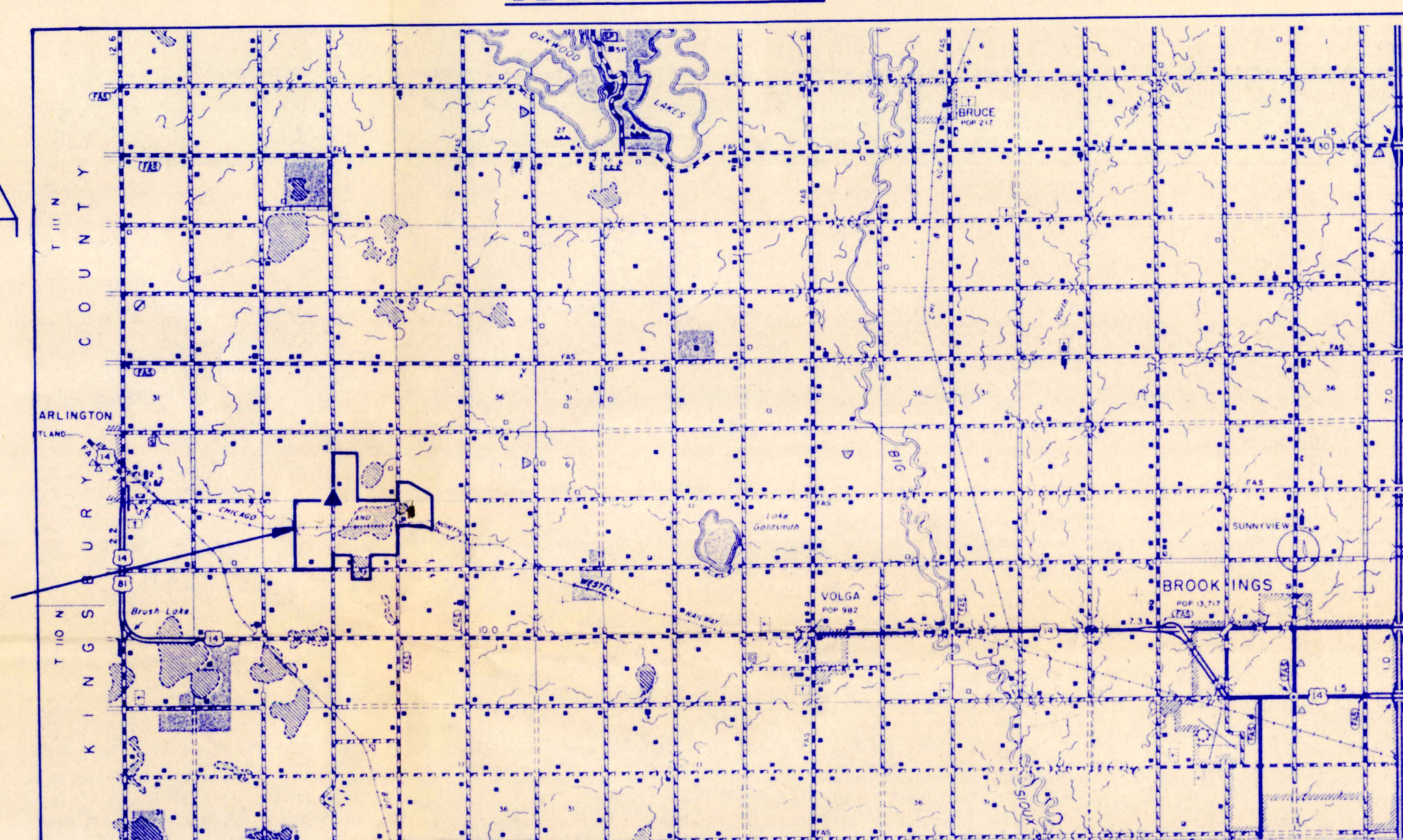
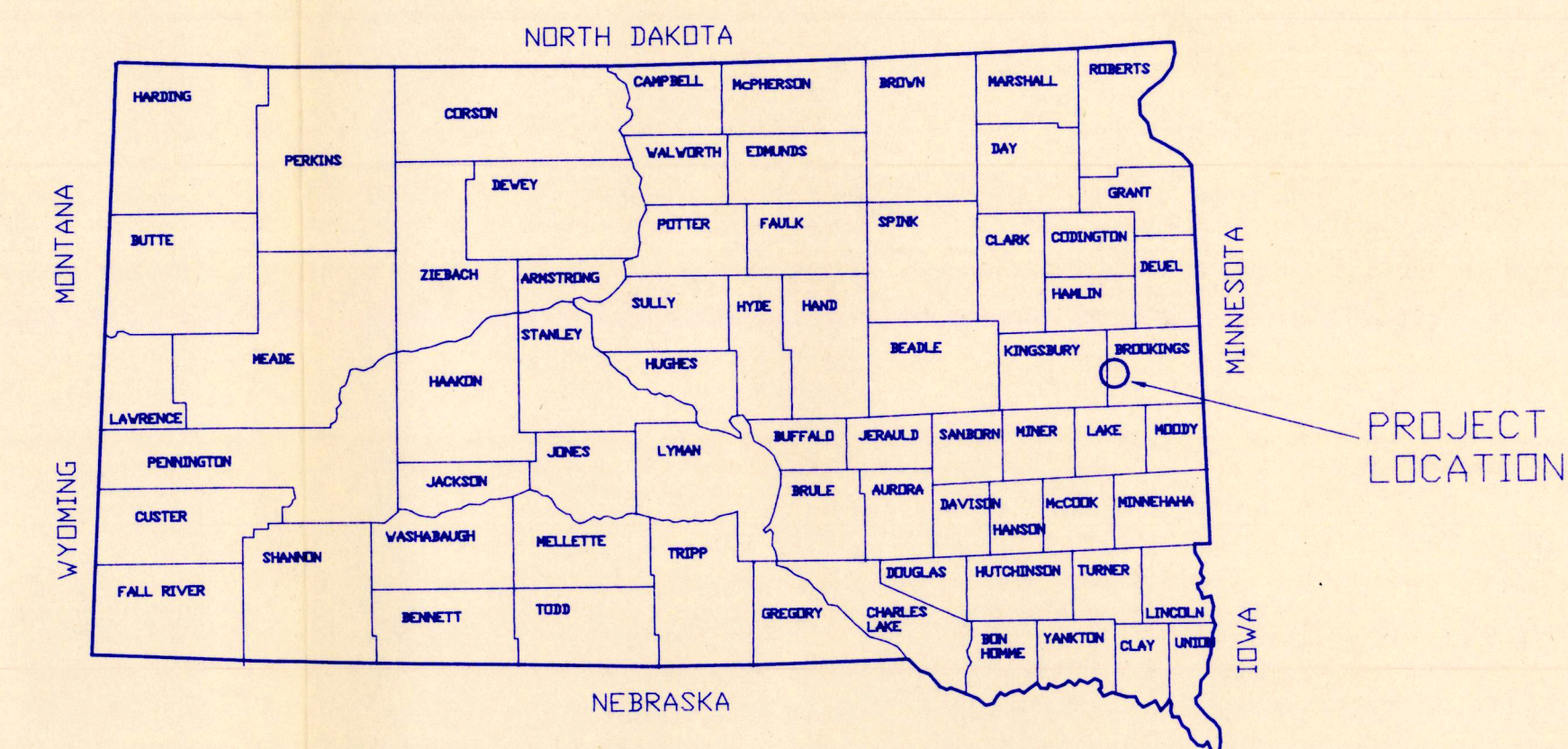
PLAN INDEX

