

WATER PERMIT NO. 5937-3

Name of Applicant: William Welk

Address: 510 Citizens Bldg, Aberdeen SD 57401

Phone: 605 229-4848

Amount of Water Claimed: 125.9 acre-feet

Total Acres: NA

Source of Water Supply: Foot Creek

Water to be used for: domestic, fish & wildlife propagation

County: Brown

Type of Waste Disposal System: NA

Location: 10 miles northwest of Aberdeen

PRIORITY

Date Received: 5-17-96

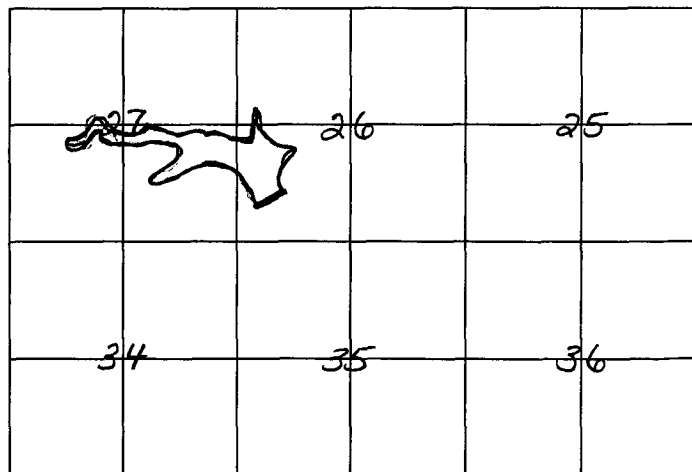
Fee: \$225.00

Corrected Application Received:

Period of Annual Use: January 1 - December 31

Remarks:

Diversion Point: SW 1/4 SW 1/4 Sec 26-T125N-
R65W



Water Impounded: S 1/2 SW 1/4, SW 1/4 NW 1/4
Sec 26; N 1/2 SE 1/4, NE 1/4 SW 1/4, SE 1/4
NW 1/4 Sec 27; all in T125N-R65W

Depth of Well: NA

Well Driller: NA

Remarks:

Type of Map: topo

Prepared by: Douglas J. Lipetsky

Reviewed and the Number Assigned on: 5-19-96

By: Karen Schlaak

Notice of Hearing - date to intervene: _____

No. 5937-3 Hydrologic Unit 10/60003
 Map No. _____ Basin Tamias River
 Newspaper American News, Aberdeen, SD

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

Check use of water: Industrial ☐ Commercial ☐ Municipal ☐ Other Common Distribution System ☐
 Rural Water System ☐ Suburban Housing ☐ Geothermal Heat ☐ Institutional ☐ Recreational ☐
 Domestic ☒ (above 18gpm) Other ☐

Type of Application: Check one or more of the following

New ☒ Vested Right ☐ Future Use ☐ Change Use ☐

☐ Amend Permit No. _____ with old priority date retained

Change diversion point(s) ☐ Add diversion point(s) ☐ Other ☐ _____

☐ Application to: Change diversion point(s) ☐ Add diversion point(s) ☐ on Permit No. _____

☐ Construction to use water reserved by Future Use Permit No. _____

1. Name of Applicant William Welk Phone No. 229-4848

Post Office Address 510 Citizens Bldg. Aberdeen State SD 57401
(Street, RR or Box) (City) Zip Code

2. Amount of water claimed (c.f.s) 125.9

3. Source of water supply Foot Creek

4. Location of point of diversion SW 1/4, SW 1/4 Section 26-T125N-R65W Water Impounded:
W 1/2 SW 1/4, SW 1/4 NW 1/4 Sec. 24; N 1/2 SE 1/4, NE 1/4 SW 1/4, SE 1/4 NW 1/4
Sec. 27; all in T125N-R65W County Brown

5. Counties where water will be used Brown

6. Annual period during which water is to be used Year Round Jan 1 - Dec. 31

7. Give a brief description of proposed 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)

- Enclosed Design Report

Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water, is proposed. (see instruction)

STATE OF SOUTH DAKOTA)
 County of Brown)^{ss}



William Welk

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.

Signed [Signature]

Subscribed and sworn to before me this 25th day of August 1995

[Signature]

SOUTH DAKOTA
WATER PERMIT NO. 5937-3

Date of first receipt of application May 17, 1996.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 5937-3 to William Welk, 510 Citizens Bldg, Aberdeen SD 57401 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. 5937-3 authorizes impoundment of 125.9 acre-feet of water from Foot Creek by constructing a dam located in the SW 1/4 SW 1/4 Section 26 with water impounded in the W 1/2 SW 1/4, SW 1/4 NW 1/4 Section 26; N 1/2 SE 1/4, NE 1/4 SW 1/4, SE 1/4 NW 1/4 Section 27; all in T125N-R65W. This permit authorizes impoundment of water sufficient to maintain water at the outlet elevation of 1390.0 feet mean sea level.
2. The water appropriated shall be used for the purpose of providing water for fish and wildlife propagation, domestic and livestock watering 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. 5937-3 is July 29, 1996.
5. The date from which applicant may claim right is May 17, 1996.
6. One-fifth of the construction is to be completed on or before January 29, 1999.
7. All construction is to be completed on or before July 29, 2001.
8. Water is to be put to beneficial use on or before July 29, 2005.
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. 5937-3 authorizes a dam with storage capacity of 125.9 acre-feet of water and sufficient water annually to maintain the water level to the outlet elevation of 1390.0 feet mean sea level.
2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

WATER MANAGEMENT BOARD

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

OCT 1 1996

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 Estimates

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

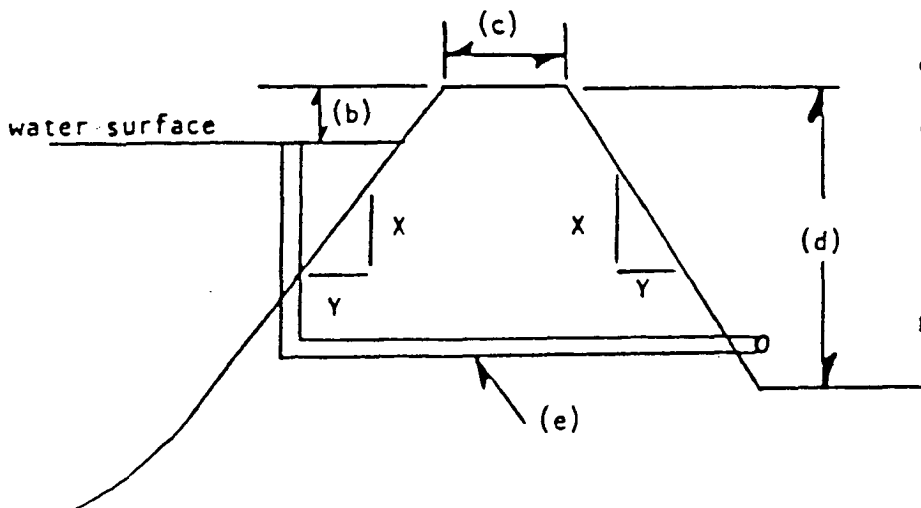
3. Water Storage Dams

If the proposed water use system contains one or more storage dams, please furnish the information requested below. The locations of each dam should 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
3502 Franklin Ave.
Bismark, ND 58501-0761
(701) 258-5599

- b) Freeboard 5 feet
- c) Crest Width 12 feet
Crest Length 438 feet
- d) Height 15 feet
- e) Primary Outlet Capacity 4206 cfs
If Pipe, diameter 120 foot sheet
pile weir
- f) Secondary Spillway Capacity _____
Spillway width _____
- g) X & Y Slope
Upstream 3:1
Downstream 3:1



Surface Area of Impoundment 45.6

Storage 125.9 acre feet

Drainage area above dam 80.8² miles

[Signature]
Signature of Applicant



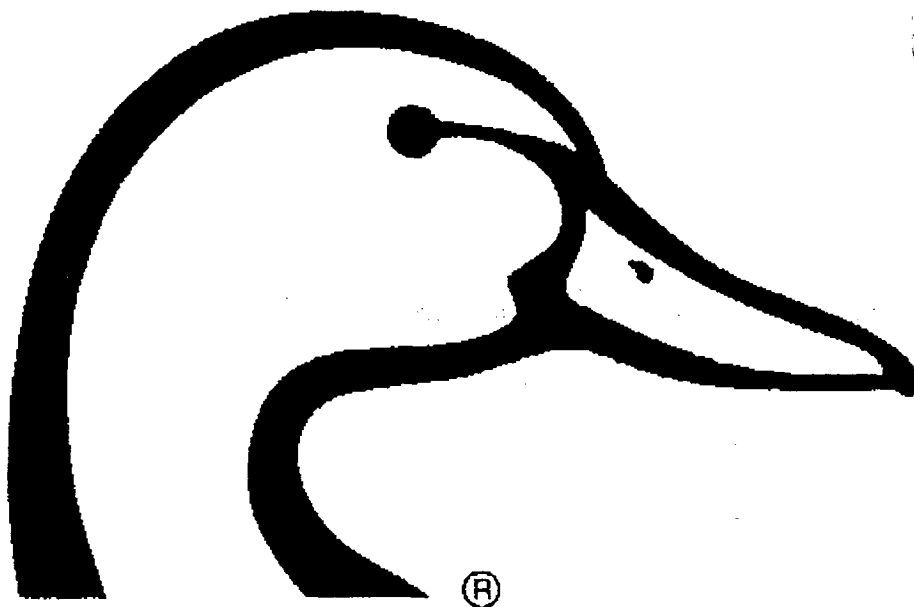
DESIGN REPORT

for

BILL WELK WETLAND

(SD-0171-001)

June 1, 1995



Prepared by:

Ducks Unlimited, Inc.
3502 Franklin Avenue
Bismarck, ND 58501

PROJECT: BILL WELK WETLAND
SD-0171-001

LOCATION: Sections 26-27, T 125 N, R 65 W
15 miles northwest of Aberdeen
Brown County, South Dakota

MARSH DATA: Full Service Level (FSL) @ 1390.0
45.6 Surface Acres @ FSL
125.9 Acre-Feet Capacity @ FSL

PROJECT DESCRIPTION:

The project as proposed involves the construction of a dam located on land owned by Mr. Bill Welk. All of the created impoundment will be on Mr. Welk's land as well. The embankment will be constructed across a drainage known as Foot Creek that discharges into Richmond Lake which discharges into Moccasin Creek, eventually making its way to the James River. The contributing watershed consists of approximately 80.8 square miles.

PRELIMINARY RISK ASSESSMENT:

The project site is located in a rural area of Brown County. No residences or other buildings are located downstream directly adjacent to the outlet channel. An east-west, gravel-surfaced section line road lies about 800' downstream from the proposed embankment. At the time of our on-site inspection and topographical survey, a double 3½' high by 10' wide concrete box culvert existed in the road passing water from north to south. The bridge deck was approximately 6.7' above the invert. Since the mid-March survey occurred in the midst of a fairly heavy spring snowmelt event, our surveyors observed water overtopping the roadway for a short period of time. There were three new 7' diameter by 80' long corrugated metal pipes (CMPs) being stored near the site which I assume will be used to replace the aging concrete box culvert.

The drainage meanders another two miles before reaching a second section-line road crossing and then enters the upper reaches of Richmond Lake.

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 should 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 small, low hazard, Category 3 dam. The product of the maximum storage capacity (441 acre-feet) times the effective height (10 feet) is 4410 which exceeds 3000. Therefore, the Category 3 exception noted in 74:02:08:07.01 does not apply. The minimum spillway design flood is a 50-year frequency per 74:02:08:07 and must be passed through the spillway without overtopping the embankment.

DESIGN:

In accordance with South Dakota requirement 74:02:08:07, the minimum spillway design flood for the proposed dam is a 50-year frequency event. The proposed dam is designed to exceed the South Dakota requirements. The primary spillway will pass flows in excess of those produced by a 100-year, 24-hour rainfall event without overtopping the embankment.

A steel sheet pile weir with a 120' long crest is proposed as the primary spillway. The structure will have removable stoplogs to provide variable control and drawdown capability. The weir crest elevation or full service level (FSL) is proposed at elevation 1390.0.

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 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 determined

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

based on discharges developed using the weir flow formula. 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	456 CFS	1391.12	3.88 FT	455 CFS
10 YR	835 CFS	1391.61	3.39 FT	834 CFS
25 YR	1657 CFS	1392.49	2.51 FT	1654 CFS
50 YR	2473 CFS	1393.21	1.79 FT	2468 CFS
100 YR	3516 CFS	1394.02	0.98 FT	3511 CFS

Primary Spillway (Weir) Crest Elevation @ 1390.0

Top of Compacted Embankment Elevation @ 1395.0

A 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 for the purposes of permit review.

Dated: June 1, 1995

Submitted By:

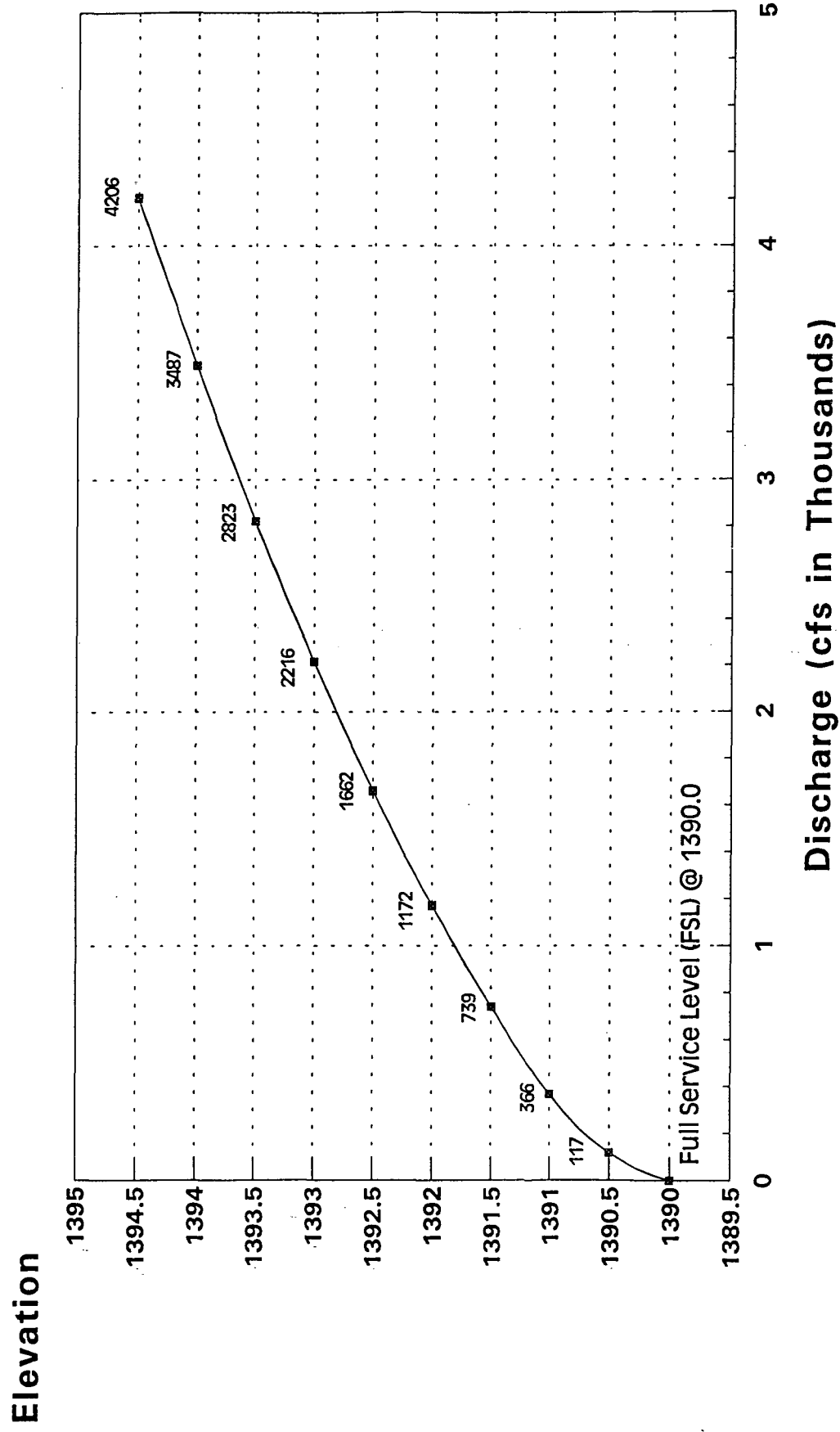


Douglas J. Lipetzky, P.E.

PE-4499

BILL WELK WETLAND

Discharge Curve For 120' Sheet Pile Weir



— 120' Sheet Pile Weir

Water Permit Application No. 5937-3

Bill Weik

Top of Dam Elev. - 1395
 Spillway Elev. - 1390
 Bottom - 1380 } 15 ft. high Cat. 3-Low Hazard Dam

Normal Storage Capacity - 125.9 Ac.-Ft.
 Maximum Storage Capacity - 441 Ac.-Ft.

Maximum Capacity x Eff height = $441 \times 10 = 4410 > 3000 \therefore 50\text{yr}$
Minimum Spillway Design

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

DA = 80.8 miles²
 SI = 3.16
 Slope = 15 ft/mile

$$Q_{50} = 106 A^{.63} S^{.45} S_i^{-.69}$$

$$= 106 (80.8)^{.63} (15)^{.45} (3.16)^{-.69}$$

$$= 106 (15.91) (3.38) (0.45)$$

$$= \underline{2565 \text{ cfs}}$$

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

$$= 132 (80.8)^{.65} (15)^{.46} (3.16)^{-.67}$$

$$= 132 (17.37) (3.48) (0.46)$$

$$= \underline{3670 \text{ cfs}}$$

Sheet Pile Spillway
 120 ft wide
 4:1 S. Slopes
 C = 2.8

$$Q = \frac{C L H^{3/2}}{1.48}$$

$$= \frac{2.8 (120) (5)^{1.5}}{1.48} L = 120 + 40 = 160$$

$$= \underline{5000 \text{ cfs}} \quad \text{OK!}$$

Ducks Unlimited uses the SCS TR-20 to route a Q_{50} peak of 2473 cfs through the dam with 1.79' of freeboard remaining and Q_{100} peak of 3516 cfs with 0.98 ft of freeboard remaining.

Section 74:02:08:09

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

SCS Annual Yield

Assume CN = 74 $I_{50} = 24$
 DA = 80.8 miles² = 51,712 Ac.

50% chance - 0.38
 $0.38 \times 51712/12 = \underline{1551 \text{ Ac.-Ft.}}$
 10% chance - 1.8
 $1.8 \times 51712/12 = \underline{7757 \text{ Ac.-Ft.}}$
 80% chance = 0.13
 $0.13 \times 51712/12 = \underline{560 \text{ Ac.-Ft.}}$

RECEIPT

414967

Division of Water Rights

South Dakota Department of Environment and Natural Resources

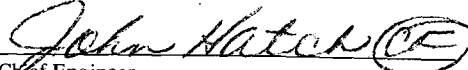
Pierre, _____ May 17, 19 96

RECEIVED OF Sand Lake NWR (William Welk), 39650 Sand Lake Drive, Columbia, SD 57433

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

Fee for Application for Permit No. <u>5937-3</u> to Appropriate Water, to construct and to put water to beneficial use _____	225	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	225 00

By John Hatch 
Chief Engineer



United States Department of the Interior

FISH AND WILDLIFE SERVICE
SAND LAKE NATIONAL WILDLIFE REFUGE
RR1, BOX 25
COLUMBIA, SOUTH DAKOTA 57433-9761
605/885-6320

IN REPLY REFER TO:

May 14, 1996

Department of Environment
and Natural Resources
Water Rights Division
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3181



To whom it may concern:

Enclosed are two copies of an application for a water permit, engineering design reports, and plans for a proposed project. Also enclosed is the required filing fee of \$225.00 for the application.