VICINITY MAP	1
PROJECT TOPOGRAPHY	2
SITE PLAN & PROFILES	3
STRUCTURE PLAN & PROFILES	
& SOILS INFORMATION	4
(SOILS NOT YET AVAILABLE)	
STRUCTURE DETAILS	5

QUANTITIES

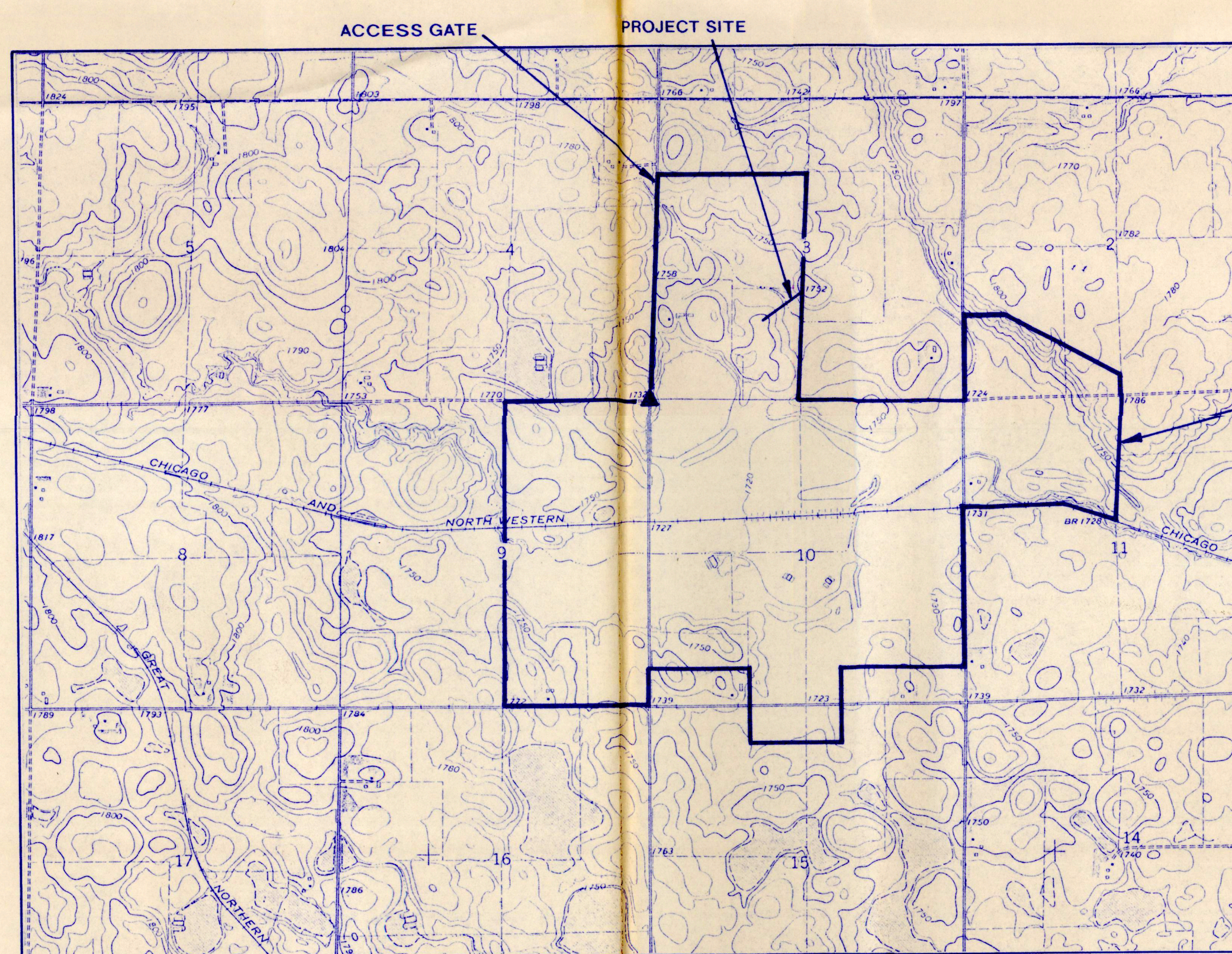
MOBILIZATION	1 L.S.
SITE PREPARATION	1107 C.Y.-P
EMBANKMENT	7129 C.Y.-S*
WATER	35 M-GAL.**
WATER CONTROL STRUCTURE	
60" CMP RISER, 7 L.F.	1 L.S.
APPURTENANCES	1 INC.
CULVERT INSTALLATION	
36" CMP	54 L.F.
18" CMP	16 L.F.
CLASS I RIPRAP	17 C.Y.-P

*INCLUDES 10% FOR SHRINKAGE
**ESTIMATED WATER QUANTITY BASED ON
5 GALLONS PER CUBIC YARD, ACTUAL QUANTITY MAY VARY

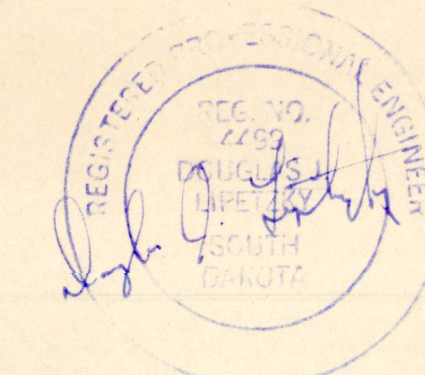


PARTIAL BROOKINGS COUNTY

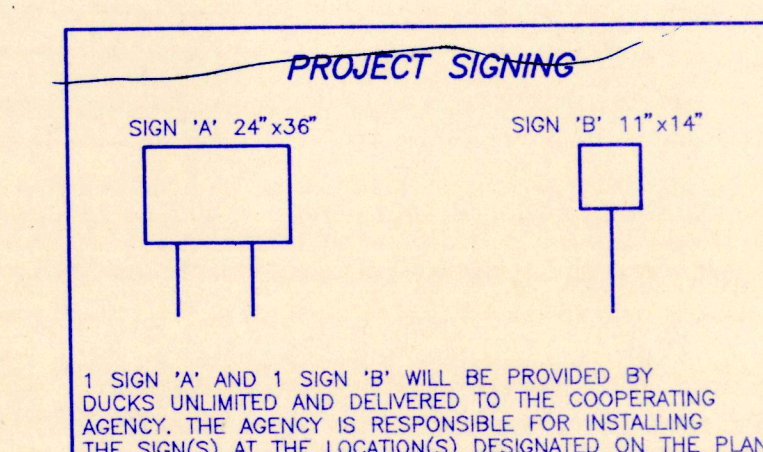
MAP POINT ▲ IS 1 MILE SOUTH,
3 MILES EAST, 1 MILE NORTH OF
ARLINGTON, SD.



VICINITY MAP
SCALE: 1"=2000'

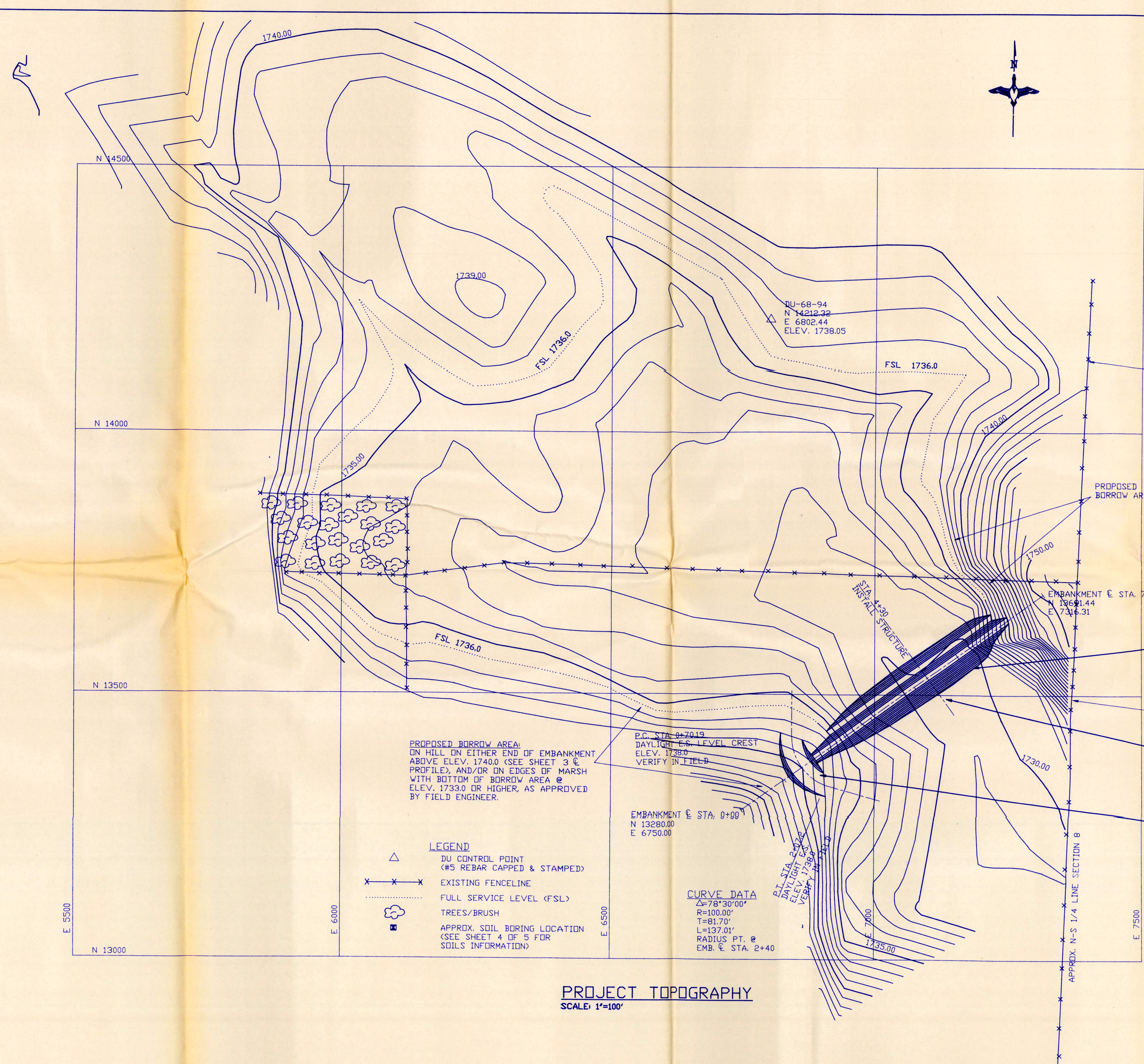
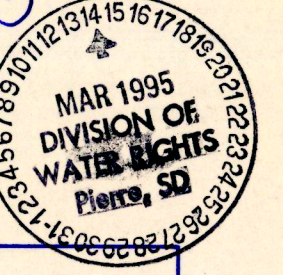