As you will see, this project is proposed to be constructed on private land owned by William Welk. It would be greatly appreciated if you would keep both Mr. Welk and me informed of the progress of this application.

Thank you,

Boyd Schulz
Biological Technician

REPORT ON
WATER PERMIT APPLICATION NO. 5937-3
Bill Welk
June 14, 1996

Water Permit Application No. 5937-3 has been filed by Bill Welk to appropriate 125.9 acre-feet of water annually from Foot Creek by constructing a dam located in the SW 1/4 SW 1/4 of Section 26-T125N-R65W, in Brown County. This application requests impoundment of water sufficient to maintain water at the spillway elevation of 1390.0 feet mean sea level. The water will be used to provide habitat for fish and wildlife production, domestic and livestock watering use.

Discussion:

The Bill Welk Wetland Project has been designed by Ducks Unlimited, Inc., and the plans and specifications have been reviewed and can be approved; however, construction of the dam can not begin until Water Permit Application No. 5937-3 is approved. The Welk Dam will be classified as a Category 3, Low Hazard dam. It will be 15 feet high with a normal storage capacity of 125.9 acre-feet with a reservoir level at the spillway elevation, and a maximum storage capacity of 441 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 50-year frequency event.

The Welk Dam is designed to have a 120 foot wide steel sheet pile spillway with 5 feet of available freeboard. The drainage area above the dam is 80.8 square miles. Ducks Unlimited used the Soil Conservation Service TR-20 model to route a 50-year frequency event peak of 2473 cfs through the spillway with 1.79 feet of freeboard remaining. A 100-year frequency event peak of 3516 cfs is routed through the spillway with 0.98 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 1551 acre-feet. The annual yield with a 80 percent chance of occurrence, or 8 out of 10 years, is expected to be 560 acre-feet and the annual yield with a 10 percent chance of occurrence, or 1 out of 10 years, is expected to be 7757 acre-feet.

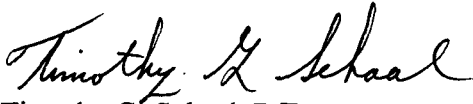
The Bill Welk Wetland project will be located in the W 1/2 SW 1/4, SW 1/4 NW 1/4 of Section 26; the N 1/2 SE 1/4, NE 1/4 SW 1/4 and the SE 1/4 NW 1/4 of Section 27; all in T125N-R65W. The dam will be located on Foot Creek about 3 miles upstream of the reservoir created by Richmond Lake Dam. The Department of Game, Fish and Parks holds Vested Right Claim No. 1844-3 for the storage of 3036 acre-feet of water annually in Richmond Lake Dam. The Bill Welk Wetland project should have little effect on Vested Right Claim No. 1844-3, since Richmond Lake has a drainage area of 159 square miles and a surface area of 1012 acres. There are no other Water Rights/Permits located between Richmond Lake Dam and the Bill Welk Wetland project

Page 2

Water Permit Application No. 5937-2

Conclusions:

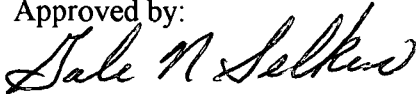
1. Water Permit Application No. 5937-3 should be approved since unappropriated water is available and approval should not have any adverse effect on existing Water Permits/Rights.
2. If approved, the low flow bypass requirement for downstream domestic use should be a qualification on Water Permit Application No. 5937-3.



Timothy G. Schaal, P.E.

Natural Resources Engineer III

Approved by:



Gale N. Selken, P.E.

Natural Resources Engineer IV

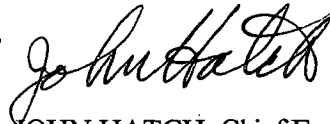
**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 5937-3, William Welk**

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. 5937-3, William Welk, 510 Citizens Building, Aberdeen, SD 57401.

The Chief Engineer is recommending APPROVAL of Application No. 5937-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion has been 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. Water Permit No. 5937-3 authorizes a dam with storage capacity of 125.9 acre-feet of water and sufficient water annually to maintain the water level to the outlet elevation of 1390.0 feet mean sea level.
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.



JOHN HATCH, Chief Engineer
June 27, 1996



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

June 28, 1996

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

Dear Mr. Lipetzky:

We have reviewed the plans and specifications for the Bill Welk Wetland Project located in Sections 26 and 27-T125N-R65W, in Brown County. The plans and specifications as submitted are approved. Approval of the plans and specifications does not authorize construction of the project. Construction of the project may not begin until Water Permit Application No. 5937-3 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 and Wildlife Service or Mr. Welk, 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 Welk Dam will be classified as a small size Category 3 dam with a dam height of 15 feet, a normal storage capacity of 125.9 acre-feet, and a maximum storage capacity of 441 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 Program
(605) 773-3352

c: Bill Welk
Boyd Schulz, USFWS



**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.

June 28, 1996

William Welk
510 Citizens Bldg.
Aberdeen, SD 57401

Dear Mr. Welk:

Water Permit Application No. 5937-3 for domestic, 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 American News printed at Aberdeen, SD (Ph # (605) 225-4100). For your information, a copy of the notice, the recommendation of the Chief Engineer and a report on the application are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

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

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

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



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

June 28, 1996

American News
P.O. Box 4430
Aberdeen, SD 57402-4430

ATTENTION: Legal Department

Enclosed is a Notice of Hearing on Application No. 5937-3 to be published twice. Please publish the first notice on July 10, 1996, 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 William Welk, 510 Citizens Bldg., Aberdeen, SD 57401 (Ph # (605) 229-4848).

A copy of BOTH publications must be SENT to the WATER RIGHTS PROGRAM. 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 Program
Joe Foss Building
Pierre SD 57501-3181

No. 5937-3

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 July 10, 1996, with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 5937-3 to Appropriate Water

Notice is given that William Welk, 510 Citizens Bldg., Aberdeen, SD 57401 has filed an application for a water permit to impound 125.9 acre-feet of water from Foot Creek by constructing a dam located in the SW 1/4 SW 1/4 Section 26 with water impounded in the W 1/2 SW 1/4, SW 1/4 NW 1/4 Section 26; N 1/2 SE 1/4, NE 1/4 SW 1/4, SE 1/4 NW 1/4 Section 27; all in T125N-R65W. This application requests impoundment of water sufficient to maintain water at the outlet elevation of 1390.0 feet mean sea level. The water is to provide habitat for fish and wildlife production, domestic and livestock watering use.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5937-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the chief engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the chief engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and chief engineer. The applicant must file a petition if contesting the chief engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD. 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by July 29, 1996.

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

PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
County of Brown) SS

1. Roberta Dempsey



certify that the attached printed Notice was

taken from the Aberdeen
American News

printed and published in Aberdeen

County of Brown and State of

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

July 10, 1996

July 17, 1996

Cost of Printing: 55.43

(No. 982 - July 10, 17 - 2T)
**NOTICE OF APPLICATION NO. 5937-3
to Appropriate Water**

Notice is given that William Welk, 510 Citizens Bldg., Aberdeen, SD 57401 has filed an application for a water permit to impound 125.9 acre-feet of water from Foot Creek by constructing a dam located in the SW 1/4 SW 1/4 Section 26 with water impounded in the W 1/2 SW 1/4, SW 1/4 NW 1/4 Section 26; N 1/2

SE 1/4, NE 1/4 SW 1/4, SE 1/4 NW 1/4 Section 27; all in T125N-R65W. This application requests impoundment of water sufficient to maintain water at the outlet elevation of 1390.0 feet mean sea level. The water is to provide habitat for fish and wildlife production, domestic and livestock watering use.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 5937-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the chief engineer will act on the application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the chief engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider the application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and chief engineer. The applicant must file a petition if contesting the chief engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by July 29, 1996.

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

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

Roberta Dempsey
(Signature)
Receptionist
(Title)
July 17, 1996
(Date Signed)



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

OCT 1 1996

William Welk
510 Citizens Bldg.
Aberdeen, SD 57401

Dear Mr. Welk:

Enclosed is Water Permit No. 5937-3 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 Program
605 773-3352

enclosures

PLEASE NOTE: Certain changes may be made to your water permit usually without affecting the priority date. The location of a point of diversion may be changed or additional points of diversion may be approved if the water source remains unchanged; no additional water is appropriated; and, if irrigating, no additional land is irrigated. The change may be allowed without application or publication, if the Water Rights Program is contacted and the chief engineer makes a finding that the change does not increase the potential for interference with existing diversions.

A new water permit application is required to change water sources, increase the permitted diversion rate, or increase the irrigated acreage. If the application is approved, the water permit will receive a new priority date.

File No. 5937-3

Water Rights Division -DENR
Conversation or File Documentation

NAME OF PERSON OR FILE: William Welk

ADDRESS: XXXXXXXXXXXXXX

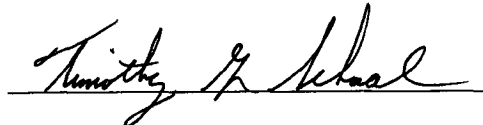
COUNTY: Brown

DATE: April 2, 1997

TELEPHONE: XXXXXXX

RE: Representative Waltman's concerns

I met with Representative Waltman on March 31, 1997, to discuss his concerns about Water Permit Application No. 5937-3. It seemed that he was mainly concerned about flooding to roads upstream of the proposed dam. We reviewed the plans and the topo map and discussed Ducks Unlimited design that will route the 100 year event through the dam and only raise the reservoir 4 feet. He seemed satisfied with this. He was also concerned about the road immediately downstream of the proposed dam. There was a proposal to place several large culverts through this road that may have been stopped due to some confusion associating the road with Mr. Welk's proposed dam. I talked to Ducks Limited and USFWS today about this and they both said they will talk to the County. All of these roads had been or were being overtopped with this spring's runoff event.



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

Gronlund, Eric

From: Gronlund, Eric
To: Pirner, Steve; Hatch, John
Cc: Selken, Gale; Schaal, Tim
Subject: Call from Representative Waltman - request for information
Date: Friday, March 14, 1997 1:53PM

I received a call from Representative Waltman in Brown County. He was concerned regarding Water Permit No. 5937-3 issued to William Welk last October. This permit authorizes impoundment of 125.9 acre feet of water from Foot Creek about 3 miles upstream of Richmond Lake. The structure is designed by Duck Unlimited in cooperation with Mr. Welk and USFWS. The structure is not yet constructed.

Rep. Waltman owns land above the proposed dam and stated a number of concerns including 1) whether state law allows construct of a dam on a stream; 2) impairment to Richmond Lake; 3) water backing onto his land; and 4) the impoundment causing a road to be under water for a longer period of time because it inhibits natural flow. I answered each of his concerns. I believe Nos. 3 and 4 were his primary concerns. I told him nothing in the water right permit allows water to be permanently impounded on another property without an easement. The county road appears to be over one mile from the back water. Also, a county road is located less than a quarter of a mile below the dam. I believe Rep. Waltman was successful a few years ago in getting the county to install additional culverts in this road to help with drainage. I stated the spillway is designed to pass flow in excess of those produced by a 100-yr, 24-hour rainfall event.

Rep. Waltman wanted to know if sometime this spring a staff person can come up and look over the situation prior to the dam being constructed. I stated that would be possible. He indicated there is too much snow right now and he would call back when it is more viewable. He realized this is an extreme year with the anticipated snow melt.

Finally, he wanted a copy of the permit, our report and and design information on the proposed structure. Is it okay to send him this information?



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

March 18, 1997

Representative Alfred Waltman
12277 376th Avenue
Aberdeen, SD 57401

Dear Representative Waltman:

I am writing regarding your inquiry to the water right permit issued to William Welk in Brown County. Water Permit No. 5937-3 was issued last fall authorizing impoundment of 125.9 acre feet of water from Foot Creek. The surface area of the impoundment is to be 45.6 acres.

I am enclosing a copy of the water permit, the staff report prepared in our review of the application and the design report prepared by Ducks Unlimited. The primary spillway is designed to pass flows in excess of the 100-year, 24-hour rainfall event.

A Water Rights staff person can meet on-site with you this spring to discuss the effects of the impoundment prior to construction of the dam. Please contact us when the snow is gone and the site can be viewed.

Sincerely,

Eric Gronlund
Water Rights Program
(605) 773-3352

enclosure

REPORT ON INSPECTION OF PERMIT NO. 5937-3

Other permit(s) associated with the project: XXXX

DATE OF INSPECTION: August 14, 1998

NAME & ADDRESS OF INSPECTION CONTACT/ William Welk, 510 Citizens Bldg., Aberdeen SD 57401

RELATIONSHIP TO PERMIT HOLDER, IF APPLICABLE: owner

NAME & ADDRESS OF PERMIT HOLDER: same

DIVERSION POINT LEGAL LOCATION: 1000 feet north & 1150 feet east of the SW corner of Section 26-T125N-R65W (SW ¼ SW ¼).

DAM INFORMATION:

- 1) Height to crest 15 feet
- 2) Height to primary spillway 10 feet
- 3) Height to secondary spillway N/A feet
- 4) Crest width 12 feet
- 5) Crest length 438 feet
- 6) Spillway length XXX feet
- 7) Spillway width 120 feet
- 8) Approx. storage (Normal) 125.9 acre-feet
- 9) Approx. storage (Maximum) 441 acre-feet
- 10) Date constructed: 1997

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

Permit No. 5937-3
James River - Water District

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

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

I have this day, **August 14, 1998**, made a thorough examination of the water use system constructed by **William Welk** of **510 Citizens Bldg., Aberdeen, SD 57401** holder of Permit No. **5937-3**, bearing the priority of **May 17, 1996** authorizing the storage of **125.9** acre-feet of the waters of **Foot Creek** for **fish & wildlife propagation, domestic & livestock watering** purposes, in **Brown** County.

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

A. Works used to divert the water:

15 foot high dam with 120 foot sheet pile weir

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

N/A

C. Works used to apply water to beneficial use:

15 foot high dam with 120 foot sheet pile weir

The system is in the following condition **good**. The point of diversion is located **1000 feet north & 1150 feet east of the SW corner of Section 26-T125N-R65W (SW ¼ SW ¼)**. The works are capable of storing **125.9** acre-feet of water which is to be used for **fish & wildlife propagation, domestic & livestock watering**. Water has been put to beneficial use to the maximum extent as follows:

15 foot high dam with 120 foot sheet pile weir

and the license should be issued for **125.9** acre-feet of storage.

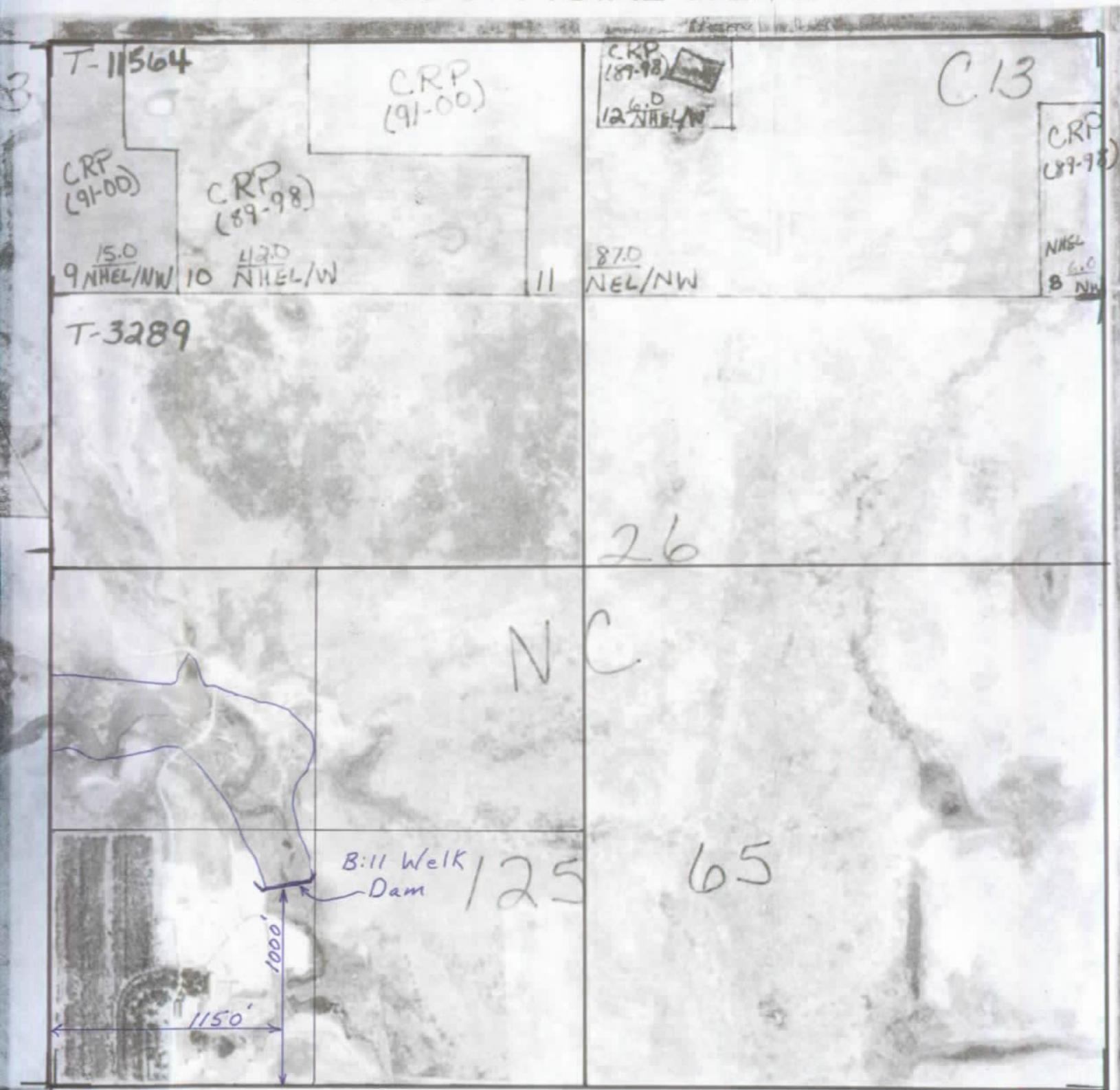
Applicable permit qualifications have been complied with: Yes **X**

Exceptions to compliance are: **none** Date Report Completed: **August 24, 1998**



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

MAP NOT TO SCALE
THIS IS NOT AN OFFICIAL WETLAND MAP.



Timothy R. School
August 24, 1998

5937-3

T-3289

~~C.R.P.~~
~~(87-96)~~

C 13

~~50.0~~
~~NHE/W~~

CRP
98-07

NC

1 150.0
NHE/W

NC

~~C.R.P.~~
~~(87-96)~~

~~3 50.0~~
~~NHE/W~~

NC 27

CRP
98-07

125-65

гг. 3

L. ~~41.9~~ NHEL/W

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 5937-3

(1) William Welk, PO Box 266, Aberdeen SD 57402 made Application No. 5937-3, May 17, 1996 for a water permit to impound 125.9 acre-feet of water from Foot Creek, Brown County, South Dakota for fish & wildlife propagation, domestic and livestock watering purposes. Permit No. 5937-3, with a priority date of May 17, 1996 was approved July 29, 1996 and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before July 29, 2001 and for the application to beneficial use of said water on or before July 25, 2005.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the storage dam and is entitled to impound 125.9 acre-feet of water for beneficial use with sufficient water annually to maintain the water level to the outlet elevation of 1390.0 feet mean sea level. The location of the storage dam (spillway) is 1,000 feet north and 1,150 feet east of the southwest corner of Section 26-T125N-R65W (SW 1/4 SW 1/4).