AGENCY CONTACT:
TOM TORNDOW
MADISON WMD
605/256-8974



	PROJECT NO. SD-164-1	DESIGNED BY: D.J.L.
	DRY LAKE WPA BULLIS WETLAND	DRAWN BY: KB
GREAT PLAINS REGIONAL OFFICE	VICINITY MAP	SURVEYED BY:
DATE: 2-1-95	SHEET NO. 1 OF 5	CHECKED BY: B.R.K.
	APPROVED BY: <i>[Signature]</i>	APPROVED BY:

5855-3



AREA-CAPACITY DATA

ELEVATION	AREA (ACRES)	CAPACITY (ACRE-FEET)
1730.0	0	0
1731.0	1.7	0.9
1732.0	4.8	4.1
1733.0	7.8	10.5
1734.0	11.4	20.1
1735.0	14.9	33.3
1736.0 FSL	17.6	49.5
1737.0	20.7	68.6
1738.0	25.6	91.8
1739.0	29.7	119.5
1740.0	32.6	150.5

FULL SERVICE LEVEL (FSL) @ 1736.0
 SURFACE ACRES @ FSL = 17.6
 CUMULATIVE ACRE-FEET @ FSL = 49.5

CONSTRUCT EMBANKMENT
 SEE SHEET 3 FOR DETAILS

INSTALL
 WATER CONTROL STRUCTURE
 SEE SHEETS 4 & 5 FOR DETAILS

EXCAVATE
 EMERGENCY SPILLWAY
 SEE SHEET 3 FOR DETAILS

- LEGEND**
- △ DU CONTROL POINT (#5 REBAR CAPPED & STAMPED)
 - EXISTING FENCELINE
 - FULL SERVICE LEVEL (FSL)
 - ☁ TREES/BRUSH
 - APPROX. SOIL BORING LOCATION (SEE SHEET 4 OF 5 FOR SOILS INFORMATION)

PROPOSED BORROW AREA:
 ON HILL ON EITHER END OF EMBANKMENT
 ABOVE ELEV. 1740.0 (SEE SHEET 3 &
 PROFILE), AND/OR ON EDGES OF MARSH
 WITH BOTTOM OF BORROW AREA @
 ELEV. 1733.0 OR HIGHER, AS APPROVED
 BY FIELD ENGINEER.

P.C. STA. 9+70.19
 DAYLIGHT ES. LEVEL CREST
 ELEV. 1739.0
 VERIFY IN FIELD

EMBANKMENT @ STA. 0+00
 N 13280.00
 E 67500.00

CURVE DATA
 Δ=78°30'00"
 R=100.00'
 T=81.70'
 L=137.01'
 RADIUS PT. @
 EMB. @ STA. 2+40

PROJECT TOPOGRAPHY
 SCALE: 1"=100'

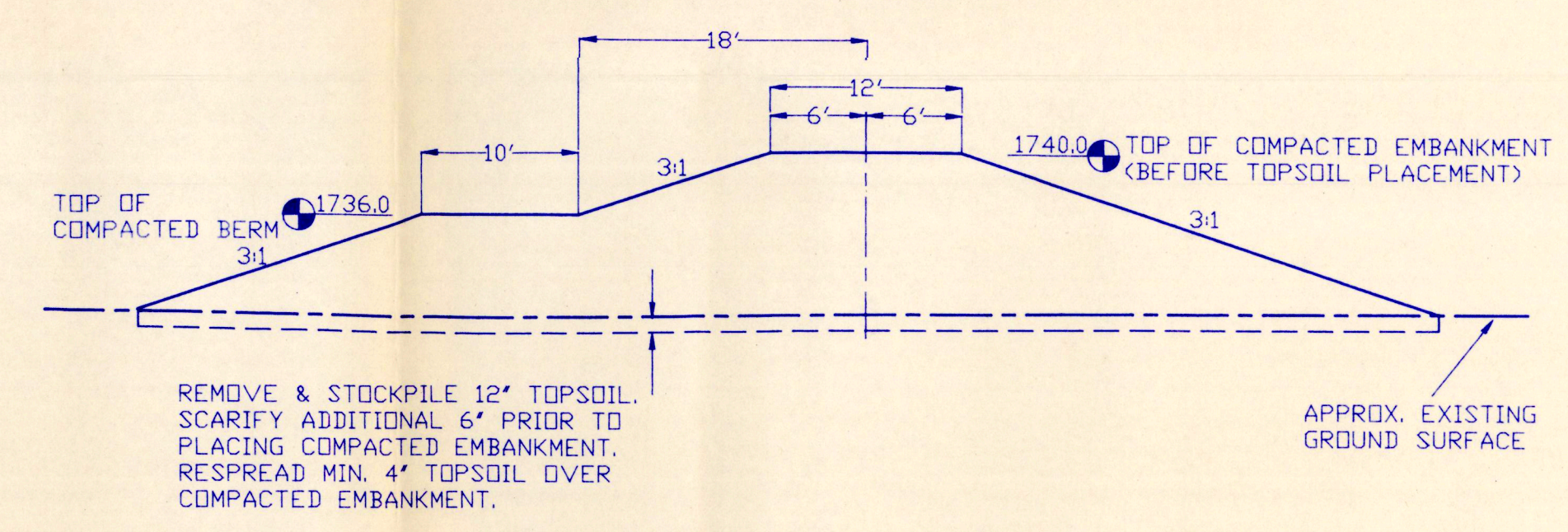
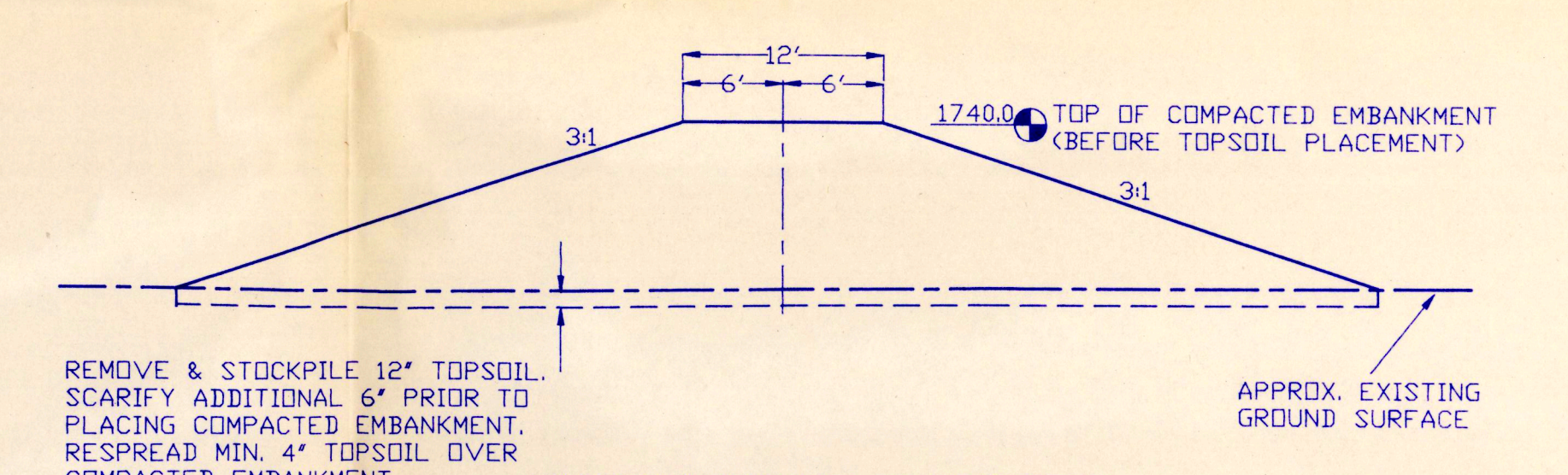
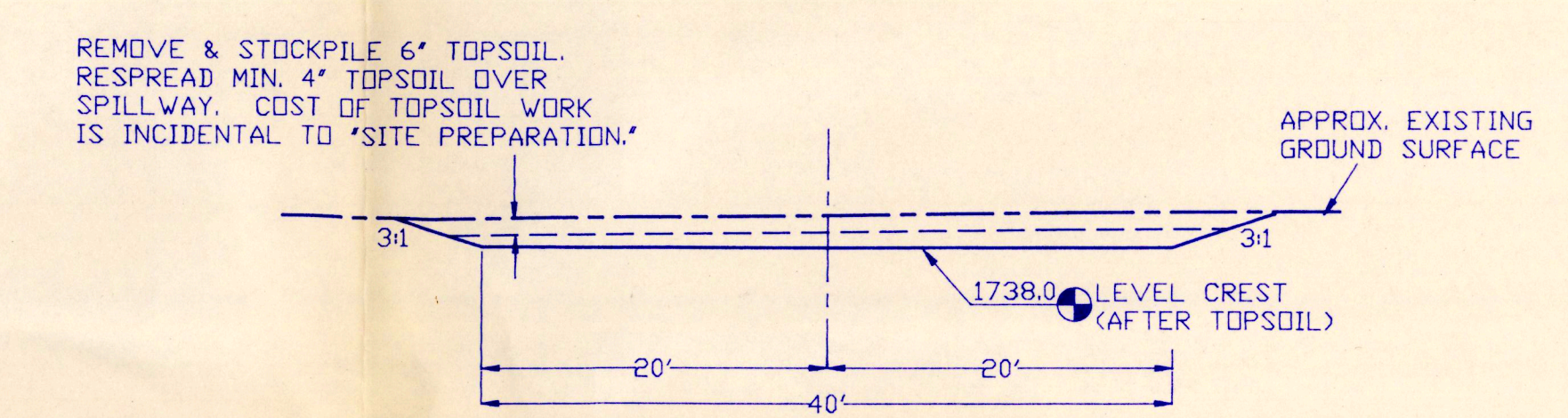
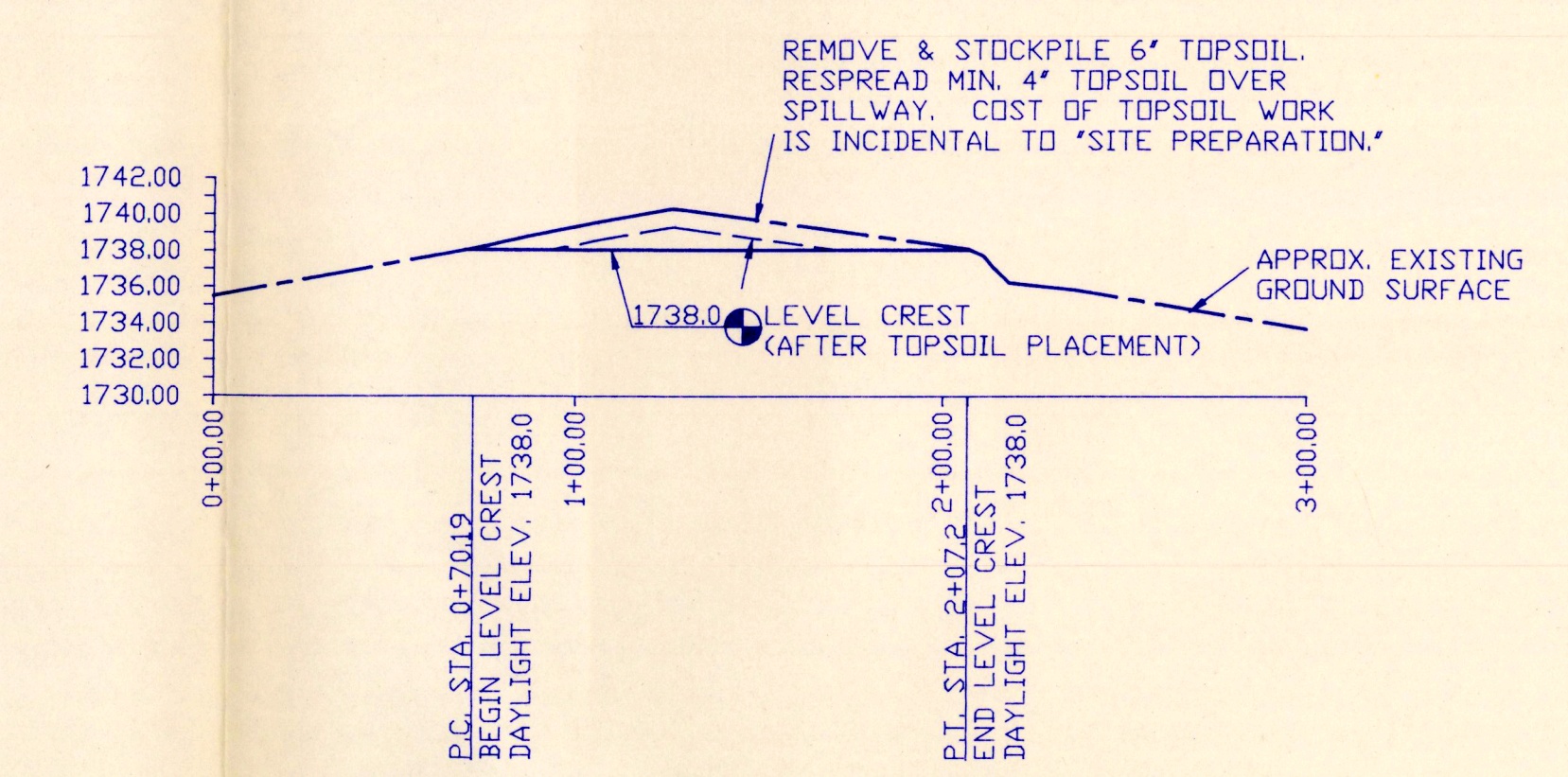