(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 William Welk, PO Box 266, Aberdeen SD 57402 the holder and/or owner of Water Permit No. 5937-3 is issued a license to appropriate water, the right to impound 125.9 acre-feet of water from Foot Creek with sufficient water annually to maintain the water level to the outlet elevation of 1390.0 feet mean sea level with a priority date of May 17, 1996 from the location specified in (2) of this license. The water is used for providing habitat for fish & wildlife propagation, domestic and livestock watering. This license is subject to any limitations or qualifications listed in Water Permit No. 5937-3 and subject to South Dakota State Law.



JOHN HATCH, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

JAN 19 1999

date





**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

August 26, 1998

5937-3

William Welk
510 Citizens Bldg.
Aberdeen, SD 57401

Dear Mr. Welk:

The investigation of your water use system was conducted on August 14, 1998, by timothy G. Schaal, staff engineer. The investigation included the extent of application of water to beneficial use, as developed under Water Permit No. 5937-3. Your final water right document, the Water License, can now be issued.

Statutes require that we charge a \$50.00 fee for the investigation and issuance of the Water License. Upon receipt of the \$50.00 fee from you, we will begin processing your Water License.

**Please remit fee to:
Department of Environment & Natural Resources
Water Rights Program
523 E. Capitol
Pierre, SD 57501-3181**

Sincerely,

Cheryl F. Frost
Secretary
Water Rights Program
(605) 773-3352

NOTE: On check or money order, please specify your permit number. This will insure proper handling of the fee.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

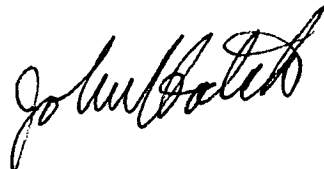
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

November 17, 1998

Permit No. 5937-3

REMINDER NOTICE

TO: William Welk
510 Citizens Bldg.
Aberdeen, SD 57401

FROM: John Hatch, Chief Engineer
Water Rights Program 

SUBJECT: Water License/Investigation Fee Requirement

On August 26, 1998, we advised you that a \$50.00 fee is due for the completed investigation of Water Permit No. 5937-3. The fee also covers issuance of your water license which is the final document in obtaining and perfecting a water right.

To date, we have not received the \$50.00 fee; therefore, we can not issue the water license. Your licensed water right will be similar to a property right that can not be lost as long as the water use continues and you abide by any permit requirements.

Please remit the fee as soon as possible to obtain your water license. In addition, South Dakota water law does not allow water to be diverted until the license fee is paid. To avoid jeopardizing your ability to use water, please send the fee to the following address:

Department of Environment and Natural Resources
Water Rights Program
523 E Capitol
Pierre SD 57501-3181

Thank you for your prompt response. If you have any questions or believe our records are in error, please contact Genny McMath at (605) 773-3352.



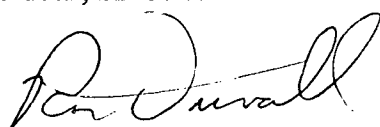
**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

December 22, 1998

NOTICE

TO: William Welk, 510 Citizens Building, Aberdeen, SD 57401

FROM: Ron Duvall, Natural Resources Engineer
for JOHN HATCH, Chief Engineer
Water Rights Division 

SUBJECT: Unclaimed Certified Mail Concerning Water License Fee Requirement

The attached notice was sent certified mail, return-receipt requested. The post office has returned the certified mail return-receipt requested envelope to our office marked "unclaimed". The envelope indicated the post office notified you November 18, 1998 and November 24, 1998 to pick up and sign for the certified mail.

If you have any questions, please contact Genny McMath, (605) 773-3352.

enclosure

CERTIFICATION

I hereby certify that on December 22, 1998, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated December 22, 1998, along with the Reminder Notice that was sent out by Certified Mail on November 17, 1998, regarding Unclaimed Certified Mail Concerning Water License Fee Requirement for Water Permit No. 5937-3, addressed as stated below:

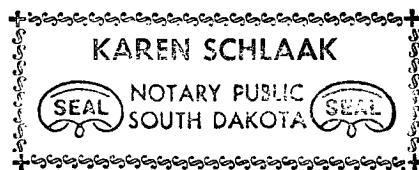
William Welk, 510 Citizens Building, Aberdeen, SD 57401.


Cheryl F. Frost
Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 28th day of December, 1998


Notary Public



KAREN SCHLAAK, Notary Public
My Commission Expires
April 1, 2001

RECEIPT

Water Rights Program

South Dakota Department of Environment and Natural Resources

N2 415992

Pierre, December 28 19 98

RECEIVED OF William Walk, P.O. Box 266, Aberdeen, SD 57402
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. 5937-3

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 H. H. H. H.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

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

JAN 19 1999

5937-3

William Welk
P.O. Box 266
Aberdeen, SD 57402

Dear Mr. Welk:

Enclosed is Water License No. 5937-3 and Receipt No. 415992 for \$50.00 which was assessed for an investigation and issuance of the license. Water License No. 5937-3 is the final document which completes the process of obtaining a water right.

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

Very truly yours,

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

ks
enclosures



DUCKS UNLIMITED

DUCKS UNLIMITED

PROJECT

BILL WELK WETLAND SECTIONS 26 & 27, T 125 N, R 65 W, BROWN COUNTY, SOUTH DAKOTA

IN COOPERATION WITH

U.S FISH & WILDLIFE SERVICE

&

BILL WELK

SPECIFICATIONS

GENERAL CONDITIONS	101
MOBILIZATION	201
SITE PREPARATION	202
EXCAVATION	203
EMBANKMENT CONSTRUCTION	204
WATER	205
RIPRAP PLACEMENT	209
SHEET PILE MATERIAL	214
SHEET PILE INSTALLATION	215
STRUCTURAL STEEL	216
STEEL H-PILES	217

PLAN INDEX

VICINITY MAP	1
PROJECT TOPOGRAPHY	2
PROJECT SITE PLAN	3
STRUCTURE PLAN & PROFILE	4
SHEET PILE DETAILS	5
MISCELLANEOUS DETAILS	6
SOILS INFORMATION	7

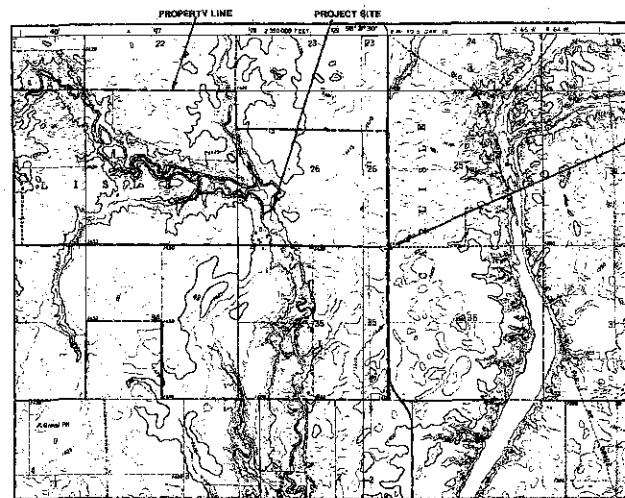
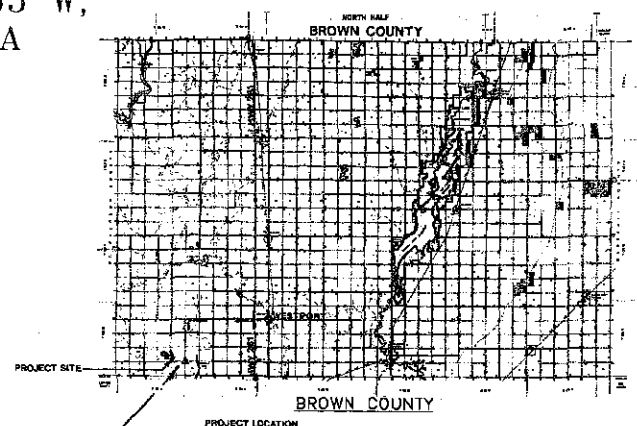
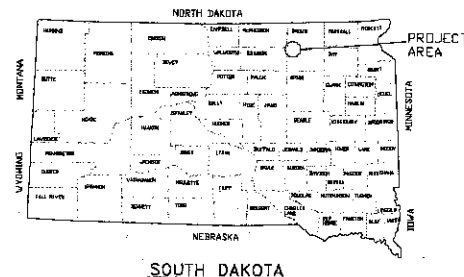
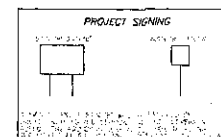
ESTIMATED QUANTITIES

MOBILIZATION	1 L.S.
SITE PREPARATION	1188 C.Y.-P
EXCAVATION	2025 C.Y. (INCIDENTAL TO EMBANKMENT)
EMBANKMENT	5958 C.Y.-S*
WATER	18 M-GAL.**
RIPRAP	
CLASS I (3"-18" @)	50 C.Y.-P
CLASS II (9"-24" @)	200 C.Y.-P
SHEET PILE MATERIAL	3295 S.F.-P
SHEET PILE INSTALLATION	3295 S.F.-P
STRUCTURAL STEEL	1 L.S.
STEEL H-PILES	84 L.F.-P

* INCLUDES 10% FOR SHRINKAGE

**BASED ON 3 GAL./C.Y., HOWEVER,

ACTUAL QUANTITY WILL BE PAID FOR.


VICINITY MAP
SCALE: 1"=2000'

MAP POINT
10.5 MILES WEST
& 5 MILES SOUTH
OF HWY. 281 & WESTPORT

AGENCY CONTACT:
BOYD SCHULZ-187VS
SAND LAKE WAIR
605/985-6320

DUCKS UNLIMITED INC. 10000 N. 10TH AVE. SUITE 100 DENVER, CO 80231	PROJECT NO. SD-073-001 BILL WELK WETLAND VICINITY MAP	DRAWN BY: JLB CHECKED BY: JLB DATE: 7-31-95 SHEET NO. 1 OF 7	APPROVED BY: [Signature] DATE: 8/1/95
	5937-3		

Appl. 5937-3



DUCKS UNLIMITED

DUCKS UNLIMITED

PROJECT

BILL WELK WETLAND

SECTIONS 26 & 27, T 125 N, R 65 W,
BROWN COUNTY, SOUTH DAKOTA

IN COOPERATION WITH

U.S FISH & WILDLIFE SERVICE

&

BILL WELK

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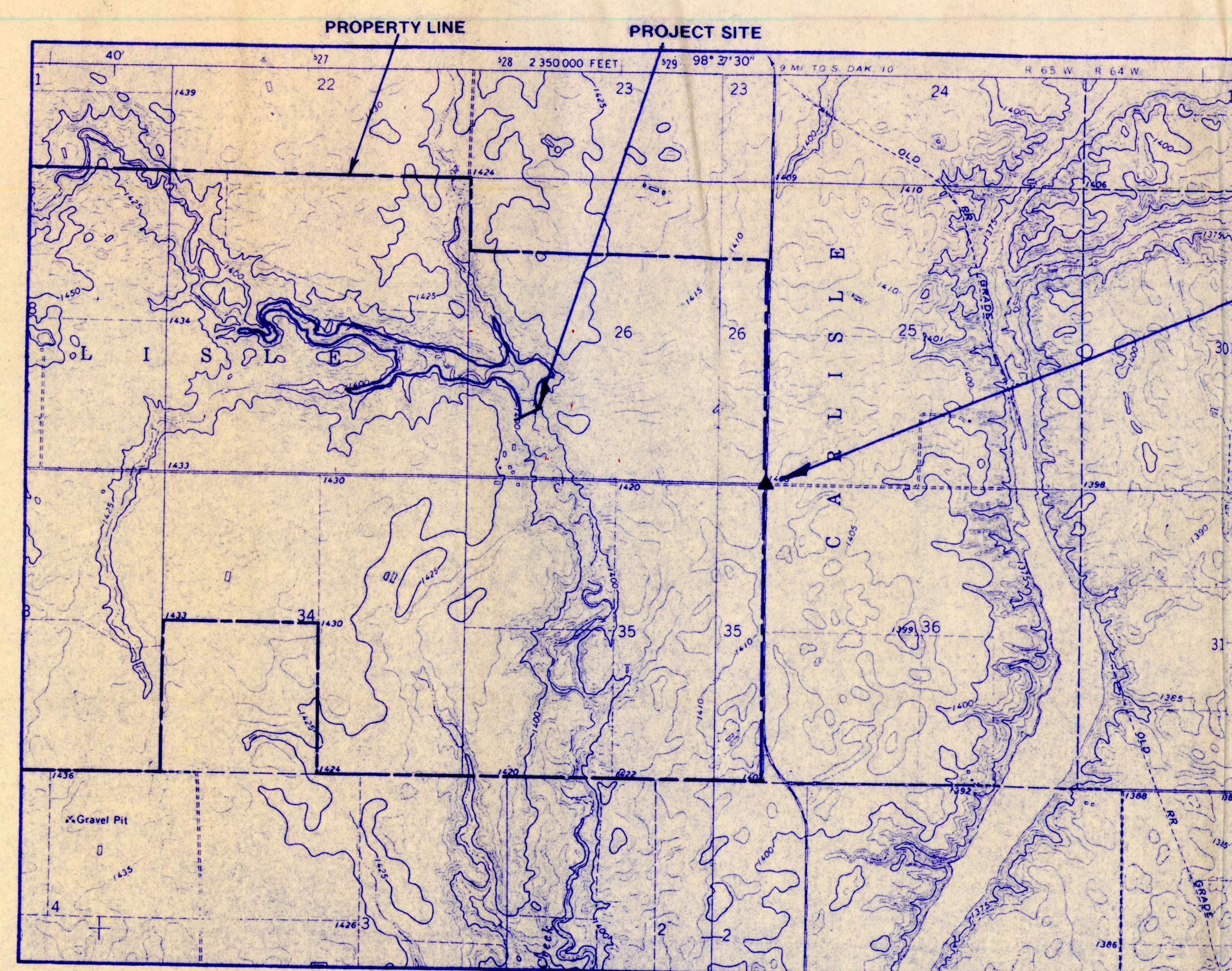
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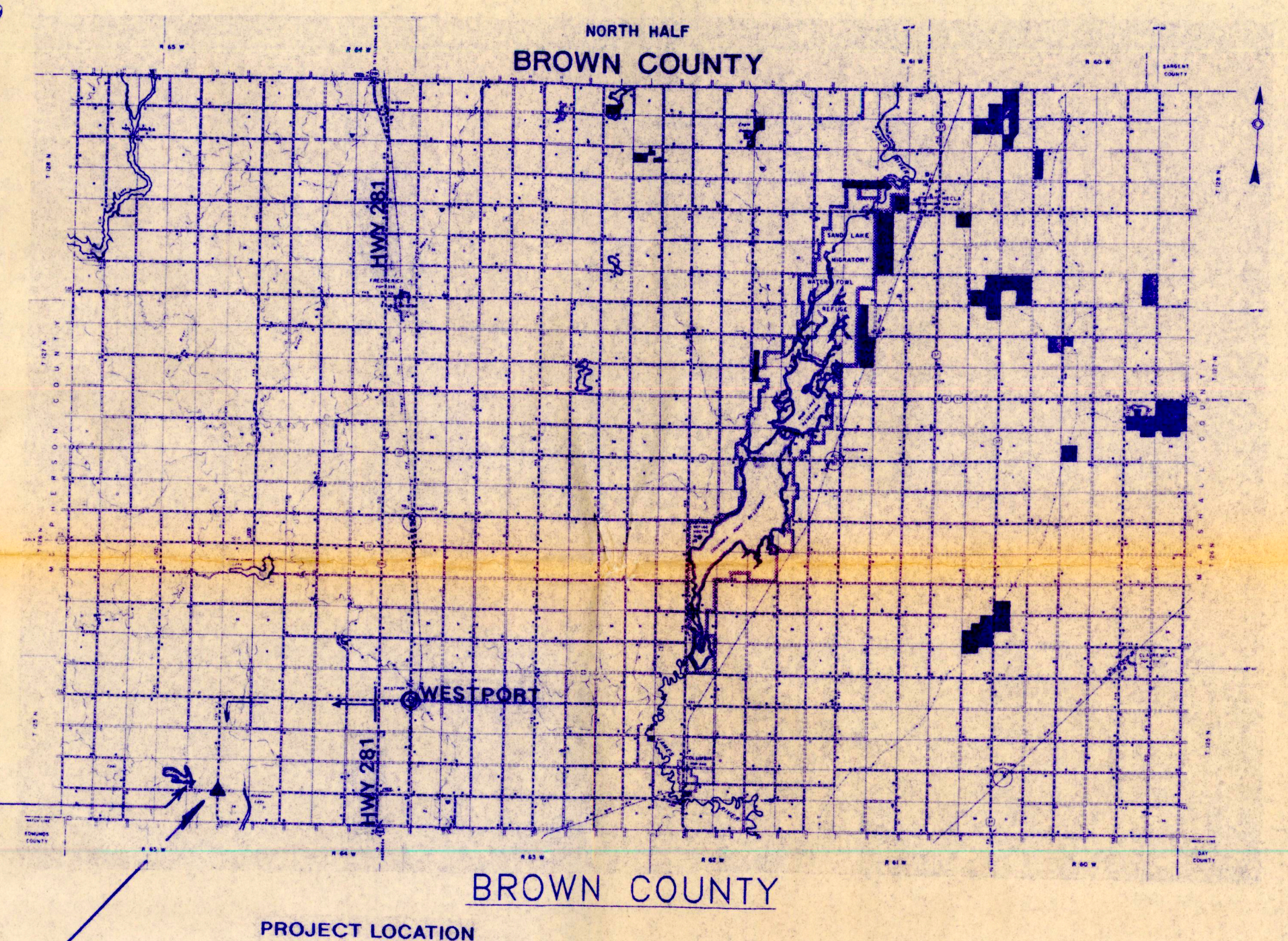
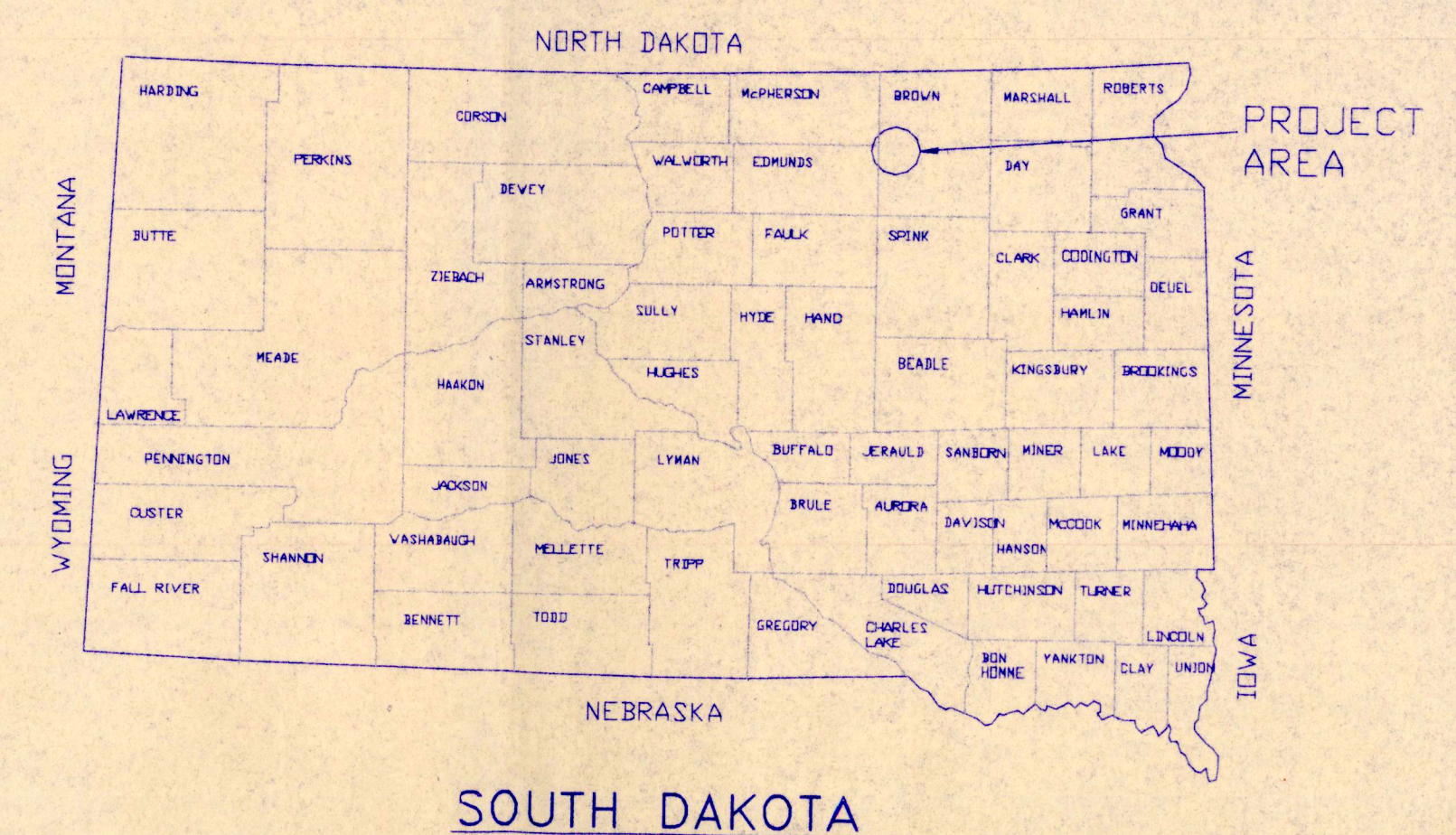
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STEEL H-PILES	84	L.F.-P

* INCLUDES 10% FOR SHRINKAGE

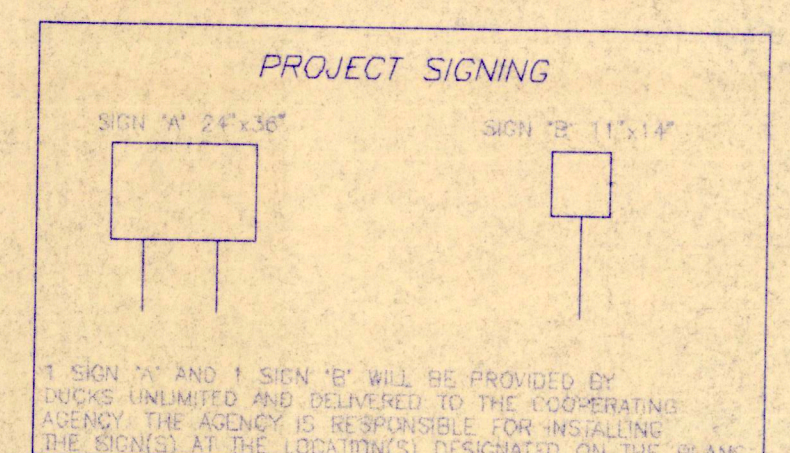
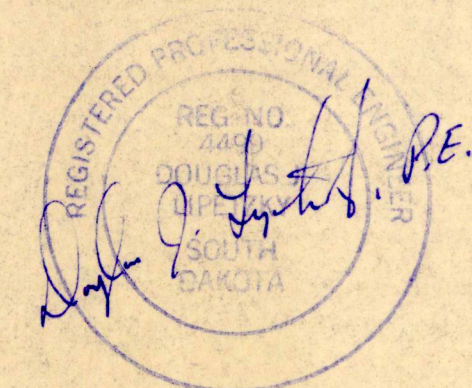
**BASED ON 3 GAL./C.Y., HOWEVER,
ACTUAL QUANTITY WILL BE PAID FOR.



VICINITY MAP
SCALE: 1"=2000'



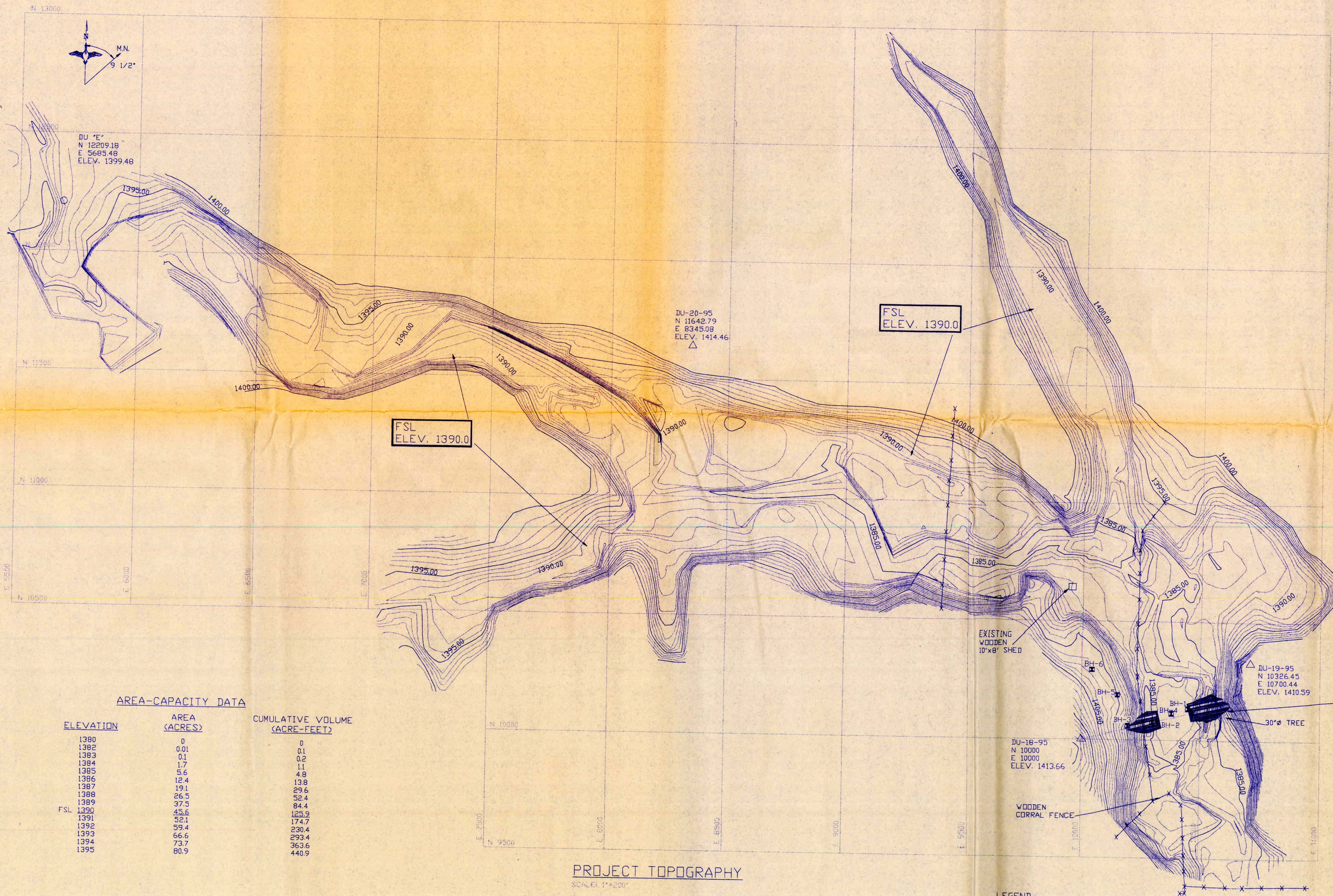
MAP POINT
IS 5 MILES WEST
& 3 MILES SOUTH
OF HWY. 281 @ WESTPORT



AGENCY CONTACT:
BOYD SCHULZ-USFWS
SAND LAKE NWR
605/885-6320

DUCKS UNLIMITED INC. GREAT PLAINS REGIONAL OFFICE	PROJECT NO. SD-0171-001	DESIGNED BY: D.J.L.
	BILL WELK WETLAND	DRAWN BY: KB
DATE: 7-31-95	SHEET NO. 1 OF 7	SURVEYED BY:
	APPROVED BY: [Signature]	APPROVED BY: [Signature]

5937-3



AREA-CAPACITY DATA

ELEVATION	AREA (ACRES)	CUMULATIVE VOLUME (ACRE-FEET)
1380	0	0
1382	0.01	0.1
1383	0.1	0.2
1384	1.7	1.1
1385	5.6	4.8
1386	12.4	13.8
1387	19.1	29.6
1388	26.5	52.4
1389	37.5	84.4
FSL 1390	45.6	125.9
1391	52.1	174.7
1392	59.4	230.4
1393	66.6	293.4
1394	73.7	363.6
1395	80.9	440.9

PROJECT TOPOGRAPHY
SCALE: 1"=200'

LEGEND

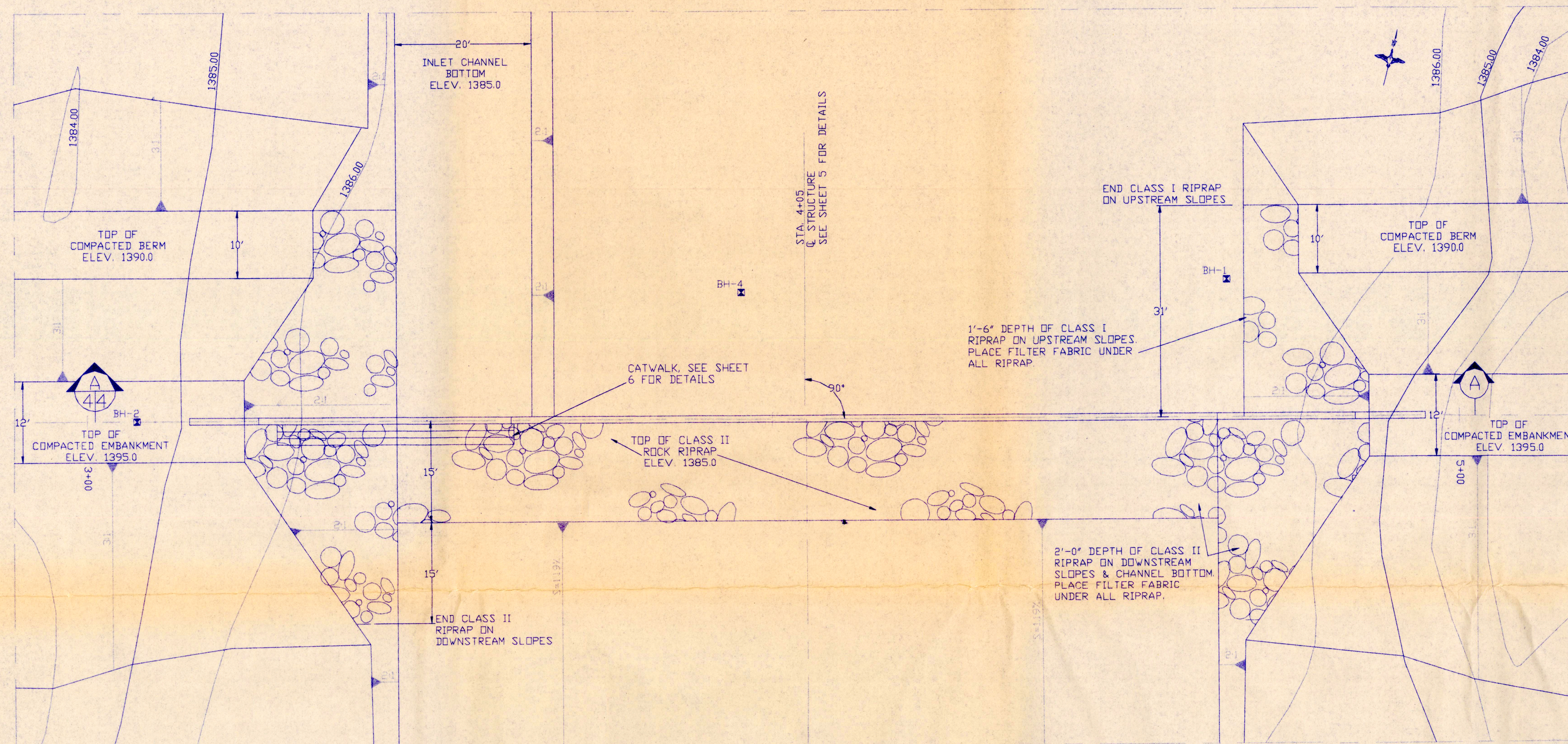
- △ DU CONTROL POINT
- HS REBAR W/ ALUMINUM CAP
- DU TEMPORARY POINT
- 60# NAIL SPIKE W/ DUSTER
- ✖ APPROX. BORE HOLE LOCATION
- FENCE LINE

CONSTRUCT EMBANKMENT & SHEET PILE STRUCTURE SEE SHEETS 3-5 FOR DETAILS

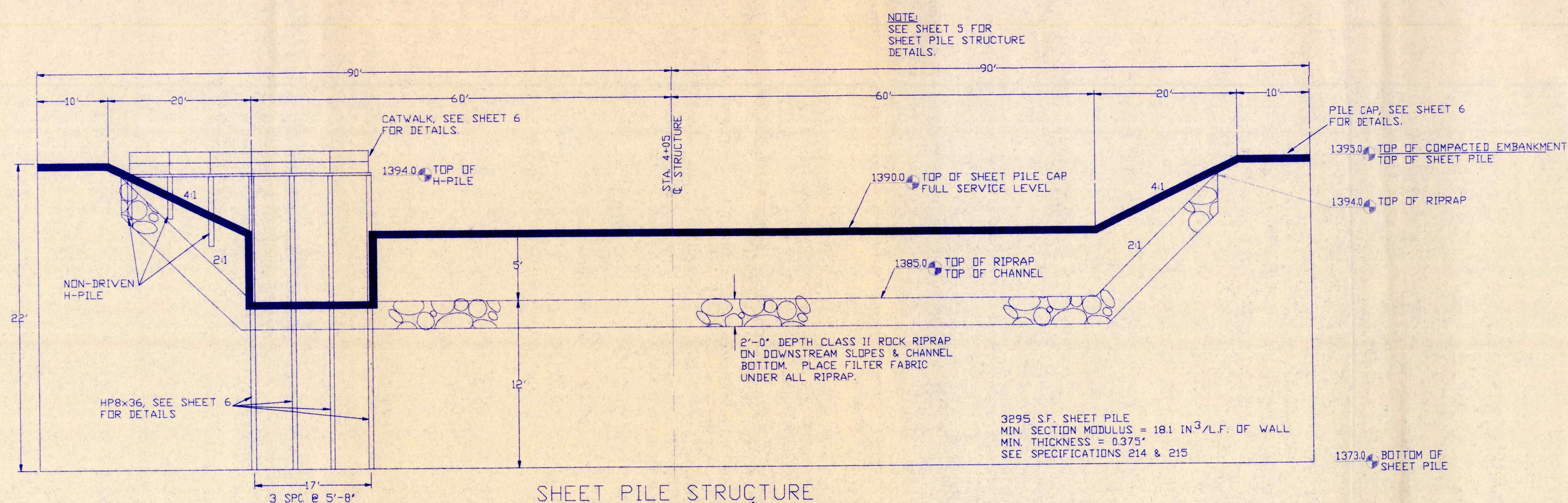
VERTICAL CONTROL:
FROM USGS B.M. 11 21 NH 1951 WITH A PUBLISHED ELEVATION OF 1411.405.
HORIZONTAL CONTROL:
LOCAL DU COORDINATES WITH REFERENCE TO TRUE NORTH WITH A BRUNTON COMPASS WITH A 9 1/2° MAGNETIC DECLINATION ACCOUNTED FOR.

DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE
DATE: 7-31-95

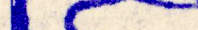
PROJECT NO. SD-D171-001
BILL WELK WETLAND
PROJECT TOPOGRAPHY
SHEET NO. 2 OF 7
APPROVED BY: [Signature]
DESIGNED BY: D.J.L.
DRAWN BY: KB
SURVEYED BY: G.J. TE
CHECKED BY: B.R.K.



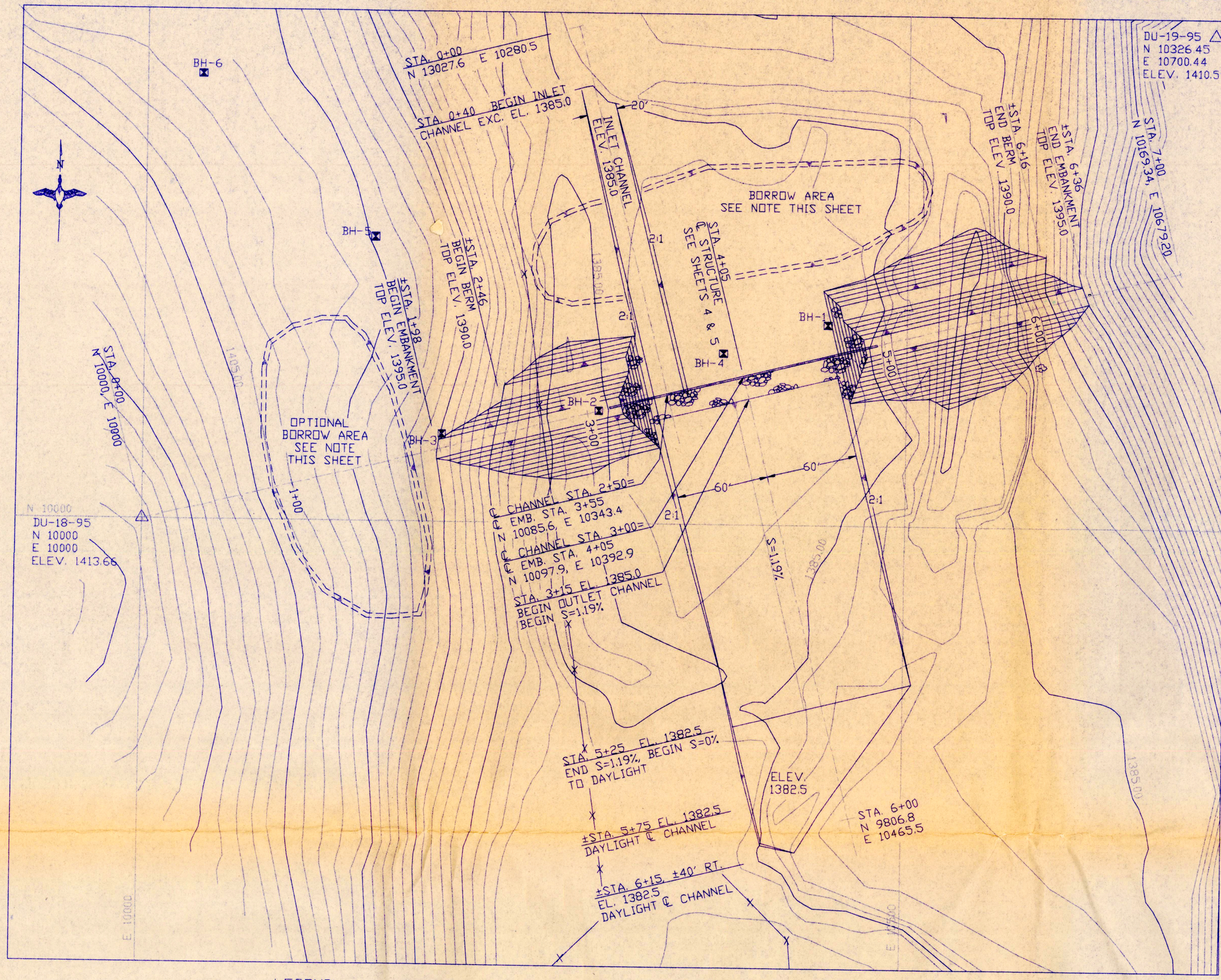
SHEET PILE STRUCTURE
PLAN VIEW
SCALE: 1"=10'



SHEET PILE STRUCTURE
SECTION 
SCALE: 1"=10' HORIZ., 1"=5' VERT.