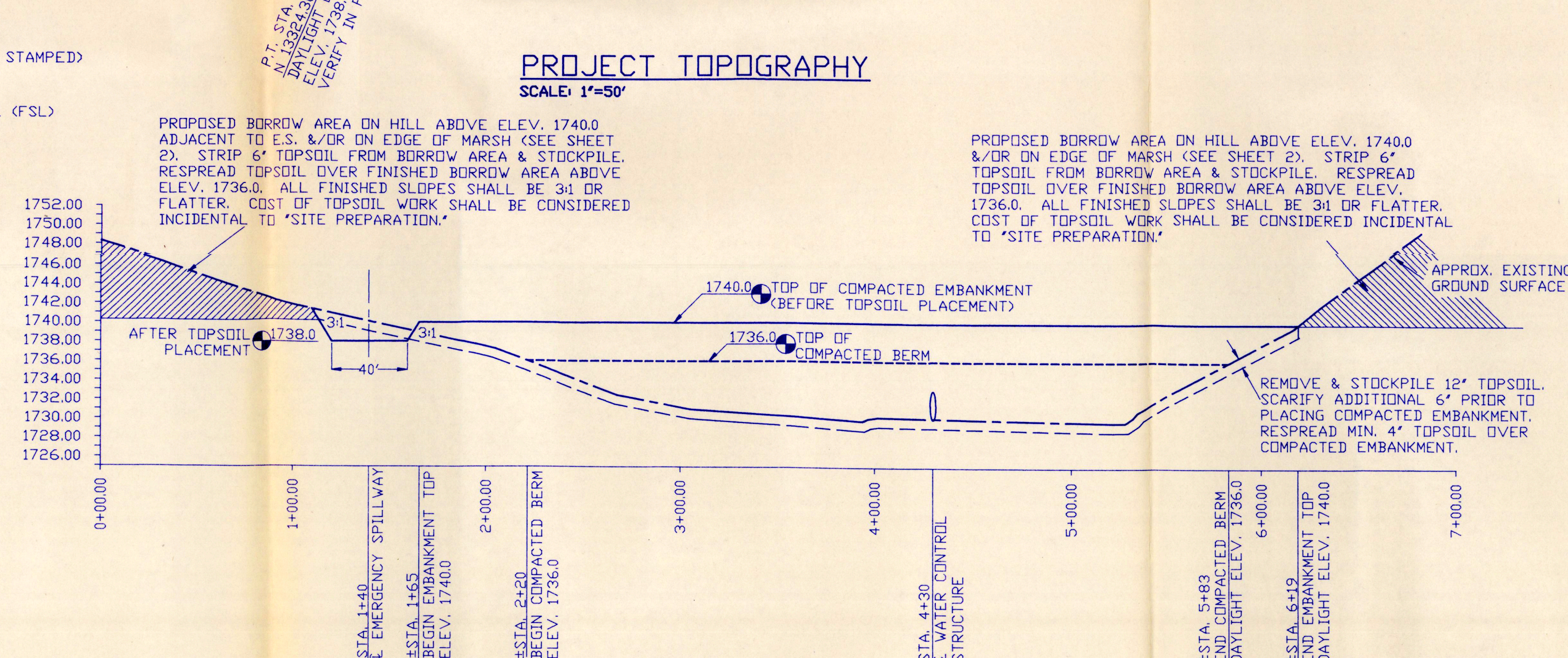
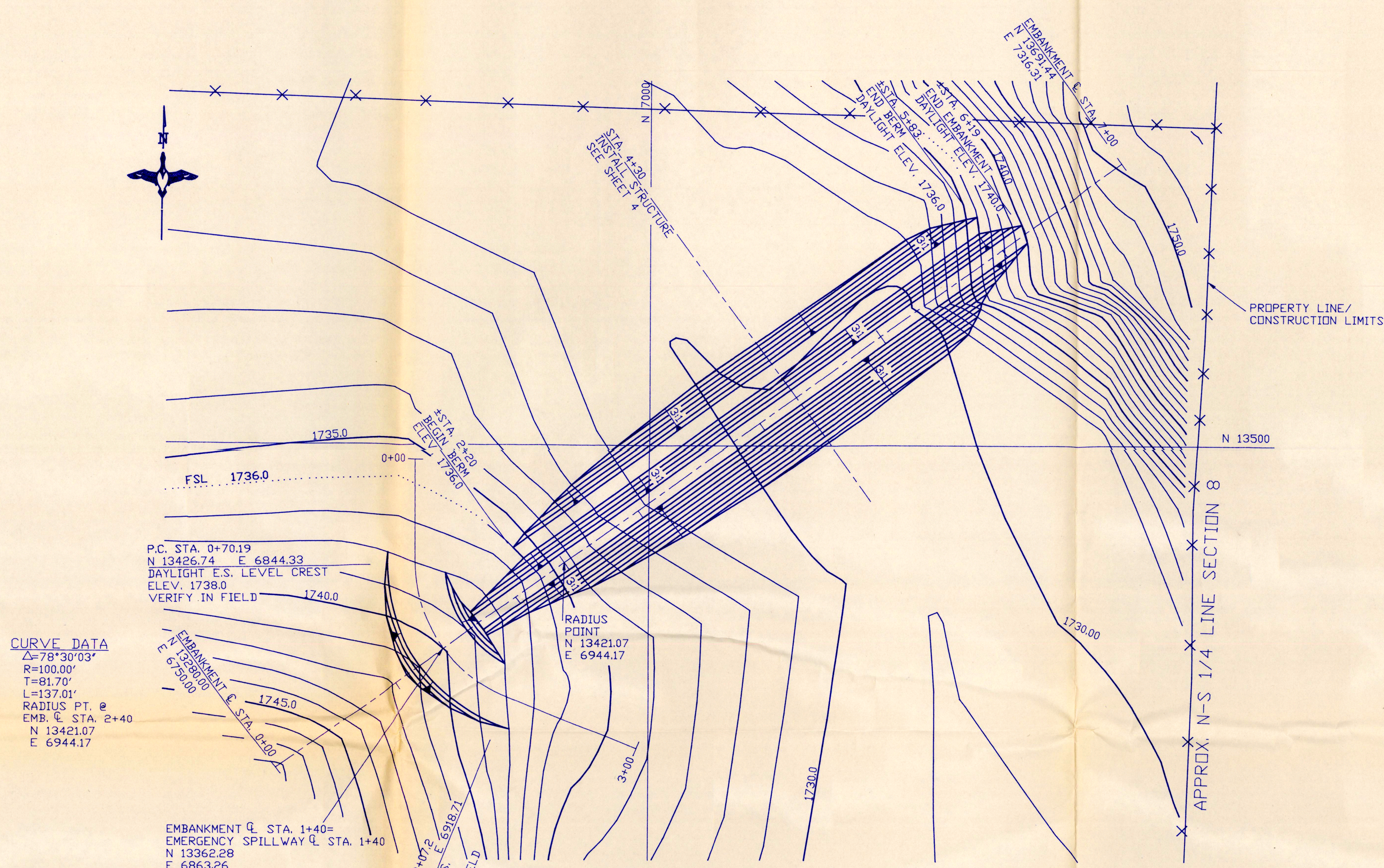
FENCE NOTE:
 ANY FENCE (EXCEPT PROPERTY LINE FENCE) IN WAY OF CONSTRUCTION
 SHALL BE REMOVED & SALVAGED BY CONTRACTOR. AGENCY IS RESPONSIBLE
 FOR REINSTALLATION OF FENCE. PROPERTY LINE FENCE ON EAST SIDE
 OF EMBANKMENT SHALL NOT BE DISTURBED.