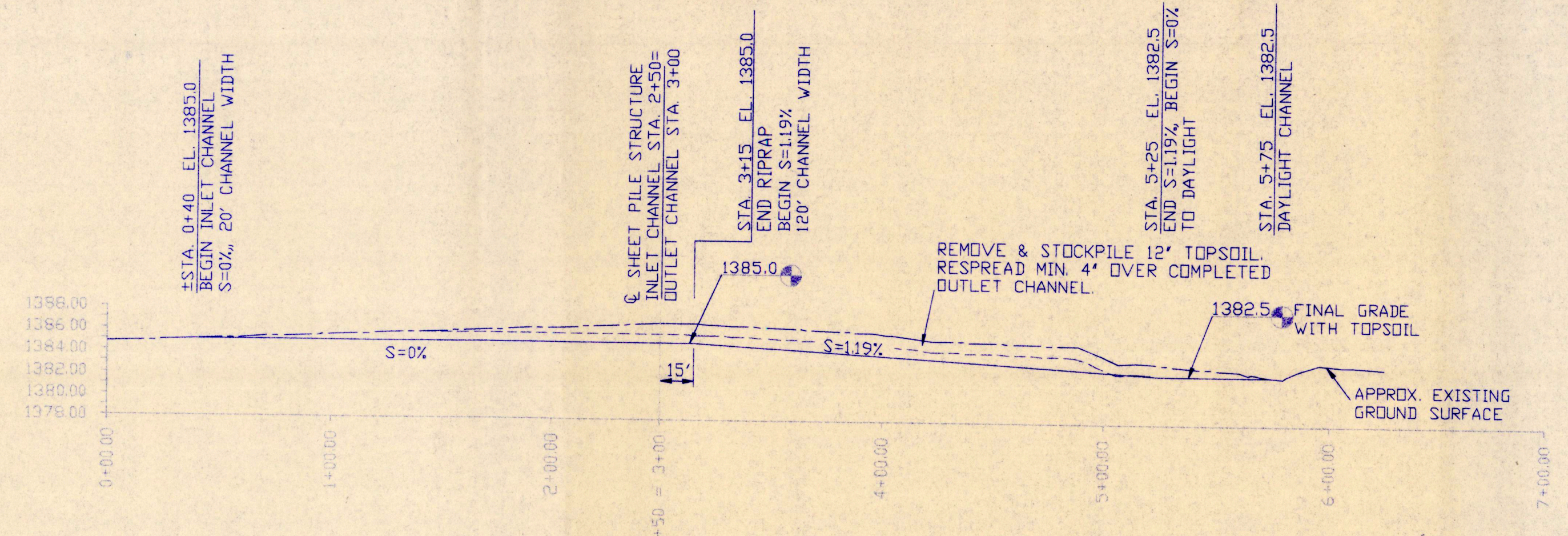
 DUCKS UNLIMITED INC.	PROJECT NO. SD-0171-001	DESIGNED BY: D.J.L.
	BILL WELK WETLAND	DRAWN BY: KB
	STRUCTURE PLAN & PROFILE	SURVEYED BY: G.J. TE
		CHECKED BY: B.R.K.
GREAT PLAINS REGIONAL OFFICE		
DATE: 7.14.05	SHEET NO. 4 OF 7	APPROVED BY: _____

5931-3

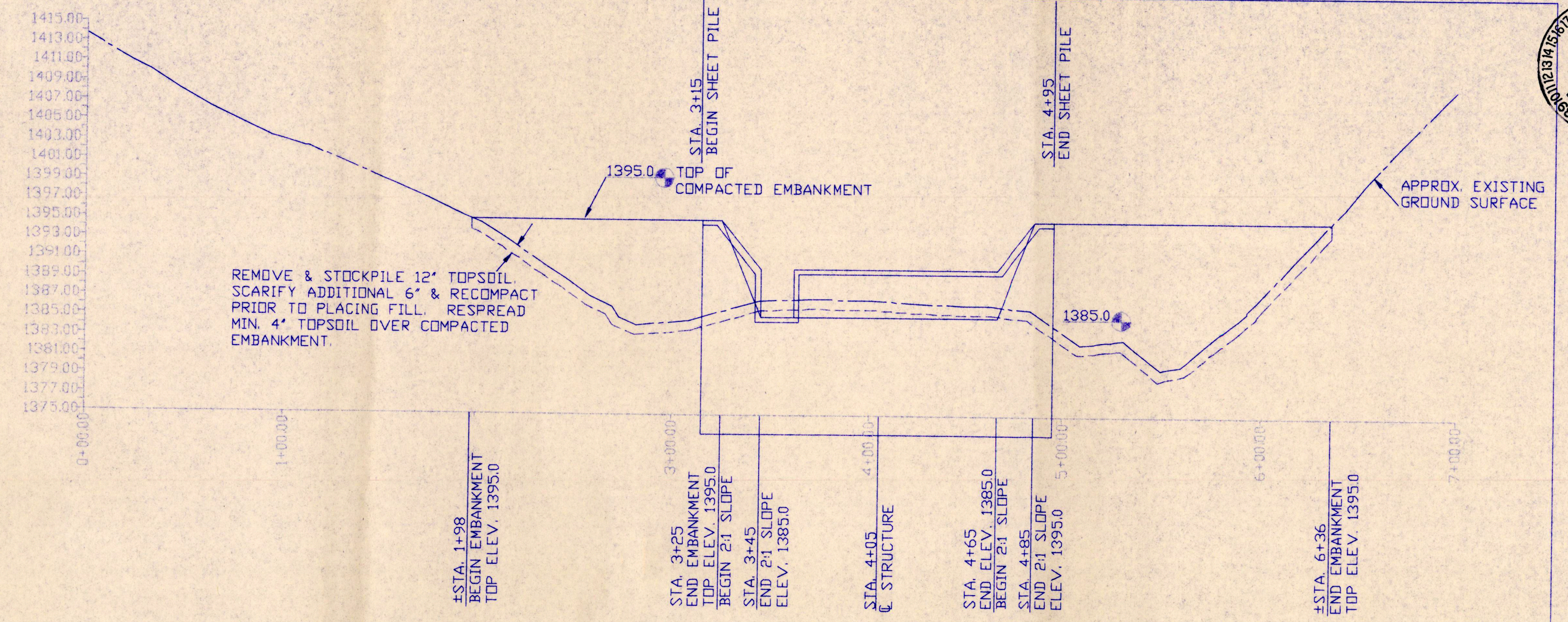


- LEGEND**
- △ DU CONTROL POINT
#5 REBAR W/ ALUMINUM CAP
 - DU TEMPORARY POINT
600 NAIL SPIKE W/ DUSTER
 - APPROX. SOIL BORING LOCATION
SEE SHEET 7 FOR SOILS INFORMATION
 - FENCE LINE
 - TREE/BRUSH

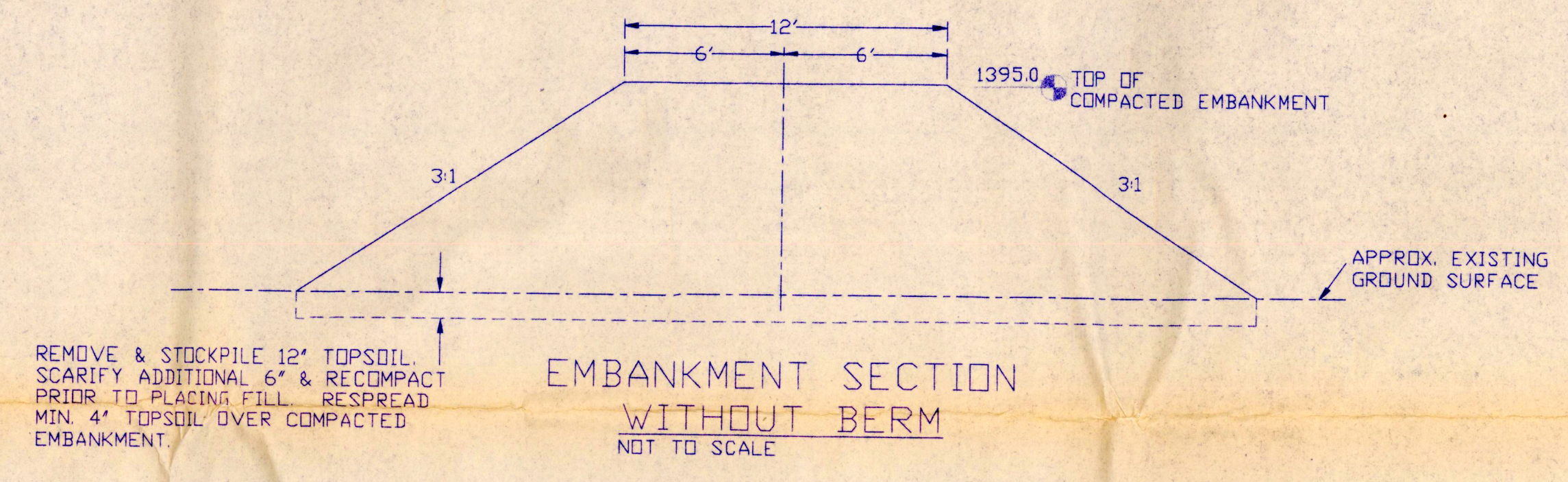
PROJECT SITE PLAN
SCALE: 1"=50'



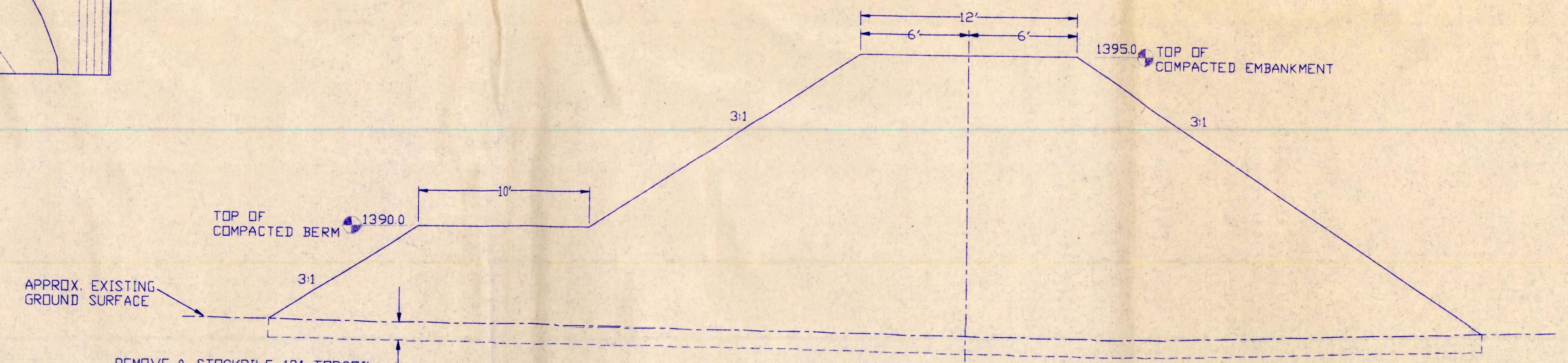
CHANNEL C PROFILE
SCALE: 1"=50' HORIZ. 1"=10' VERT.



EMBANKMENT C PROFILE
SCALE: 1"=50' HORIZ. 1"=10' VERT.



EMBANKMENT SECTION WITHOUT BERM
NOT TO SCALE



EMBANKMENT SECTION WITH BERM
NOT TO SCALE

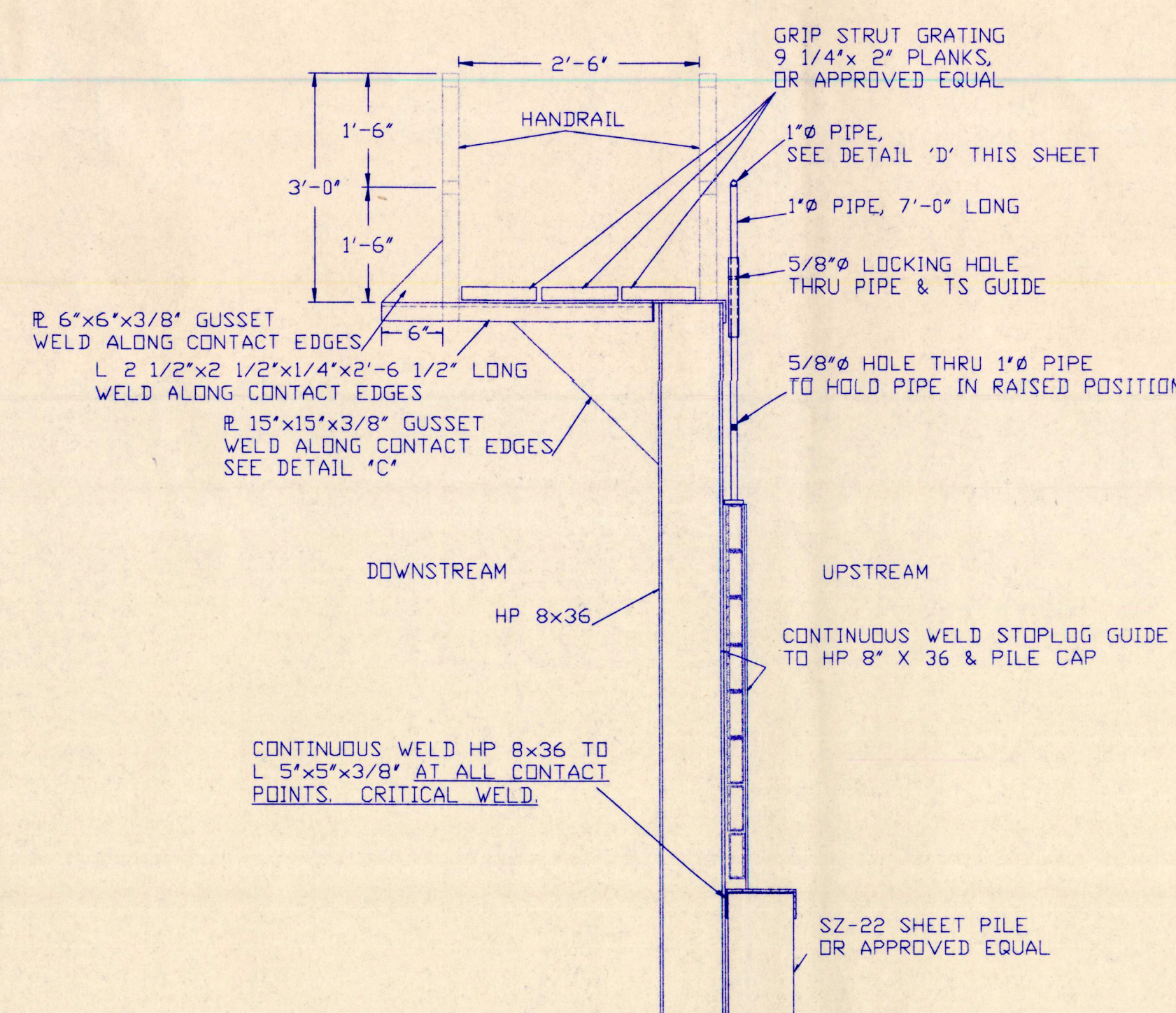
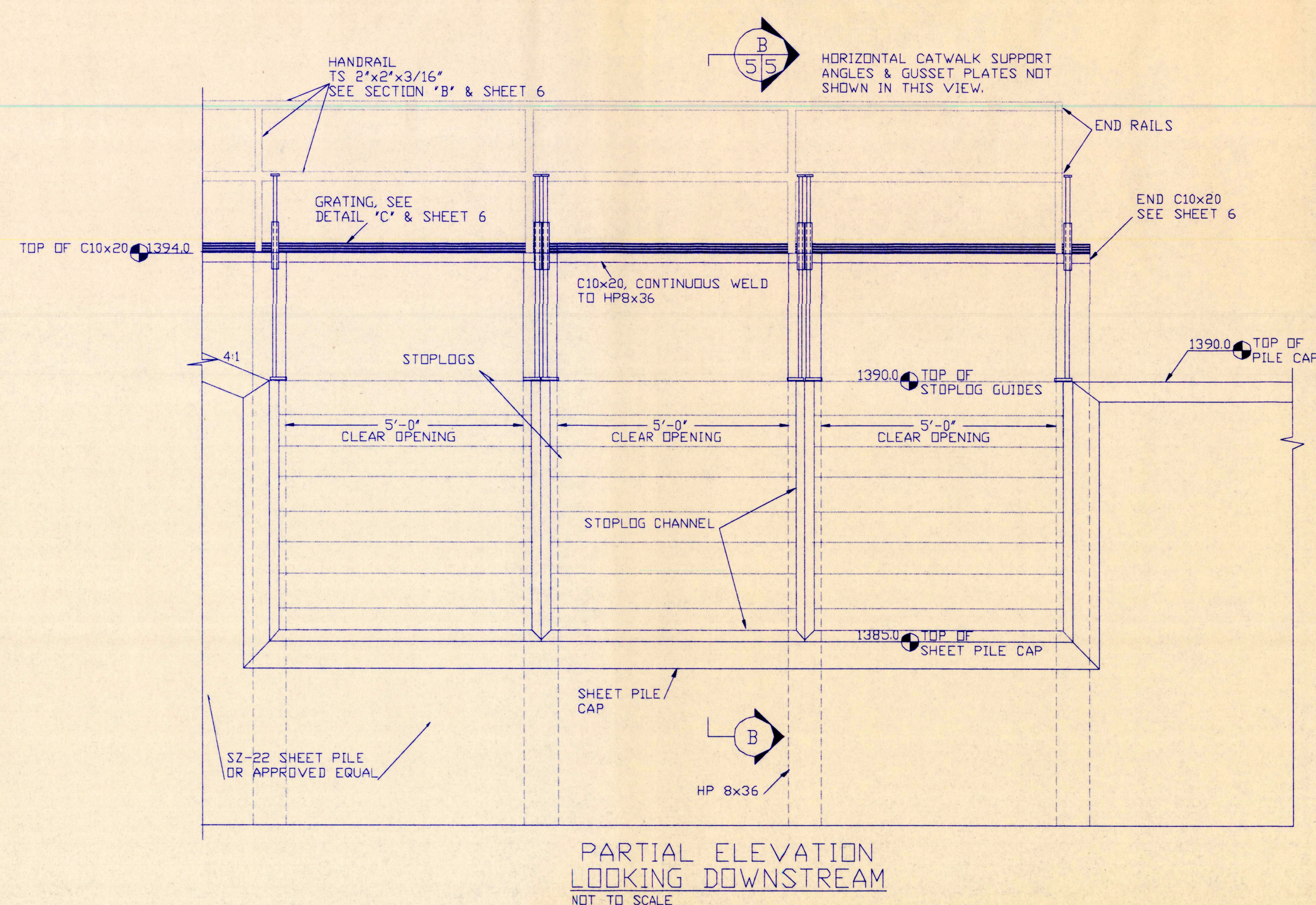
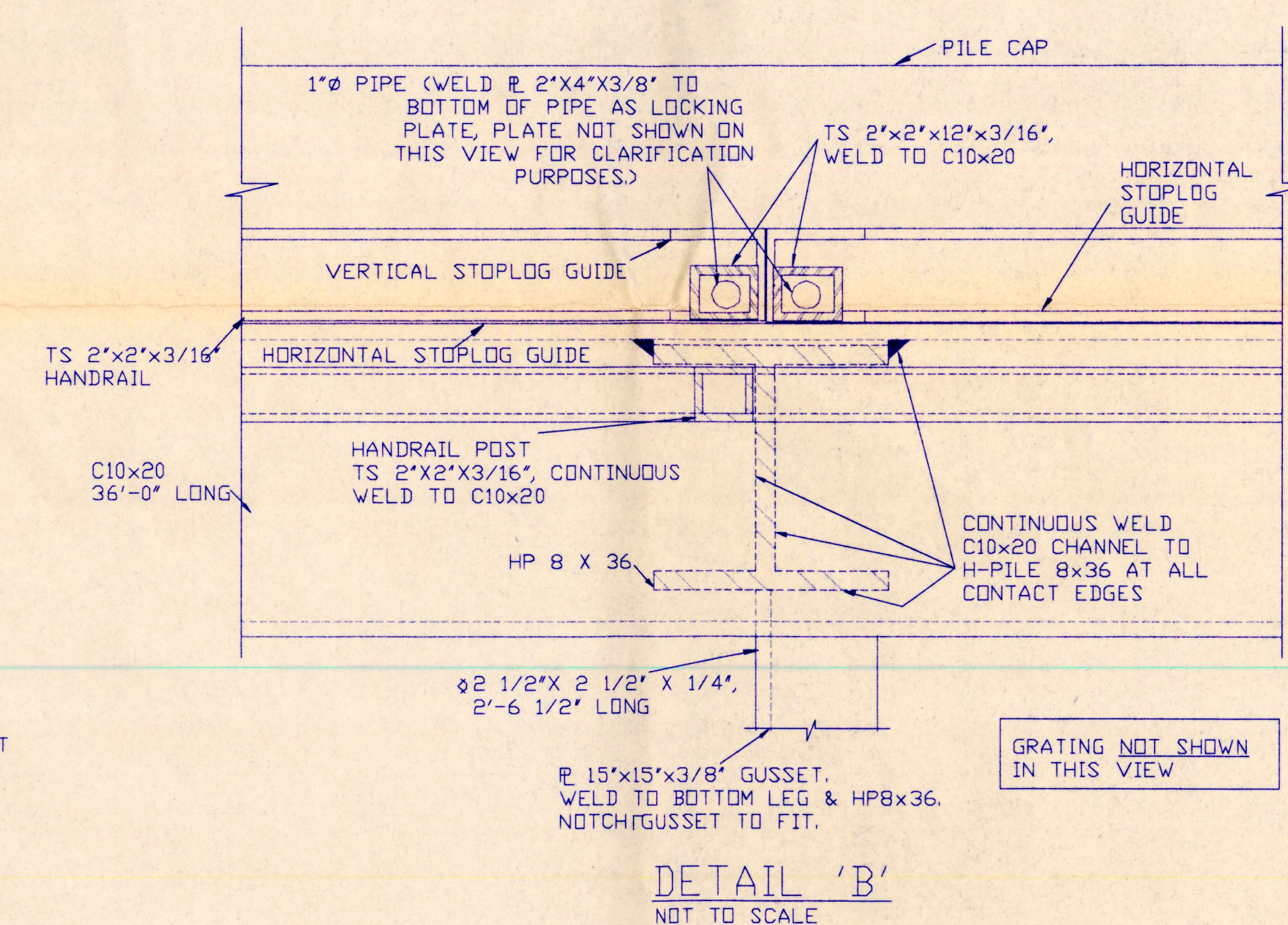
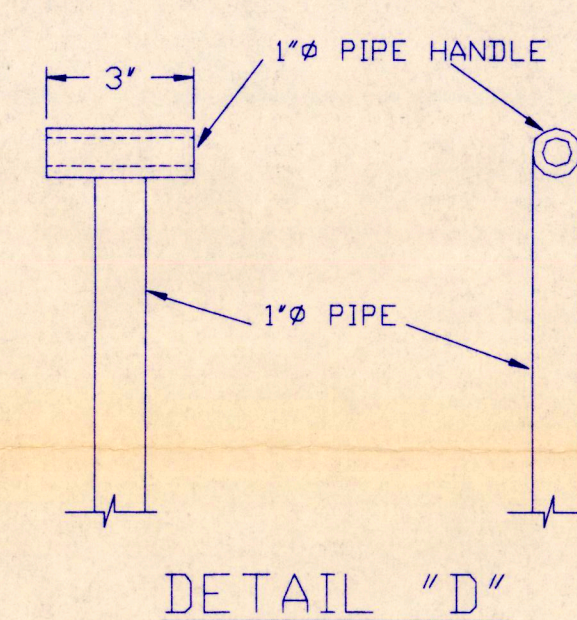
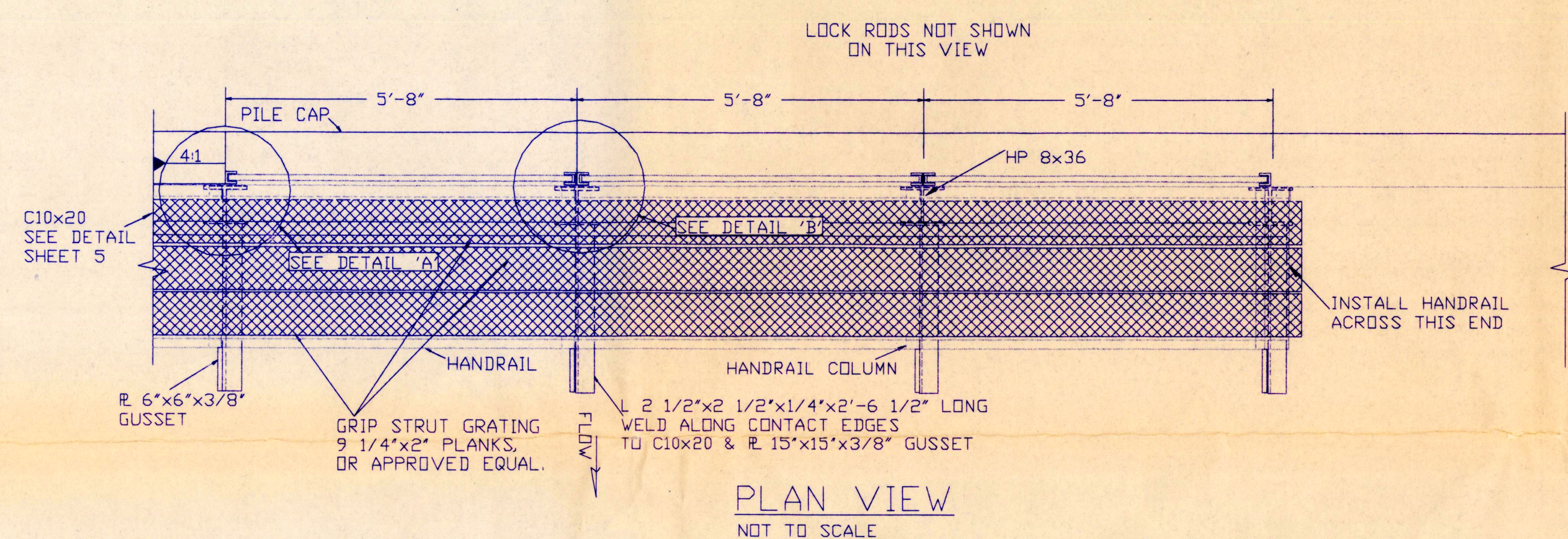
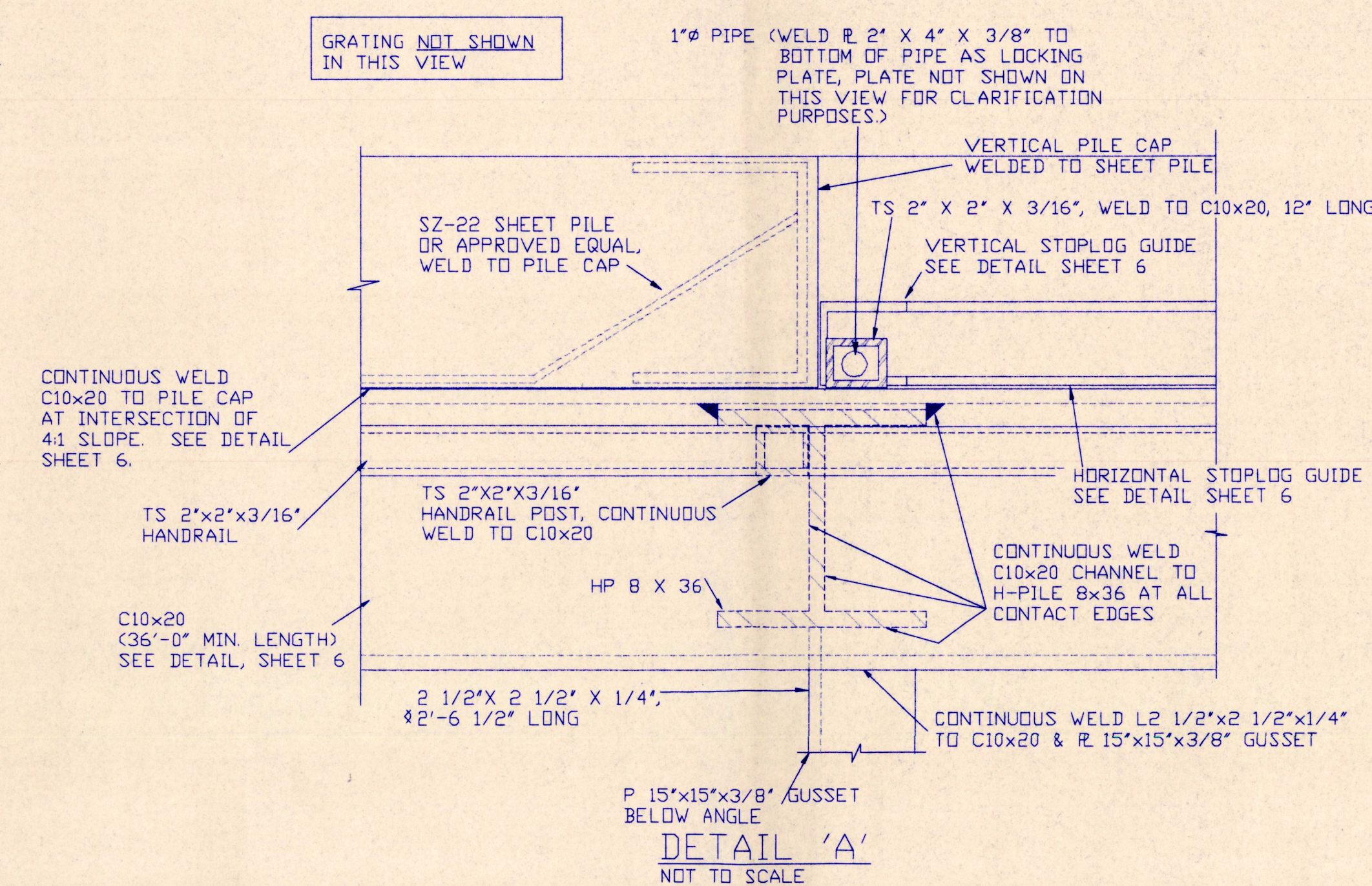
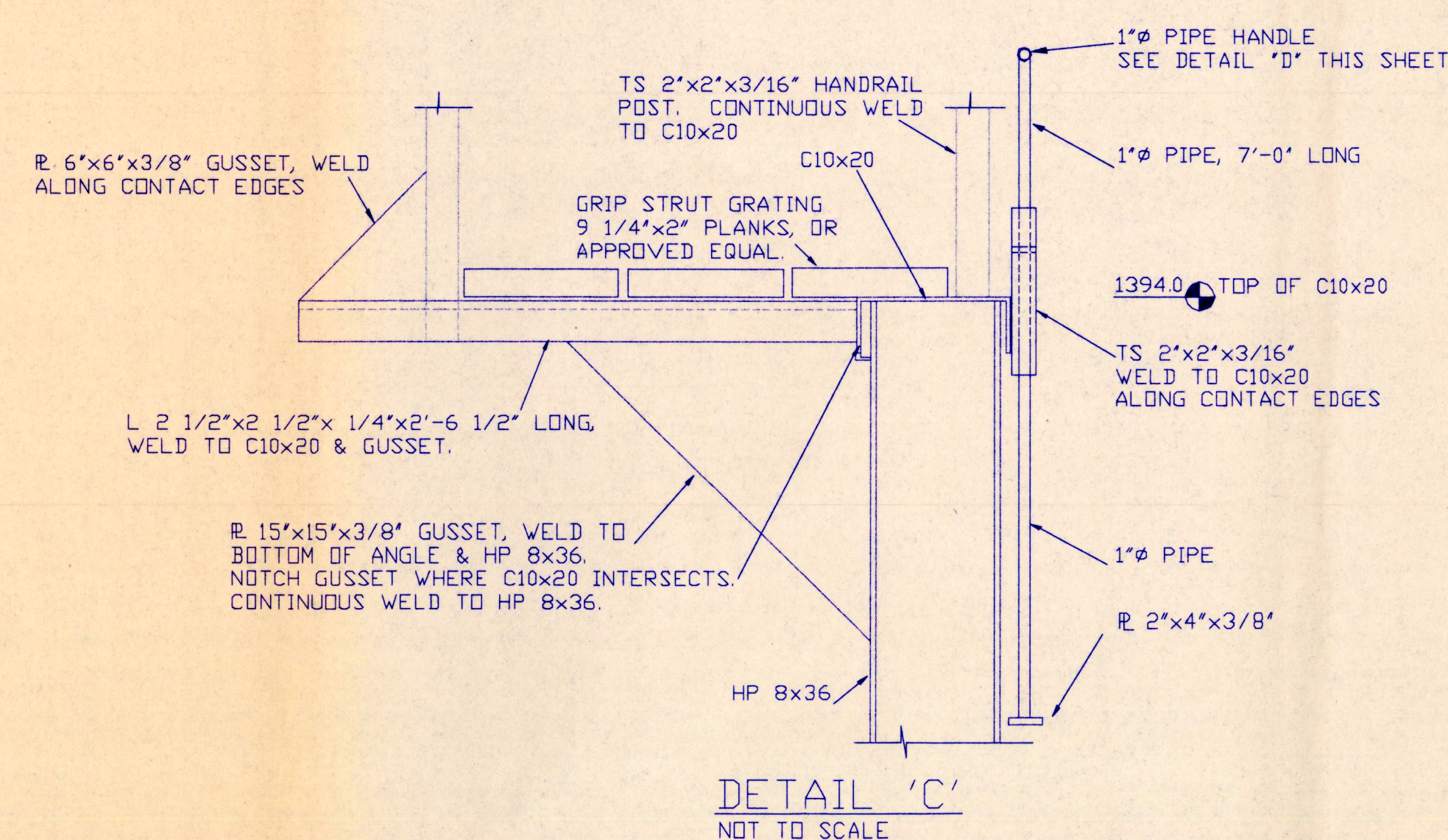
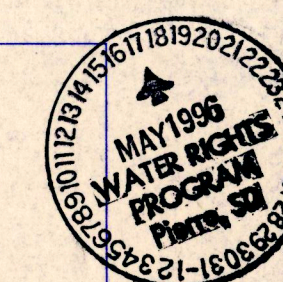
EMBANKMENT/EXCAVATION/BORROW AREA NOTES:
SUITABLE MATERIAL EXCAVATED FROM THE INLET/OUTLET CHANNEL (APPROX. 2025 C.Y.) SHALL BE USED IN CONSTRUCTION OF THE EMBANKMENT. ANY UNSUITABLE MATERIAL SHALL BE WASTED ALONG THE DOWNSTREAM TOE OF THE EMBANKMENT PRIOR TO TOPSOIL PLACEMENT. THE COST OF THE CHANNEL EXCAVATION SHALL BE CONSIDERED INCIDENTAL TO EMBANKMENT CONSTRUCTION.

ADDITIONAL MATERIAL REQUIRED FOR EMBANKMENT CONSTRUCTION SHALL BE TAKEN FROM ONE OR BOTH OF THE BORROW AREAS SHOWN. A 10' WIDE MINIMUM NATURAL GROUND BERM SHALL REMAIN BETWEEN THE BORROW AREA ON THE UPSTREAM SIDE OF THE EMBANKMENT AND THE TOE OF THE EMBANKMENT. THE BORROW AREAS MAY BE EXCAVATED AS DEEP, WIDE AND LONG AS NECESSARY UNLESS UNSUITABLE SANDY OR GRANULAR MATERIAL IS EXPOSED. IF SUCH MATERIAL IS EXPOSED, IT SHALL BE COVERED WITH 1 1/2" OF CLAY MATERIAL OR AS DIRECTED BY THE FIELD ENGINEER TO PREVENT ANY PERMEABLE SEAMS FROM DEVELOPING. THE OPTIONAL BORROW AREA WEST OF THE EMBANKMENT SHALL NOT BE EXCAVATED BELOW ELEV. 1395.0 UNLESS APPROVED BY THE FIELD ENGINEER. FINISHED SLOPES ON BOTH BORROW AREAS SHALL BE 3H:1V OR FLATTER.

IN ADDITION TO THE SITE PREPARATION BELOW THE EMBANKMENT (1188 C.Y.-P) TOPSOIL SHALL BE STRIPPED FROM THE INLET/OUTLET CHANNEL AND BORROW AREAS AND STOCKPILED. A MINIMUM OF 4" TOPSOIL SHALL BE RESPAID OVER THE ENTIRE COMPLETED EMBANKMENT AND OUTLET CHANNEL, AS WELL ON THE BORROW AREAS ABOVE ELEV. 1390.0. THE COST OF TOPSOIL WORK ON THE INLET/OUTLET CHANNEL AND BORROW AREAS SHALL BE CONSIDERED INCIDENTAL TO SITE PREPARATION.

 GREAT PLAINS REGIONAL OFFICE DATE: 7-14-95	PROJECT NO. SD-0171-001 BILL WELK WETLAND SHEET NO. 3 OF 7	DESIGNED BY: D.J.L. DRAWN BY: KB SURVEYED BY: G.J. TE CHECKED BY: B.R.K.
	PROJECT SITE PLAN APPROVED BY: _____	

5937-3



NOTE TO CONTRACTOR:
THE CATWALK HANDRAILS & BRACING INCLUDING THE C10x20, 2 1/2"x2 1/2" GRATING SUPPORT ANGLES, 6" & 15" GUSSET PLATES, LOCK RODS & LOCK ROD GUIDES SHALL BE GIVEN ONE SHOP COAT OF ZINC BASE PRIMER & ONE COAT OF ZINC BASE PRIMER AFTER ERECTION IS COMPLETED. ALSO, APPLY TWO COATS OF AN ALKYD ENAMEL FLAT BLACK PAINT TO THE SAME ITEMS AFTER ERECTION IS COMPLETED.

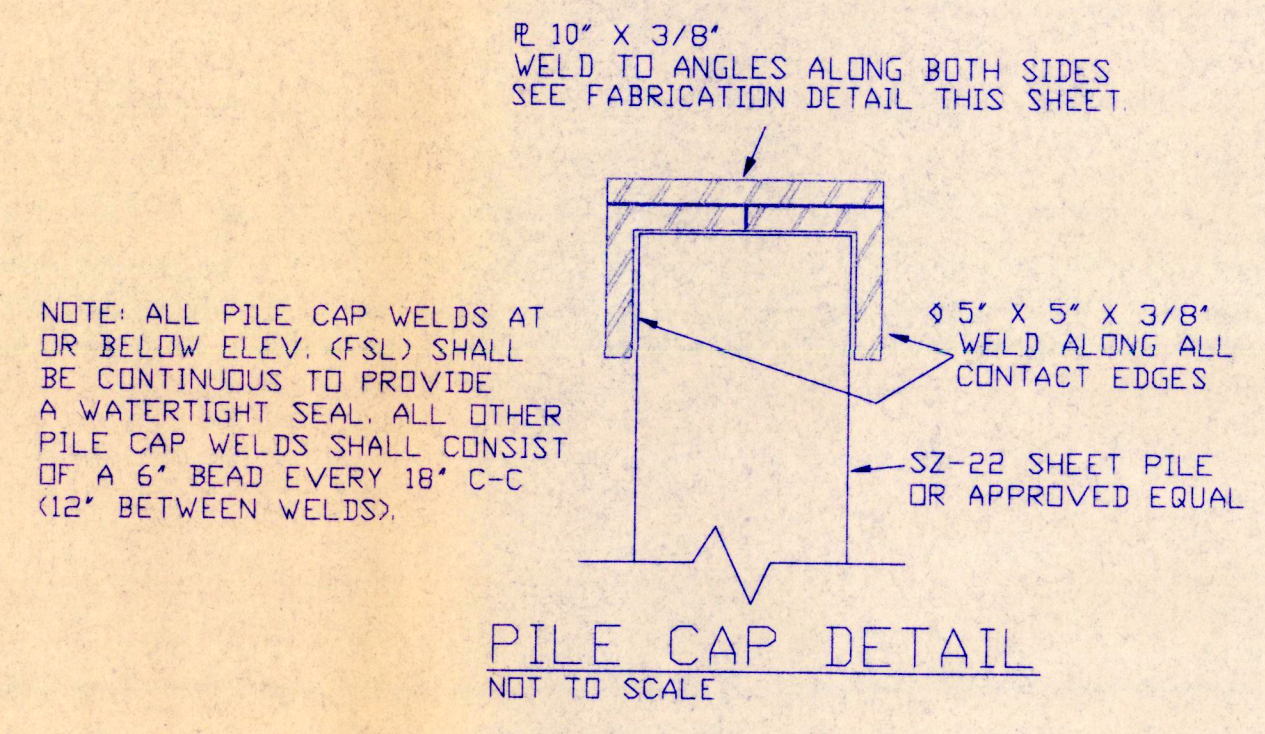
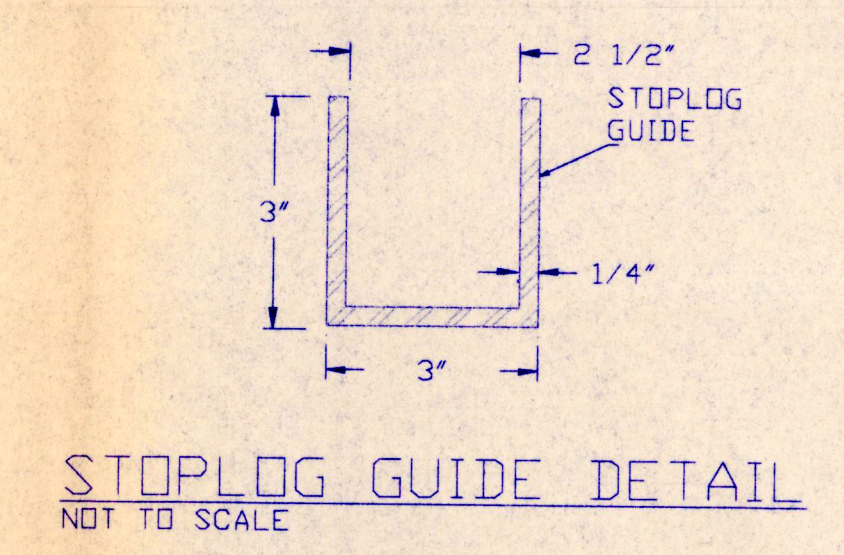
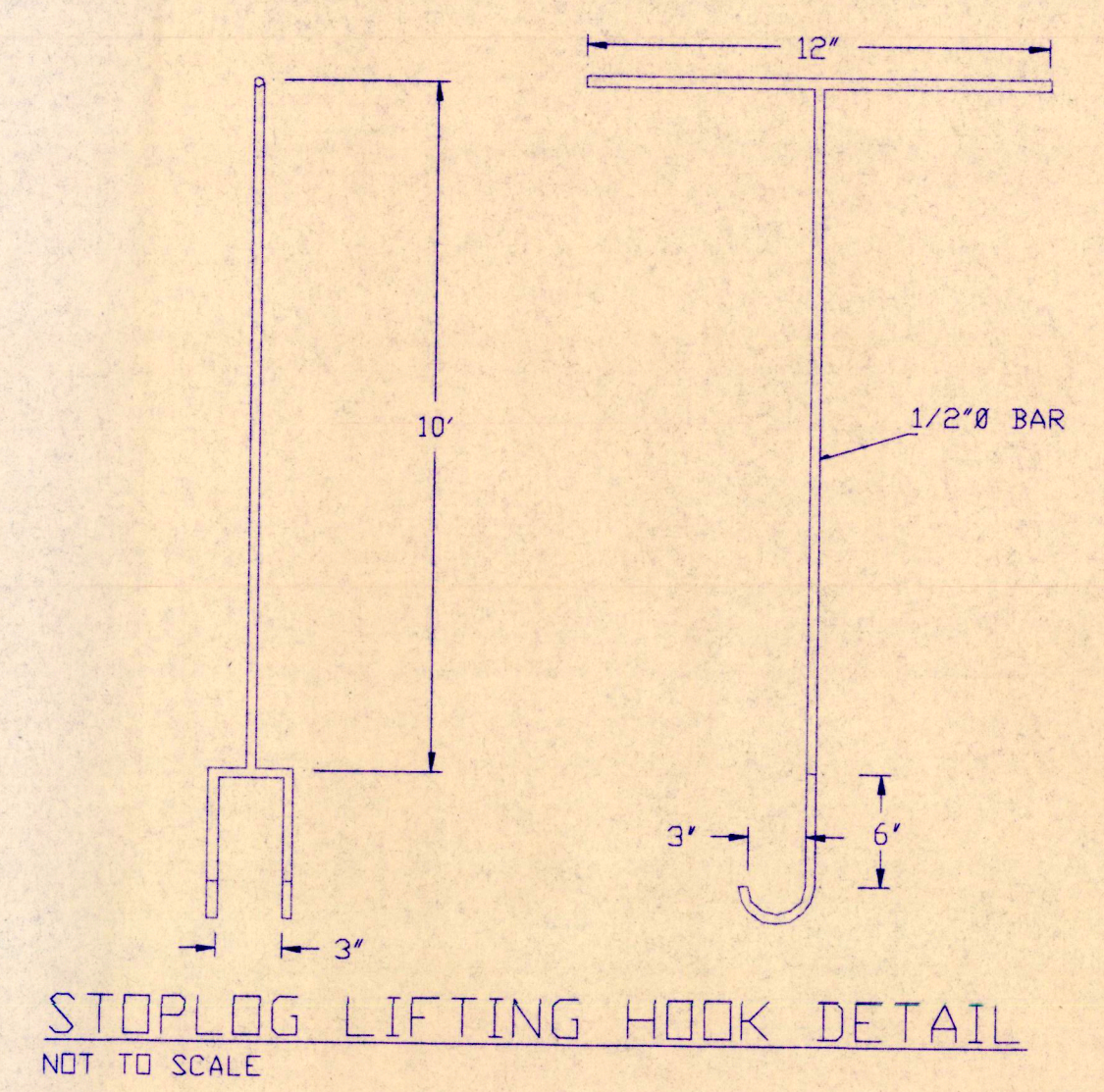
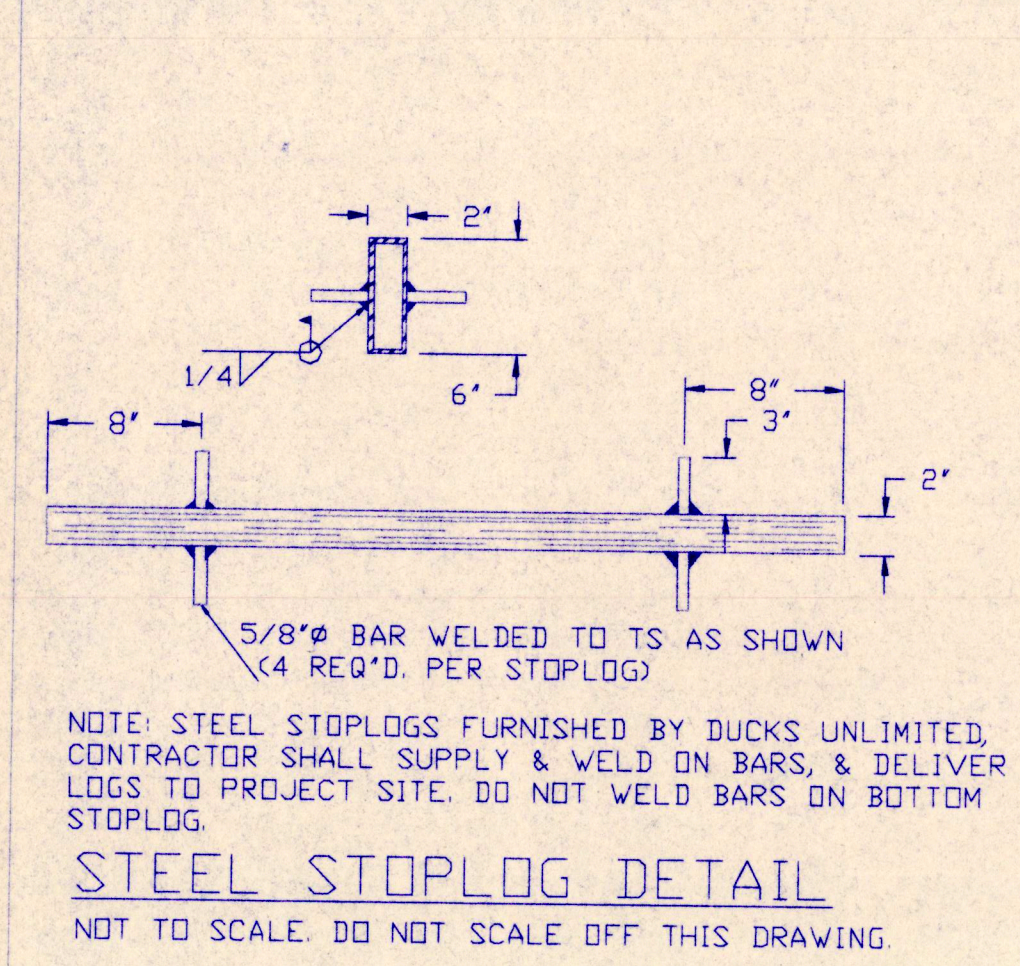
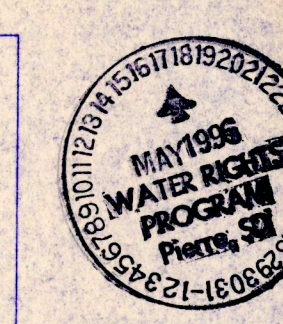
THE H-PILES, SHEET PILING CAP & STOPLOG GUIDES SHOULD NOT BE PRIMED OR PAINTED.

DO NOT PRIME NOR PAINT THE GRIP STRUT GRATING SINCE IT IS ALREADY GALVANIZED.

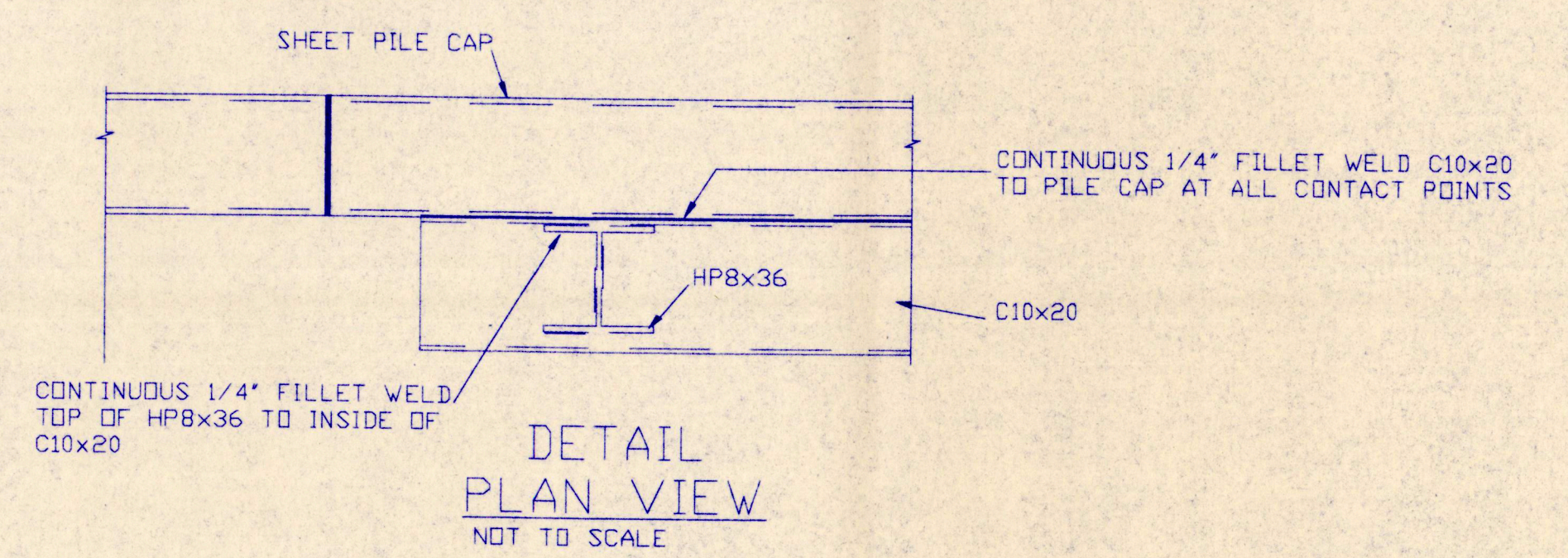
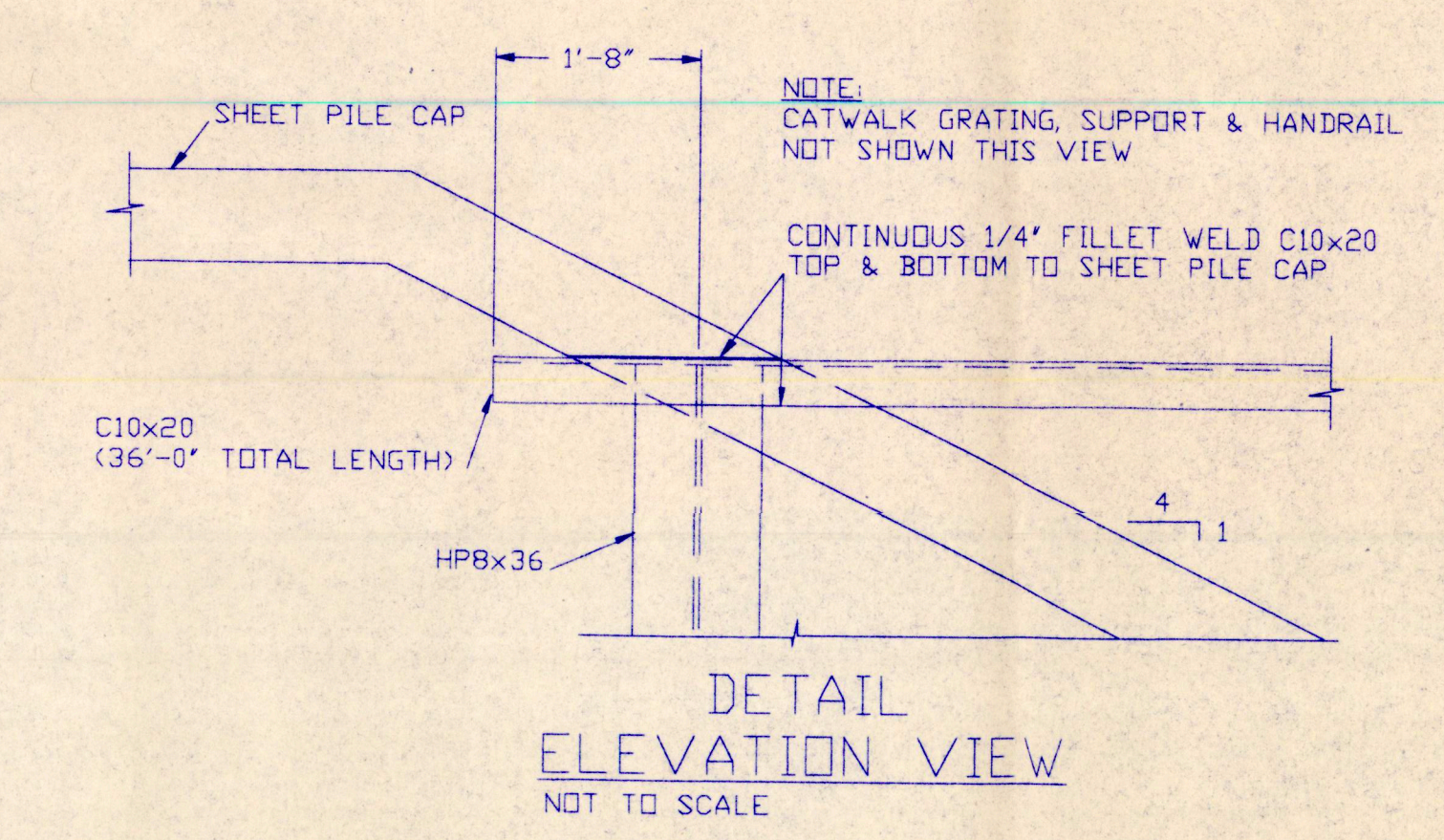
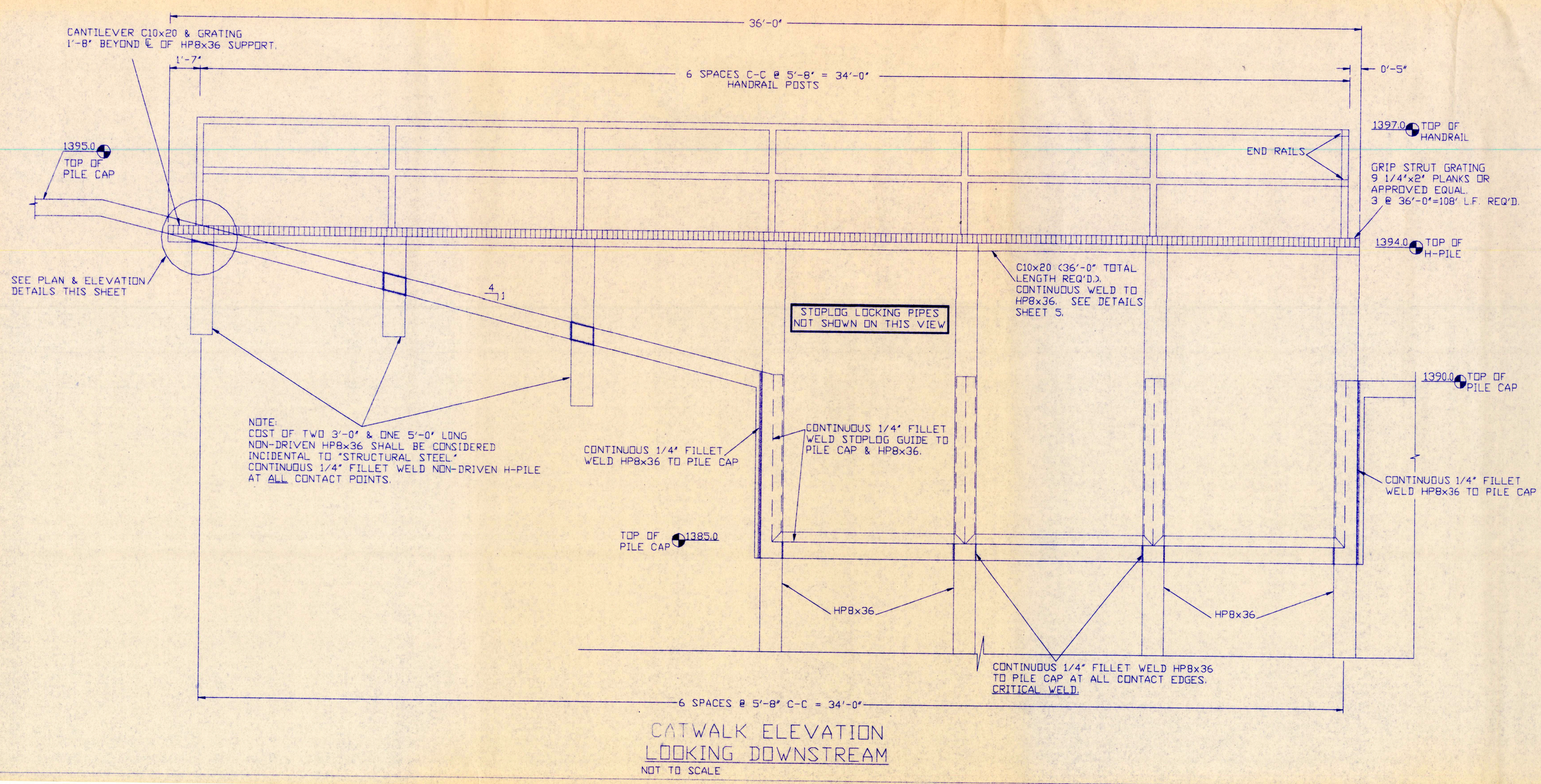
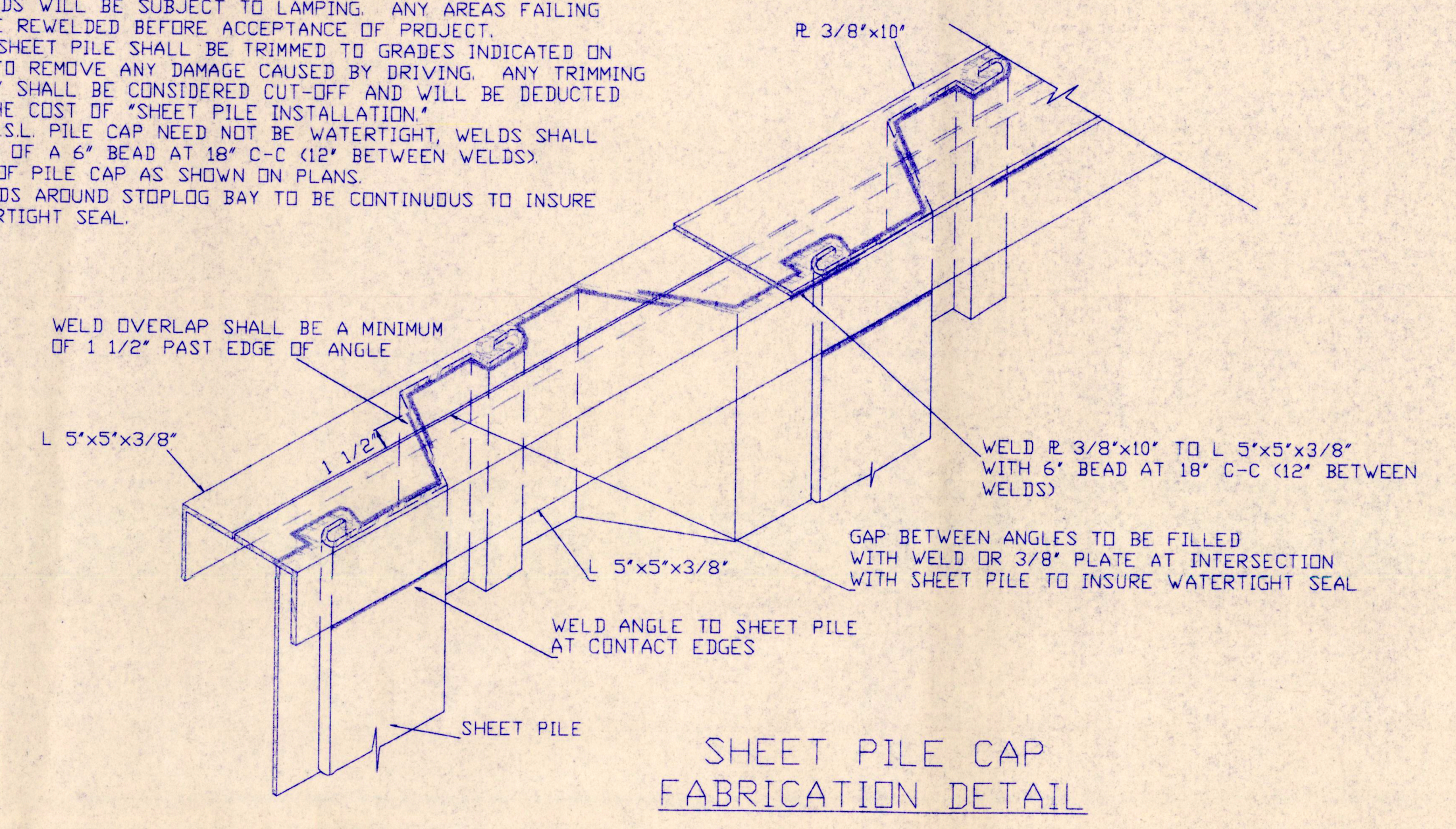
SEE SPECIFICATION 216.4 "STRUCTURAL STEEL PAINTING."

 GREAT PLAINS REGIONAL OFFICE DATE: 7-31-95	PROJECT NO. SD-D171-001 BILL WELK DAM	DESIGNED BY: D.J.L. DRAWN BY: KB
	SHEET NO. 5 OF 7	SURVEYED BY:
	APPROVED BY:	CHECKED BY: B.R.K.
	SHEET PILE STRUCTURE DETAILS	

5937-3

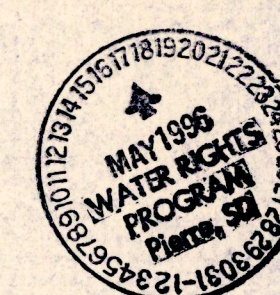


- NOTES:
1. ALL WELDS TO BE 1/4" FILLET WELDS.
 2. ALL WELDS WILL BE SUBJECT TO LAMPING. ANY AREAS FAILING WILL BE REWELDED BEFORE ACCEPTANCE OF PROJECT.
 3. TOP OF SHEET PILE SHALL BE TRIMMED TO GRADES INDICATED ON PLANS TO REMOVE ANY DAMAGE CAUSED BY DRIVING. ANY TRIMMING OVER 3" SHALL BE CONSIDERED CUT-OFF AND WILL BE DEDUCTED FROM THE COST OF SHEET PILE INSTALLATION.
 4. ABOVE F.S.L. PILE CAP NEED NOT BE WATERTIGHT, WELDS SHALL CONSIST OF A 6" BEAD AT 18" C-C (12" BETWEEN WELDS).
 5. LENGTH OF PILE CAP AS SHOWN ON PLANS.
 6. ALL WELDS AROUND STOPLOG BAY TO BE CONTINUOUS TO INSURE A WATERTIGHT SEAL.



	PROJECT NO.	SD-0171-001	DESIGNED BY:	D.J.L.
	DATE:	7-31-95	DRAWN BY:	KB
GREAT PLAINS REGIONAL OFFICE SHEET NO. 6 OF 7	BILL WELK WETLAND		SURVEYED BY:	B.R.K.
	MISCELLANEOUS STRUCTURE DETAILS		CHECKED BY:	B.R.K.
APPROVED BY:		APPROVED BY:		

5937-3



MIDWEST TESTING LABORATORY

JOB NO. B3798 LOG OR TEST BORING NO. 1 VERTICAL SCALE

PROJECT: Bill Welk Dam, Brown County, South Dakota

DEPTH FEET	SOIL DESCRIPTION	SURFACE ELEV.	NO.	TYPE	VALUE	LABORATORY TESTS	LL/PL	Q _u
1	LEAN CLAY WITH SAND-dark grayish brown, surface vegetation in upper 12", frost to 4", moist (CS)	1286.28	1	FA				
2	FAT CLAY WITH SAND-dark grayish brown, medium, moist (CH)		2	SB	6			
3	SANDY FAT CLAY-dark grayish brown, rather stiff to medium, waterbearing sand seams, trace of gravel (CH)		3	SB	8			
4	CLAYEY SAND-dark gray, fine to coarse, trace of gravel, shale (SC)		4	SB	10			
5	FAT CLAY-dark gray, very stiff, shale inclusions (CH)		5	SB	5			
6	CLAYEY SAND-dark gray, fine to coarse, trace of gravel, shale (SC)		6	SB	10			
7	FAT CLAY-dark gray, very stiff, shale inclusions (CH)		7	SB	58			
8	END OF BORING		8	SB	100/4			

WATER LEVEL DATA
DATE: 2-8-95 TIME: 11:10 CAVE IN DEPTH: 10' WATER LEVEL: 11:30
2-8-95 11:30 HSA 10' 10' METHOD USED: 3 1/4" HSA 0-19 1/2"

BORING DATA
STARTED: 2-8-95 COMPLETED: 2-8-95 @ 11:40
METHOD USED: 3 1/4" HSA 0-19 1/2"

CREW CHIEF: M. Roberts

MIDWEST TESTING LABORATORY

JOB NO. B3798 LOG OR TEST BORING NO. 2 VERTICAL SCALE

PROJECT: Bill Welk Dam, Brown County, South Dakota

DEPTH FEET	SOIL DESCRIPTION	SURFACE ELEV.	NO.	TYPE	VALUE	LABORATORY TESTS	LL/PL	Q _u
1	SANDY LEAN CLAY-dark grayish brown, medium, surface vegetation in upper 12", frost to 4", moist (CL)	1284.61	1	SB	6			
2	FAT CLAY WITH SAND-dark grayish brown, medium, moist (CH)		2	SB	5			
3	SANDY FAT CLAY-dark grayish brown, medium, wet (CH)		3	SB	5			
4	FAT CLAY-dark gray, very stiff, shale inclusions (CH)		4	SB	100			
5	END OF BORING		5	SB	100			

WATER LEVEL DATA
DATE: 2-8-95 TIME: 12:10 CAVE IN DEPTH: 10' WATER LEVEL: 12:10
2-8-95 12:10 HSA 10' 10' METHOD USED: 3 1/4" HSA 0-19 1/2"

BORING DATA
STARTED: 2-8-95 COMPLETED: 2-8-95 @ 12:10
METHOD USED: 3 1/4" HSA 0-19 1/2"

CREW CHIEF: M. Roberts

MIDWEST TESTING LABORATORY

JOB NO. B3798 LOG OR TEST BORING NO. 3 VERTICAL SCALE

PROJECT: Bill Welk Dam, Brown County, South Dakota

DEPTH FEET	SOIL DESCRIPTION	SURFACE ELEV.	NO.	TYPE	VALUE	LABORATORY TESTS	LL/PL	Q _u
1	FAT CLAY WITH SAND-dark grayish brown, rather stiff, surface vegetation in upper 12", frost to 4", moist (CH)	1284.99	1	SB	12			
2	FAT CLAY-dark gray, very stiff, shale inclusions (CH)		2	SB	24			
3	END OF BORING		3	SB	38			

WATER LEVEL DATA
DATE: 2-8-95 TIME: 12:10 CAVE IN DEPTH: 10' WATER LEVEL: 12:10
2-8-95 12:10 HSA 10' 10' METHOD USED: 3 1/4" HSA 0-19 1/2"

BORING DATA
STARTED: 2-8-95 COMPLETED: 2-8-95 @ 12:40
METHOD USED: 3 1/4" HSA 0-19 1/2"

CREW CHIEF: M. Roberts

MIDWEST TESTING LABORATORY

JOB NO. B3798 LOG OR TEST BORING NO. 4 VERTICAL SCALE

PROJECT: Bill Welk Dam, Brown County, South Dakota

DEPTH FEET	SOIL DESCRIPTION	SURFACE ELEV.	NO.	TYPE	VALUE	LABORATORY TESTS	LL/PL	Q _u
1	SANDY LEAN CLAY-dark grayish brown, medium, surface vegetation in upper 12", frost to 4", moist (CL)	1286.90	1	SB	10			
2	FAT CLAY WITH SAND-dark grayish brown, medium, moist (CH)		2	SB	7			
3	CLAYEY SAND-dark gray, medium grain to coarse, fine to coarse, trace of gravel, clay seams, water-bearing (SC)		3	SB	12			
4	FAT CLAY-dark gray, very stiff, shale inclusions (CH)		4	SB	10			
5	END OF BORING		5	SB	8			
6	FAT CLAY-dark gray, very stiff, shale inclusions (CH)		6	SB	100			
7	END OF BORING		7	SB	100			

WATER LEVEL DATA
DATE: 2-8-95 TIME: 12:10 CAVE IN DEPTH: 10' WATER LEVEL: 12:10
2-8-95 12:10 HSA 10' 10' METHOD USED: 3 1/4" HSA 0-19 1/2"

BORING DATA
STARTED: 2-8-95 COMPLETED: 2-8-95 @ 13:05
METHOD USED: 3 1/4" HSA 0-19 1/2"

CREW CHIEF: M. Roberts

MIDWEST TESTING LABORATORY

JOB NO. B3798 LOG OR TEST BORING NO. 5 VERTICAL SCALE

PROJECT: Bill Welk Dam, Brown County, South Dakota

DEPTH FEET	SOIL DESCRIPTION	SURFACE ELEV.	NO.	TYPE	VALUE	LABORATORY TESTS	LL/PL	Q _u
1	SANDY LEAN CLAY-dark grayish brown to grayish brown, typical moist (CL)	1289.04	1	SB	54			
2	FAT CLAY-dark gray, very stiff, shale inclusions (CH)		2	SB	65			
3	*N value influenced by frost		3	SB	100/8			
4	END OF BORING		4	SB	100/8			

WATER LEVEL DATA
DATE: 2-8-95 TIME: 12:30 CAVE IN DEPTH: 10' WATER LEVEL: 12:30
2-8-95 12:30 HSA 10' 10' METHOD USED: 3 1/4" HSA 0-19 1/2"

BORING DATA
STARTED: 2-8-95 COMPLETED: 2-8-95 @ 13:20
METHOD USED: 3 1/4" HSA 0-19 1/2"

CREW CHIEF: M. Roberts

MIDWEST TESTING LABORATORY

JOB NO. B3798 LOG OR TEST BORING NO. 6 VERTICAL SCALE

PROJECT: Bill Welk Dam, Brown County, South Dakota

DEPTH FEET	SOIL DESCRIPTION	SURFACE ELEV.	NO.	TYPE	VALUE	LABORATORY TESTS	LL/PL	Q _u
1	CLAYEY SAND-dark brown, fine to coarse, dense, surface vegetation in upper 12", frost to 1 1/2", moist (SC)	1401.49	1	SB	22			
2	SANDY FAT CLAY-brown, stiff, trace of gravel, moist (CH)		2	SB	28			
3	FAT CLAY-dark gray, very stiff, shale inclusions (CH)		3	SB	100/8			
4	END OF BORING		4	SB	100/8			

WATER LEVEL DATA
DATE: 2-8-95 TIME: 12:30 CAVE IN DEPTH: 10' WATER LEVEL: 12:30
2-8-95 12:30 HSA 10' 10' METHOD USED: 3 1/4" HSA 0-19 1/2"

BORING DATA
STARTED: 2-8-95 COMPLETED: 2-8-95 @ 13:55
METHOD USED: 3 1/4" HSA 0-19 1/2"

CREW CHIEF: M. Roberts

MIDWEST TESTING LABORATORY

REPORT OF: TESTS OF SOILS

1900 Commerce St., P.O. Box 2084, Bismarck, North Dakota 58102
Phone: (701) 224-2441 Fax: (701) 224-2447

PROJECT: Bill Welk Dam, Brown County, South Dakota DATE: June 1, 1995

REPORTED TO: Ducks Unlimited, Inc. Attn: Doug Lipovsky 3802 Franklin Ave. Bismarck, ND 58101-0761

COPIES:

PROJECT NO. B3798

SAMPLE NUMBER	1	2
LOCATION:	Test boring 4, depth 2-4'	Test boring 5, depth 2-5'
CLASSIFICATION:	FAT CLAY WITH SAND	FAT CLAY
COLOR:	Dark grayish brown	Dark gray
ATTERBERG LIMITS:		
Liquid Limit	65	77
Plastic Limit	25	29
LABORATORY MOISTURE-DENSITY RELATIONS (see attached curves):		
Method	ASTM D698-91, Method A	ASTM D698-91, Method A
Optimum Moisture (%)	25.5	32.1
Maximum Density (lb/cu ft)	88.2	83.0
LABORATORY PERMEABILITY:		
Method	Falling head	Falling head
Specimen Density (lb/cu ft)	83.7	88.9
Saturated Moisture Content (%)	31.8	29.7
Coefficient of Permeability (cm/sec)	4.9 x 10 ⁻⁴	1.2 x 10 ⁻⁴
Remolded Moisture Content (%)	28.0	30.0

REMARKS: Material as represented by the above samples for permeability were remolded to 95 percent maximum dry density and at optimum moisture content. Samples were allowed to saturate prior to testing.

SIGNED: *[Signature]*