VERTICAL CONTROL:
 FROM S.D. D.O.T. B.M. 14-407.56, AN ALUMINUM CAP PROPERLY STAMPED
 WITH ELEVATION 1734.98. TRIGONOMETRIC LEVELS WERE RUN FROM
 THE B.M. TO THE PROJECT SITE.

HORIZONTAL CONTROL:
 LOCAL DU COORDINATES WITH A REFERENCE TO NORTH AS 0° ALONG
 THE CENTERLINE OF THE GRAVEL ROAD ON THE EAST LINE OF SECTION 10.

 GREAT PLAINS REGIONAL OFFICE DATE: 2-1-95	PROJECT NO. SD-164-1 DRY LAKE WPA BULLIS WETLAND PROJECT TOPOGRAPHY	DESIGNED BY: D.J.L. DRAWN BY: KB SURVEYED BY: CHECKED BY: B.R.K.
	SHEET NO. 2 OF 5 APPROVED BY:	APPROVED BY:

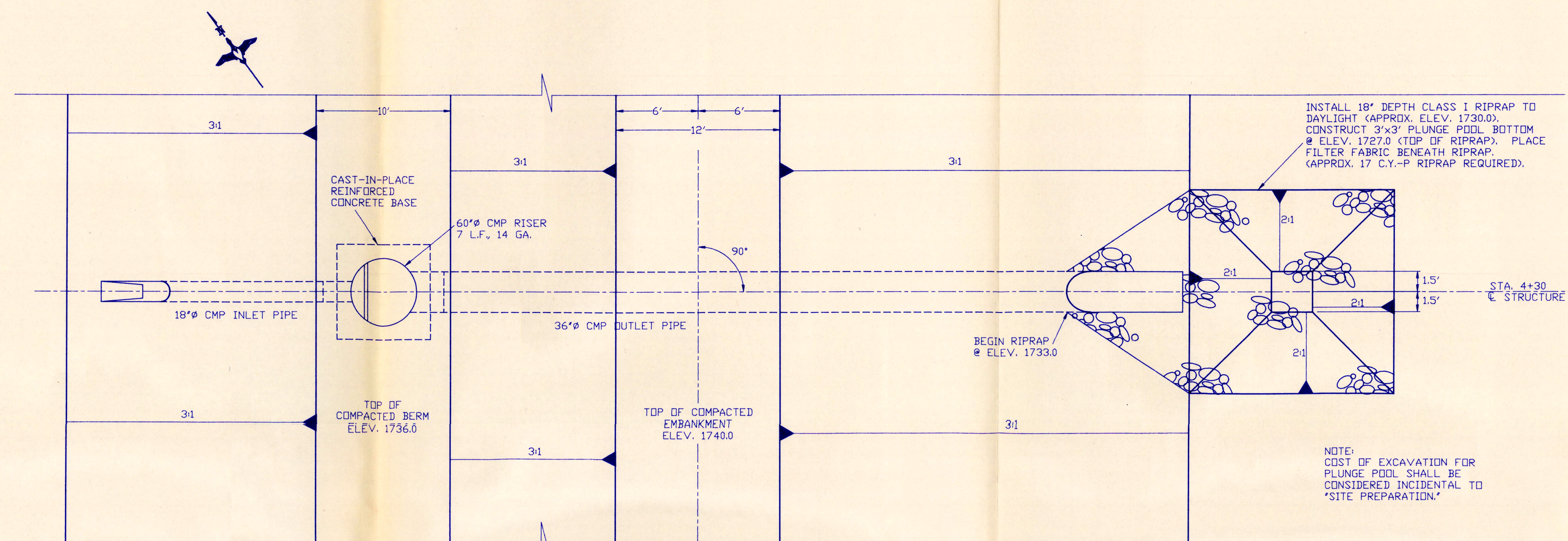
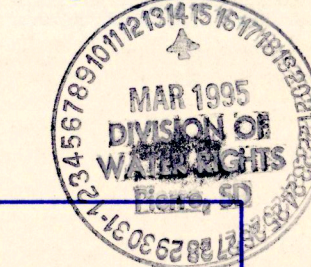
5855-3
MAR 1995
DIVISION OF
WATER RESOURCES
PROJECT NO. SD-164-1
SHEET 3 OF 5



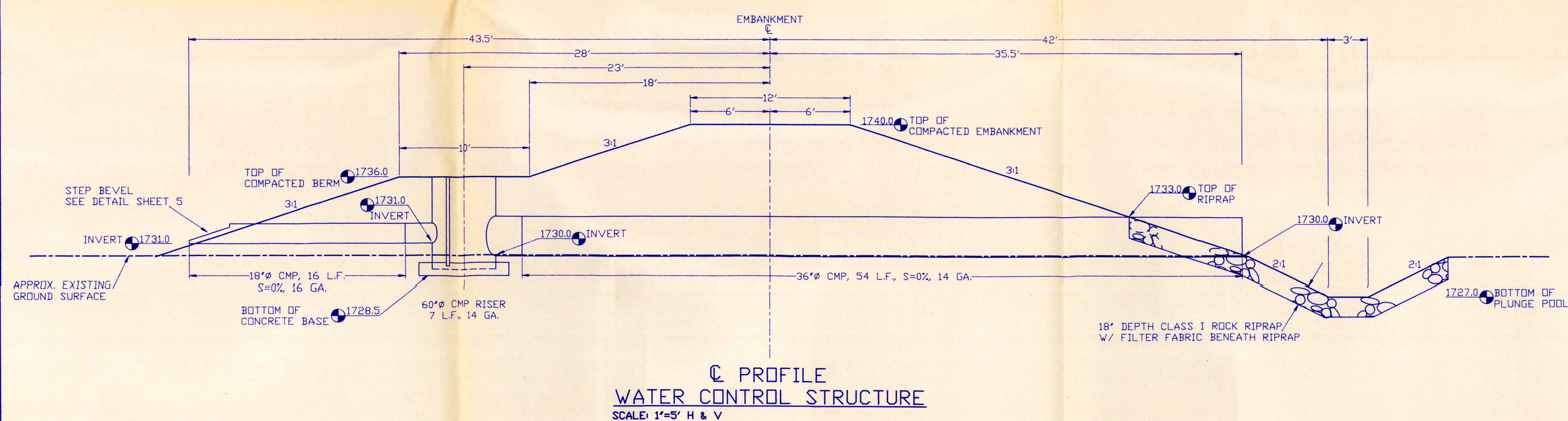
EMBANKMENT/EXCAVATION NOTE:
 SUITABLE MATERIAL EXCAVATED FROM THE EMERGENCY SPILLWAY SHALL BE USED IN EMBANKMENT CONSTRUCTION. THEREFORE, COST OF EMERGENCY SPILLWAY EXCAVATION SHALL BE CONSIDERED INCIDENTAL TO 'EMBANKMENT CONSTRUCTION.'

 GREAT PLAINS REGIONAL OFFICE DATE: 2-1-95	PROJECT NO. SD-164-1 DRY LAKE WPA BULLIS WETLAND SITE PLAN & PROFILES	DESIGNED BY: D.J.L. DRAWN BY: KB SURVEYED BY: CHECKED BY: B.R.K. APPROVED BY:

5855-3



SOILS NOT YET AVAILABLE



DUCKS UNLIMITED INC. GREAT PLAINS REGIONAL OFFICE	PROJECT NO. SD-164-1 DRY LAKE WPA BULLIS WETLAND STRUCTURE PLAN & PROFILE	DESIGNED BY: D.J.L. DRAWN BY: KB SURVEYED BY: CHECKED BY: B.R.K.
DATE: 2-1-95	SHEET NO. 4 OF 5	APPROVED BY:

